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SWISS NATIONAL SURVEY ON OUTPATIENT CANCER REHABILITATION (2018-2020)

Final Report

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A. BACKGROUND

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1 OUTPATIENT CANCER REHABILITATION IN SWITZERLAND

In Switzerland, multi-professional outpatient cancer rehabilitation programmes have recently been introduced in all three language regions. In March 2018, the situation was as follows:

- Eleven outpatient programmes existed in the German-speaking part of Switzerland (two of which were under development),
- Four programmes had been implemented in the French-speaking part of Switzerland (including one under construction),
- One programme was in place in Ticino (at five different locations).

The development of most outpatient cancer rehabilitation programmes took place with the support of the Swiss Cancer League (KLS). In March 2018, all existing programmes claimed to be multi-professional and allegedly included at least four different disciplines.

At the start of this work, two different programme types were identified:

- 1) An individual modular programme with a duration of approximately three to four months per module and a total duration of six months to a maximum of twelve months on average.
- 2) Programmes with 12-16 weeks of exercise therapy (24-48 units) including individual therapeutic and advisory measures, education in the form of training or lectures, all measures tailored to patient needs.

In June 2016, SWISS REHA, the association of rehabilitation clinics in Switzerland, defined performance and quality criteria for outpatient cancer rehabilitation. The first feedback of the outpatient cancer rehabilitation centres existing at that time seemed to indicate that some of these criteria were nearly impossible to implement in practice. As an example, patients are requested to attend ten units of rehabilitation per week, which appears to be an exhausting load for patients during or immediately after cancer treatment. Furthermore, the kind of financing is still unclear. Hence, a certification of the existing outpatient cancer rehabilitation programmes according to the SWISS REHA criteria could address these challenging factors.

2 STUDY AIMS

The aim of this study, which was conducted between January 2018 and December 2019, was to identify and define achievable, evidence-based and differentiated performance and quality criteria specific to interdisciplinary outpatient cancer rehabilitation programmes. Ultimately, this study will lay the foundations for the

- 1) Recognition of interdisciplinary outpatient cancer rehabilitation (including quality criteria for certification) by all people involved in providing cancer rehabilitation in Switzerland,
- 2) Certification of existing and new interdisciplinary outpatient cancer rehabilitation programmes,
- 3) Promotion of quality standards in cancer rehabilitation in Switzerland,
- 4) Kind of financing of cancer rehabilitation.

In order to achieve these objectives, a two-phase survey was devised in collaboration with KLS. The first phase consisted of an international literature research aiming at itemizing the existence, guidelines, requirements, effectiveness, and cost-effectiveness of outpatient cancer rehabilitation programmes at an international level. The second phase took the form of a nation-wide survey, whose intent was to assess the existing interdisciplinary outpatient cancer rehabilitation programmes in Switzerland as well as, based on the international outcomes, to outline the potential future directions outpatient cancer rehabilitation and its certification could take in Switzerland.

B. INTERNATIONAL SITUATION ASSESSMENT

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1 INTRODUCTION

The international assessment was conducted to address the following four questions:

- (1) Which outpatient inter-/multidisciplinary cancer rehabilitation programmes do exist in other countries, how do they function and how are they financed?
- (2) Are there, in these countries, quality criteria in the form of recommendations or guidelines for outpatient inter-/multidisciplinary cancer rehabilitation?
- (3) How effective are outpatient inter-/multidisciplinary cancer rehabilitation programmes? Are there factors that can influence effectiveness?
- (4) How cost-effective are outpatient inter-/multidisciplinary cancer rehabilitation programmes?

To answer these questions, a targeted internet search (questions (1) and (2)) and two systematic literature reviews (questions (3) and (4)) were conducted.

As of here, *Outpatient Inter-/Multidisciplinary Cancer Rehabilitation* will be abbreviated by OMCR when needed. Furthermore, we decided to highlight important insights or summaries using the orange colour.

2 INTERNATIONAL SITUATION ASSESSMENT

2.1 MATERIALS AND METHODS

A targeted internet search was conducted to analyse the existence and content of OMCR in 15 countries: Australia (AU), Austria (AT), Belgium (BE), Canada (CA), China (CN), Germany (DE), Denmark (DK), France (FR), Italy (IT), Luxembourg (LU), The Netherlands (NL), Norway (NO), Sweden (SE), United Kingdom (UK) and the United States (US).

The countries analysed were selected based on one or both aspects listed below:

- Most of the information was in one of the languages the study group members understood (English, German, French, Italian, Norwegian, Swedish, Estonian, Finish or Chinese)
- Countries that were known by their high level in health care, including cancer rehabilitation (Scandinavian countries and the Netherlands)

To adhere to the same targeted internet search for each country, a search procedure was formulated (see Appendix 1.1.1). This procedure was composed of two main steps:

- (1) Review of the national cancer league's web page (if existing),
- (2) Conduct of a Google search with predefined keywords.

The aim of the targeted Internet search was to detect the following information on OMCR for each country:

- (1) Does OMCR exist or is OMCR provided in the country?
- (2) Are there OMCR guidelines?
- (3) Organisational aspects and content of OMCR:
 - a. Legislation: is there a law that regulates in which conditions cancer rehabilitation has to be provided?
 - b. Financing: how is cancer rehabilitation financed?
 - c. Start of the rehabilitation: does cancer rehabilitation start before/during/after the acute cancer treatment phase?
 - d. Recommendation: who informs the patient about the existence of cancer rehabilitation programmes and advises the patient for enrolment in the programme?
 - e. Responsible person: who leads the cancer rehabilitation programme?
 - f. Coordination: who coordinates the patient pathway within the programme?
 - g. Multi-professionality: who are the professionals involved in providing cancer rehabilitation?
 - h. Sports therapist/physiotherapist: are sports therapist and/or physiotherapist part of the rehabilitation team?
 - i. Interventions: what are the interventions offered to the patients?
 - j. Mandatory interventions: are some of the interventions mandatory? (list of the interventions that are provided to all the patients)
 - k. Duration: what is the entire duration of the OMCR?
 - l. Intensity: how often (frequency) and how long (time units) do the interventions take place?
 - m. Prerequisites: what are the prerequisites for a patient to attend an OMCR?
 - n. Information flow: how is the information flow organised in a multidisciplinary team?
 - o. Assessments: which kind of assessments are done and at which points during a patient pathway?
 - p. Quality criteria: do quality criteria or programme certification exist? If yes, what are the qualification criteria in use?

Each country's targeted search was documented in a Word file. Organisational aspects and contents of OMCR were summarized in table format using an Excel file. Also, a short summary was written for each country.

2.2 RESULTS

When reading the outcome of our analysis, the following points have to be taken into account:

- The data reflect the status as of August 2018. Cancer rehabilitation is a growing therapeutic domain. Since the time of our study, the situation is highly likely to have changed. Therefore, the past tense is used for displaying the study results in this section of the report.
- In the following tables, cells corresponding to countries for which no information could be retrieved or the information retrieved was unclear have been left empty. It does not mean that nothing exists. It only means that we were not able to find this information within our research using our search strategy.
- The sources used to fulfil all summary tables and write our country summaries were very diverse (e.g. scientific articles, national or regional guidelines).
- Sometimes when the information was found it was not always clear if the information was referring to inpatient rehabilitation, outpatient rehabilitation or both. We have tried our best to be as transparent as possible.
- In many countries, cancer rehabilitation is not streamlined across the country but fragmented and with high variability between regions, municipalities or states.

2.2.1 REHABILITATION IN NATIONAL CANCER PLANS AND CANCER REHABILITATION GUIDELINES

Internationally, rehabilitation is not a well-established component of cancer control plans. The EUROCHIP-3 results showed that in 2011, 18 out of 25 European Union countries (72%) reported cancer rehabilitation in their national cancer plan¹. This same study revealed that only four European Union countries had cancer rehabilitation guidelines in 2011: Denmark, Italy, the Netherlands, and Spain. Sweden and France were reported to prepare cancer rehabilitation guidelines¹.

Out of the 15 countries analysed for this work in 2018 (Table 2-1), six countries were identified as having national guidelines for outpatient cancer rehabilitation: the Netherlands (guidelines available in Dutch and English), Sweden (available in Swedish), Denmark (available in Danish), Germany (available in German). Austria displayed cancer rehabilitation guidelines as a part of a general Austrian rehabilitation guideline covering mostly inpatient care. Furthermore, several regional guidelines were detected as for instance guidelines for Wales (UK) or New South Wales (Australia). Also, evidence-based documents on cancer rehabilitation existed. These were published either by public or by private organisations.

Table 2-1 Summary of national cancer plan and rehabilitation guidelines for the 15 analysed countries (Status: 08.2018)

Country	Is there a national cancer plan		Is rehabilitation part of the national cancer plan		Do national guidelines for outpatient cancer rehabilitation exist?	
	Yes	No information could be found	Yes	No information could be found	Yes	No information could be found
Australia	X			X		X
Austria	X		X		X	
Belgium	X		X			X
Canada	X			X		X
China	X		X			X
Germany	X			X	X	
Denmark	X		X		X	
France	X			X		X
Italy	X		X			X
Luxembourg	X		X			X
The Netherlands		X	NA		X	
Norway	X		X			X
Sweden	X		X		X	
UK		X	NA		X	
USA		X	NA			X

2.2.2 OVERVIEW OF THE OUTPATIENT CANCER REHABILITATION IN THE 15 COUNTRIES ANALYZED

2.2.2.1 AUSTRALIA

At the time of our review, there were no national guidelines for outpatient cancer rehabilitation in Australia and rehabilitation services were not systematically included in standard care. However, some regional guidelines existed (e.g. New South Wales Rehabilitation Model of Care), and many hospitals and rehabilitation clinics have established their own rehabilitation standards (e.g. Calvary Rehabilitation Hospital).

A study by Dennett et al. (2017)² summarized the current practices in the country and stated the main barriers. Out of 163 public and 39 private hospitals, the study reported 31 cancer rehabilitation programmes that had a fixed structure and duration and were specific to the needs of cancer survivors. These programmes were typically multidisciplinary, ran twice weekly, provided education and exercise and included self-management strategies. Programmes were identified in six out of eight Australian states. These programmes were both in public and private settings and included both in- and outpatient programmes. As there were no separate analyses on outpatient rehabilitation only, we decided to rely on this data, which included three in- and outpatient programmes providing rehabilitation to cancer survivors with significant functional impairments².

The rehabilitation programmes differed by content, which could be attributed to the absence of national guidelines on how cancer rehabilitation should be organised. Exercise, however, was perceived as a key aspect by all the organisations providing rehabilitation².

Table 2-2 Summary of outpatient cancer rehabilitation measures in Australia



Indicator	
Outpatient cancer rehabilitation is provided	Yes, outpatient rehabilitation services offered in many clinics, but not a standard practice.
National outpatient cancer rehabilitation guidelines	No
Legislation	-
Financing	-
Start of the rehabilitation	Before, during or after treatment
Recommendation	Various sources, mainly oncologists
Responsible person	Multidisciplinary team
Coordination	Lead health personnel appointed by the multidisciplinary team. The most frequently, lead health personnel is an exercise physiologist.
Multiprofessional	Varies between clinics that offer rehabilitation.
Sports therapist vs. physiotherapist	Exercise programmes are typically supervised by physiotherapists (21/31) or exercise physiologists (20/31)

Interventions	Three pillars of rehabilitation: exercise, education and self-management. Disciplines contributing to programme: physiotherapy (77% of the clinics), exercise physiology (61%), medical (35%), nursing (45%), dietetics (68%), psychology (58%), social work (16%), occupational therapy (52%), speech pathology (6%), art/music therapy (6%), other (16%). In addition, education on exercise (81%), nutrition (71%), fatigue management (68%), relationships (45%), support services (45%), sleep management (61%) were provided.
Mandatory interventions	No
Duration	No consistent duration, but typically for 8 weeks
Intensity	No consistent intensity, but typically twice a week. Mean duration of interventions in minutes (SD) of exercise interventions: aerobic 24 (5), resistance 20 (6), other 11 (5).
Information flow	Multidisciplinary team meetings (hint to interdisciplinarity)
Prerequisites	Each clinic has a specific inclusion criterion, which is mainly based on the cognitive and medical stability of the patient.
Assessment	No common assessment measures. Current practice: (exercise assessment measures (aerobic capacity): 6-min walk test (74% of the clinics), BORG (35%), symptoms (61%), set time (6%), no basis (3%), not completed (3%), other (39%).
Quality criteria	-
Main barriers	Difficulties in referral process; difficulties in funding to provide additional therapies; travelling distances; the timing of programmes (low attendance in early morning sessions); programme promotion; car parking fees; low awareness of the benefits of cancer rehabilitation among doctors and patients; lack of established rehabilitation programmes; absence of national guidelines/recommendations.

2.2.2.2 AUSTRIA

In Austria, inpatient rehabilitation was the main type of rehabilitation provided to cancer patients according to the rehabilitation guidelines of 2016³. Only a short general section was dedicated to outpatient rehabilitation in general and stated that outpatient rehabilitation should be provided to people living up to 50 km from the centre. If a person lived further away, inpatient rehabilitation should be preferred³. Further details on measures provided, eligibility criteria etc. for oncology patients were also described in this rehabilitation plan, based on information by the Austrian Cancer League, outpatient

cancer rehabilitation was provided by three clinics (Ambulantes Rehabilitationszentrum Wiener Neustadt, Lebens.Med Zentrum St. Pölten and Krankenhaus Bamherzige Schwestern Linz). Each of the three clinics offered some material for patients on their website. In general, there was very limited information available on the internet about the details of (national) outpatient rehabilitation programme.

Table 2-3 Summary of outpatient cancer rehabilitation measures in Austria



Indicator	
Outpatient cancer rehabilitation is provided	3 outpatient programmes: Linz, St. Pölten, Wien
National outpatient cancer rehabilitation guidelines	Planned, but no info if already existing. Outpatient rehabilitation offered in 3 clinics, but inpatient rehabilitation was more common.
Legislation	Landesrecht konsolidiert Burgenland: Gesamte Rechtsvorschrift für Organisation und Finanzierung des Gesundheitswesens
Financing	Covered by health insurance (Pensionsversicherung)
Start of the rehabilitation	After treatment
Recommendation	By treating hospital (not specified by whom)
Responsible person	Physical medicine and rehabilitation specialist or internal medicine specialist (Facharzt IM oder PMR (vorzugsweise mit Hämatologie & internistische Onkologie))
Coordination	-
Multi-professional	Physiotherapist, ergotherapist, dietician, psychiatrist, social worker, masseur, orthopaedist, sports scientist, art therapist, creative therapist
Sports therapist vs. physiotherapist	-
Interventions	Physiotherapy, ergotherapy, physical therapy, lifestyle counselling
Mandatory interventions	-
Duration	6-8 weeks (total of 60 units)
Intensity	2-4 days/week
Information flow	-
Prerequisites	Insurance
Assessment	-

Quality criteria	-
Main barriers	-

2.2.2.3 BELGIUM

Belgium had a national cancer plan (2008-2010)⁴, in which 35 axes were defined. This plan seemed to be still referred to and worked on in 2018. Axis number 19 of the Belgian national cancer plan (“Développer la revalidation fonctionnelle du patient cancéreux en état de rémission”) focused on post-cancer functional rehabilitation. A specific measure of this axis was to launch a study in three phases with women having suffered from breast cancer and aiming at assessing the effectiveness of multidisciplinary cancer rehabilitation. The implementation of this project was monitored for the *Institut National d'Assurance Maladie Invalidité* (INAMI) by an Accompaniment Committee chaired by a member of the administration of the INAMI. This committee was composed of representatives of the coordinating hospital—UZ Gent—, of insurers, a representative of physiotherapists, a representative of general practitioners, a representative of specialist doctors and a representative of hospitals⁵. The results of this study should have been published in 2016⁵. However, the website of the study sponsor's (the INAMI) stated that the research was still in progress but was last updated on March 25th 2015⁶.

At the time this report was written (October 19th, 2018) and following our search methodology, we could not find any indication of a systematic outpatient cancer rehabilitation programme following national guidelines in Belgium. There were a political will and on-going research to implement such a coordinated programme. However, we only found information on outpatient rehabilitation programmes that emerged as a non-coordinated single action. The table below was completed using the data gathered reading through the local initiatives^{7,8}.

Table 2-4 Summary of outpatient cancer rehabilitation measures in Belgium



Indicator	
Outpatient cancer rehabilitation is provided	No. Only local initiatives in some Belgian hospitals
National outpatient cancer rehabilitation guidelines	-
Legislation	-
Financing	INAMI and health insurance
Start of the rehabilitation	During or after treatment
Recommendation	-

Responsible person	-
Coordination	-
Multiprofessional	-
Sports therapist vs. physiotherapist	-
Interventions	Physical activity and psychosocial support
Mandatory interventions	-
Duration	10 to 12 weeks
Intensity	2 or 3 times per week a 1.5 to 2 hours for physical activity
Information flow	-
Prerequisites	-
Assessment	-
Quality criteria	-
Main barriers	-

2.2.2.4 CANADA

There were no national cancer rehabilitation guidelines. The study by Canestraro, et al. (2013) mapped the situation of cancer rehabilitation in Canada: out of 62 sites that completed the survey (response rate 53.4%), 20 reported having a formal outpatient programme. Most of the identified cancer rehabilitation programmes were in a hospital outpatient setting ($n=10$) or a community-based setting ($n=5$). One programme was home-based and two in an inpatient setting; two programmes did not indicate the setting. 55% of the sites that do not offer cancer rehabilitation reported that patients are referred to non-specific rehabilitation programmes or private clinics⁹.

The study by Canestraro, et al. (2013)⁹ provided some insight into the content and organisational aspects of cancer rehabilitation in Canada, but as the number of programmes was small and the response rate low, we were lacking a comprehensive overview. Nevertheless, it seemed that cancer rehabilitation was not part of a standard care plan and that various hurdles contributed to a lack of cancer rehabilitation programmes⁹.

Table 2-5 Summary of outpatient cancer rehabilitation measures in Canada



Indicator	
Outpatient cancer rehabilitation is provided	Outpatient cancer rehabilitation was offered (at least) in 15 clinics in 2013.
National outpatient cancer rehabilitation guidelines	No
Legislation	-
Financing	The main source of financial support for the programme is government funding or donation by charitable and private organisations. No info about costs for patients.
Start of the rehabilitation	During or after the treatment
Recommendation	Often oncologist, but may also be a general practitioner, physiatrist, surgeon, nurse, social worker, physiotherapist, or a self-referral.
Responsible person	No fixed leader, but often physiotherapist
Coordination	-
Multiprofessional	Dietician, occupational therapist, ostomy therapist, physiotherapist, recreational therapist, rehabilitation nurse, social worker or psychologist, speech-language pathologist, spiritual care worker, vocational rehabilitation counsellor, oncologist, general practitioner, pharmacist, kinesiologist, exercise physiologist, internist, rehabilitation physician
Sports therapist vs. physiotherapist	Physiotherapist and exercise physiologist
Interventions	Education (around symptom management, recreation, and activity), exercise (aerobic and strength training), physiotherapy, relaxation, occupational therapy, pain management, sleep management, complementary therapies (including massage, acupuncture, yoga, meditation)
Mandatory interventions	No
Duration	No consistent duration. Varies from 8-30 weeks between sites.
Intensity	No consistent intensity. Varies from 1 to 5 times per week between sites.

Information flow	-
Prerequisites	-
Assessment	No mandatory assessments, but most popular: The Numeric Pain Rating Scale, Manual Muscle Testing, goniometry
Quality criteria	-
Main barriers	Lack of funding; difficult access to space, equipment, and health care professionals; difficulties in referrals; mostly available in urban areas; rehabilitation often does not meet patients' needs.

2.2.2.5 CHINA

In China, the National Cancer Centre and Cancer Registry were affiliated with Cancer Hospital Chinese Academy of Medical Science. There were no national guidelines for outpatient cancer rehabilitation. Nevertheless, China provided a National Plan for Non-Communicable-Diseases Prevention and Treatment 2012-2015¹⁰, (updated version could not be found), and which contained a reference to cancer and rehabilitation.

Outpatient cancer rehabilitation was only mentioned in hospital services. The rehabilitation included psychosocial, nursing, nutrition, pharmacology, tobacco quitting, law-counselling services provided by public hospitals, and physical therapy, pain management by one private hospital. No further information about legislation or finance and no mandatory interventions were found.

According to a WHO publication on National Cancer Control Plans¹¹, the main problem encountered in China was insufficient funding.

In conclusion, no strategy or guidelines of outpatient cancer rehabilitation in China existed. Rehabilitation was provided by hospitals and clinics, but there was only little detailed information about how rehabilitation was carried out. However, some progress in palliative care education and practice, including a priority on rehabilitation in the cancer plan of the Institute of oncological nursing and pain management, was observed.

Table 2-6 Summary of outpatient cancer rehabilitation measures in China

Indicator	
Outpatient cancer rehabilitation is provided	Yes



National outpatient cancer rehabilitation guidelines	No
Legislation	Not clear
Financing	Not clear
Start of the rehabilitation	Some after surgery, others not clear
Recommendation	Yes
Responsible person	Nurse, physical therapist etc.
Coordination	Not clear
Multi-professional	Not clear
Sports therapist vs. physiotherapist	Not clear
Interventions	Not clear
Mandatory interventions	No
Duration	Not clear
Intensity	3 days/week, 3 hours each session
Information flow	Not clear
Prerequisites	Not clear
Assessment	Not clear
Quality criteria	Not clear
Main barriers	Finance, trained personnel

2.2.2.6 DENMARK

Denmark had published a progress programme, which sets goals and described the desired situation in Denmark regarding cancer rehabilitation and palliative care¹². Also, national guidelines for rehabilitation that municipalities were in charge to arrange, were available¹³.

Cancer rehabilitation was provided by municipality health care centres, hospitals, but also by private organisations. Similarly to other Scandinavian countries, Denmark cancer care policy emphasized community-level rehabilitation services. On the one hand, municipalities were responsible for organising basic cancer rehabilitation, which took place in close proximity to patients' home and was offered in an outpatient setting. On the other hand, hospitals were required to provide specialized rehabilitation for

patients with more complex rehabilitation needs. The hospital was fully responsible for patient rehabilitation as long as patients were hospitalized. In an outpatient setting, the hospital was responsible for the treatment only, and the task of rehabilitation could be divided between the general practitioner (municipal level) and the hospital¹². Furthermore, there were private organisations that provided rehabilitation and appeared to have been funded by cancer societies. If a patient wished to, he/she could decide to visit private health care providers (e.g. physiotherapists), but these appointments were not free of charge.

The Danish cancer league estimated that around 70% of cancer patients did not have complex rehabilitation needs and may have been rehabilitated within the framework of the municipalities in close cooperation with the general practitioner. The focus of this type of rehabilitation was to provide written and oral information about the disease, treatment, and offering lifestyle education. The Danish cancer league identified another 25% of cancer patients who were in the need of specialized effort (e.g. patients who suffered late treatment or cancer effects). These patients should be enrolled in the specialized rehabilitation programme at the hospital that had treated them. The remaining 5% of cancer patients identified had highly complex needs for rehabilitation and required a significant interdisciplinary effort¹⁴.

There were, at the time of our study, 98 municipalities in Denmark, which varied in size and number of inhabitants between 1800 and 591000 people¹⁵. In 2013, a study was conducted to assess the availability and content of municipal cancer rehabilitation¹⁶, and in 2016, a follow-up study was performed¹⁵. 93 out of 98 municipalities participated in the follow-up study and 92 of them reported providing cancer rehabilitation services, which covered physical activity, psychological support and help on regaining the ability to work¹⁵. The main interventions that were provided within the framework of municipal cancer rehabilitation were group-based physical activity, dietary advice, smoking cessation course, counselling in physical activity, individual physical activity and general patient education¹⁵. 25 municipalities (27%) reported collaborating with other municipalities, for example, the shared provision of services or courses for staff. 78 responders (84%) reported cooperating with private and/or voluntary providers, e.g. with cancer societies¹⁵.

Table 2-7 Summary of outpatient cancer rehabilitation measures in Denmark

Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	Yes. Progress programme for cancer rehabilitation and palliative care (published in 2012)
Legislation	Based on the Health Act, municipalities are responsible for providing rehabilitation.



Financing	Rehabilitation is covered by public insurance, which means that it is free for all the patients. If a patient wishes to use a private service, he/she must pay for that.
Start of the rehabilitation	During or after treatment.
Recommendation	General practitioner or oncologist/medical staff at hospitals or self-referral
Responsible person	-
Coordination	In the municipal level, general practitioner
Multiprofessional	Doctor, nurse, social and health assistant, physiotherapist, ergotherapist, social counsellor, clinical dietician, psychologist, neuropsychologist, speech and language therapist, priest, job consultant.
Sports therapist vs. physiotherapist	Physiotherapist and ergotherapist
Interventions	Physiotherapy, physical training, counselling by a psychologist, smoking cessation courses, dietary advise, physical training counselling, patient education, relaxing training, occupational therapy, self-help groups, labour market retainment, lymphedema treatment, sexual counselling, (not a comprehensive list)
Mandatory interventions	No
Duration	-
Intensity	No info about the average intensity of the programmes. Example: The Centre of Copenhagen: strength and cardiovascular training twice a week ¹⁷
Information flow	-
Prerequisites	-
Assessment	Different assessment schemes in different regions, but all are inspired by/similar to Distress Thermometer. Based on the guidelines, needs assessment (to detect whether a patient needs rehabilitation) should be complemented with an in-depth study by professionals who provide rehabilitation interventions to detect the exact needs. To track the patients' development, different methods are used, the most common being changes in physical function, changes in quality of

	life, patient satisfaction, goal achievement concerning citizen's own goal.
Quality criteria	No national quality criteria/monitoring system, but national guidelines encourage municipalities/regions to monitor whether the programme fulfils its purpose and functions as intended.
Main barriers	Inequality in referral by ethnicity (mainly due to language barriers), gender (men have a negative attitude) socially vulnerable patients; lack of needs assessment tools; challenges in ensuring collaboration and referral of patients between hospitals and municipalities; inadequate evidence of rehabilitation.

2.2.2.7 FRANCE

One of the first difficulties encountered whilst looking for information on outpatient inter-disciplinary cancer rehabilitation in France was to understand and decide which French concept or word best suited our research question. After unfruitful searches using the words “réhabilitation”, “réadaptation”, “soins de suite”, and “soins de support”, a decision was made to use the concept of “soins de suite et de Réadaptation” (SSR) to try and gain insights as to how a patient is cared for during and after the acute cancer treatment phase.

France had a national cancer plan for 2014-2019¹⁸. It was the third national cancer plan issued and its seventh objective “Ensure global and personalized support” (*Assurer des prises en charge globales et personnalisées*) included actions aiming at improving the follow-up and rehabilitation care (SSR).

It appears essential to first explain the cancer patient pathway in France as of 2018¹⁹.

1. The disease notification consisted of multiple stages. The first stage, when a patient had been diagnosed with cancer, was the definition of a therapeutic strategy during a multi-disciplinary consultation meeting (*Réunion de Concertation Pluri-disciplinaire*, RCP). Few days, after the disease notification, the therapeutic strategy was presented and explained to the patient. Once the therapeutic strategy was understood and accepted by the patient, it was shared both with the patient and his/her general practitioner (GP) in the form of a personalized care programme (PPS). This PPS was composed of a medical part concerning treatment, a supportive care part as well as a list of important contacts. There did not seem to be a standardized document for the whole of France. During the second stage, the patient got in contact with the caregivers, usually a nurse, who listened to the patient's demands and if the need was, referred the patient to other professionals. The third stage consisted of meeting with the supportive care team, which supports and guides the patient in its administrative and social procedures or provide appropriate specialized support (nutrition, psychological support etc....). During all stages, the

GP was kept informed (in particular in case of hospitalization) and remained the privileged interlocutor of the patient and therefore had to be involved in the care process.

2. Acute treatment phase.
3. The post-treatment phase: The acute treatment phase ended with an end-of-treatment consultation, which was seen as the patient handover from the oncological team to the GP. This handover should have been accompanied by personalized surveillance and a follow-up programme for the after cancer period. To improve this handover, and as a part of the second National Cancer plan (2007-2013) France piloted a PPAC (Plan Personnalisé Après Cancer)²⁰. In the third National Cancer plan, measure 7.4 aimed at further extending the use of the PPAC and thereby improve the handover and guarantee a better articulation town – hospital (understand GP – hospital)¹⁸. Furthermore, the *Institut National du Cancer* (INCa) developed an interactive tool to help the GP understand his role in the cancer care organisation²¹.

The care following cancer treatment (*Soins de Suivi et de Réadaptation*, SSR) was organised at a territorial level under the aegis of the ARS (Agence Régionale de Santé). The SSR was not cancer-specific but covered a wide range of diseases and were mostly inpatient programmes. The *Association Francophone des Soins Oncologiques de Support* (AFSOS) developed interregional referential (RIR) specific to cancer, which were synthetic documents to assist in the management, diagnosis, therapy, and follow-up of cancer care, and intended to harmonize standard practices in supportive oncology care. RIRs were developed and updated based on existing national or international recommendations (*Haute Autorité de la Santé*, HAS) as well as consensus meetings and expert practices in the regions (Evidence-Based Medicine)²². These RIRs should have been used and implemented by the cancer SSR.

SSR were part of the cancerology sector (*la filière oncologie*), which included the following main players²³:

1. *The short stay:*
 - Medical, surgical and oncology services, with dedicated palliative care beds;
 - Palliative care units (USP) ;
 - MCO (Obstetrical surgical medicine).
2. *SSR (full and part-time hospitalization):*
 - Multi-purpose SSR, onco-hemato, geriatrics, specialized SSR (in the context of organ pathology: locomotor, pneumology, neurology,...)
 - SSR palliative care beds.
3. *HAD (Hospitalisation at Home), in particular for palliative care;*
4. *Long-term care (LTC) facilities or residential facilities for elderly and dependent people (EHPAD), or for independent elderly people (EHPA);*

5. City ambulatory resources:

- Networks and channels:
 - Geriatric field,
 - Cancer networks and other health networks, such as the organisation and support for appropriate physical activity management;
- Paramedical acteurs (speech therapist, physiotherapist...) from the city, liberal sector or within a specific service (SSIAD – Service de Soins Infirmiers à Domicile).

To assess the status of supportive care in France the AFSOS conducted two observational studies (S1 and S2)^{24,25}. The conclusions of the S2 study published in 2017 were that: “patients are rarely proposed SCC [Supportive Cancer Care] consultations and care”; “those rare patients who benefit from SCC do so as a component of palliative care. There is no comprehensive SCC approach and less management of quality of life at the curative stage. Unfortunately, SCC is still perceived as a palliative approach”²⁵.

Finally, another important measure of the third French cancer plan was to enable all patients to be the acteurs of their own care. Therefore, France aimed at:

- Ensuring that adapted information was accessible to patients and their families (Measure 7.13),
- Promoting the development of educational therapeutic programmes (ETP: Education Thérapeutique du Patient) to patients (measure 7.14). These plans had already been implemented in certain regions of France (e.g. Alsace²⁶) and aimed at promoting the patient autonomy, reduce the severity of side effects associated with the therapy, empower the patient and improve quality of life and compliance.

As a conclusion and based on the information we were able to gather, there seemed to be no interdisciplinary outpatient cancer rehabilitation programmes coordinated at a national level in France. The GP was the main contact of the cancer patients and coordinated the patient's treatments based on the patients' needs. Lastly, some local initiatives need to be mentioned as they were the closest to outpatient cancer rehabilitation programmes in Switzerland (*/les centres resources*)²⁷.

Table 2-8 Summary of outpatient cancer rehabilitation measures in France



Indicator	
Outpatient cancer rehabilitation is provided	Not clear
National outpatient cancer rehabilitation guidelines	-
Legislation	-
Financing	-
Start of the rehabilitation	-

Recommendation	-
Responsible person	-
Coordination	-
Multiprofessional	-
Sports therapist vs. physiotherapist	-
Interventions	-
Mandatory interventions	-
Duration	-
Intensity	-
Information flow	-
Prerequisites	-
Assessment	-
Quality criteria	-
Main barriers	-

2.2.2.8 GERMANY

At the time of our research, cancer rehabilitation (and rehabilitation in general) was still mostly inpatient treatment; only about 20% of all rehabilitation was done on an outpatient basis²⁸.

Outpatient rehabilitation was recommended if travelling time was 45 minutes one way or less. However, recommendations on outpatient cancer rehabilitation in Germany were defined by Bundesarbeitsgemeinschaft für Rehabilitation in 2004 (*Rahmenempfehlungen zur ambulanten onkologischen Rehabilitation*, Januar 2004²⁹). They were still referred to in many documents and we were at the time of the study not aware of an on-going update of these recommendations. Rehabilitation, in general, was described and regulated by *Rehabilitations-Richtlinie* (Oktober 2015)³⁰ and cancer rehabilitation by "*Leitlinie zur Rehabilitationsbedürftigkeit bei onkologischen Krankheiten*" (2011)³¹. Both documents described in very much detail who was entitled to rehabilitation measures and who covered the costs. Patients were entitled to rehabilitation measures if they had functional deficits and a positive prognosis (i.e., the deficit will improve with rehabilitation) ("*Leitlinie zur Rehabilitationsbedürftigkeit bei onkologischen Krankheiten*", 2015). Generally, the patient had to have the need for a rehabilitation measure ("*Rehabilitationsbedürftigkeit*"), they had to be physically able to participate ("*Rehabilitationsfähigkeit*") and the prognosis of the rehabilitation had to be positive (i.e., improvement

of the patient's condition, "*Rehabilitationsprognose*"). The physician and other members of the team developed an individual rehabilitation plan for each patient. The rehabilitation was led and coordinated by a physician with at least 2-year experience in rehabilitation medicine. The physician was supposed to organise patient-centred team meetings at least once a week and provide a final evaluation at the end of the rehabilitation measures.

Table 2-9 Summary of outpatient cancer rehabilitation measures in Germany



Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	Yes (see ref. 1)
Legislation	Sozialgesetzbücher V, VI, IX and XI: patients have a legal right to claim medical rehabilitation
Financing	Pension funds only pay if the patient had an insured occupation for at least 6 months in the 2 years before the application for rehabilitation. Pension funds cover ambulant rehabilitation completely (see: "Leistungen zur Teilhabe am Arbeitsleben (LTA) Rahmenkonzept der Deutschen Rentenversicherung")
Start of the rehabilitation	After treatment
Recommendation	The patient should talk directly during the treatment to the responsible doctor or "Sozialdienst" in the hospital and apply for rehabilitation if the physician confirms that this is necessary/helpful.
Responsible person	The physician responsible for primary treatment or "Sozialdienst" in the hospital.
Coordination	Interdisciplinary team
Multi-professional	Physician, physiotherapist, sports teacher/sports therapist, masseur/medical "Bademeister", psychologist, ergotherapist, social worker, dietician, nurse, stoma therapist, incontinence consultant, prosthesis consultant, pastor
Sports therapist vs. physiotherapist	-

Interventions	Education & consulting, dietary advice, sexual advice, prosthesis counselling, social therapy, career advice, occupational therapy, health training, stoma and incontinence treatment, drug therapies, physiotherapy, physical therapy, sports therapy, psychological therapy
Mandatory interventions	No, individual approach
Duration	Generally 3 weeks, but a maximum of 20 treatment days
Intensity	On average 5-6 days a week for 4-6 hours.
Information flow	Regular meetings of the team (once per week)
Prerequisites	Cancer treatment is finished; the patient is motivated and physically and psychologically capable of doing rehabilitation. A disability resulting from cancer must be treatable or at least be reduced by the rehabilitation.
Assessment	No information found.
Quality criteria	Yes. Consists of structural quality, process quality, outcome quality. (see ref. 1 & 4)
Main barriers	Cooperation between primary cancer centres, rehabilitation follow-up care, and rehabilitation centres is poor.

2.2.2.9 ITALY

As summarized in the EUROCHIP-3 project, in Italy rehabilitation was included in the national cancer plan since 2010. It was mentioned that there were cancer rehabilitation guidelines available as well as training courses for workers in rehabilitation. Rehabilitation services for cancer patients were offered in Italy in general rehabilitation centres and in general, private, community and university hospitals as well as health centres. Also, counselling services were available for cancer patients and family members. Italy agreed upon collection of quality of life questionnaires, but the EORTC was used only in research settings.

A detailed description of the evolution of general and cancer rehabilitation in Italy is given based on the information we gathered during our analysis:

1998 the first guidelines for rehabilitation activity in Italy were published by the Ministry of Health and approved by the permanent conference of the State and Regions on May 7, 1998³². There was at that time no special focus on cancer rehabilitation.

These guidelines aimed to provide directives for the organisation of the service network of rehabilitation and general criteria for rehabilitative interventions that could be activated within the uniform levels of

assistance provided for by the National Health Plan (PSN), adopting as reference a model of an integrated socio-health path, without prejudice to the autonomy of the regions and autonomous provinces.

In the year 2003, an Italian regulation was approved (decree-law n° 276/2003, article 46, an amendment of decree-law n° 61/2000, article 12 bis), which prescribed the right for cancer patients working in the private sector to switch from full-time to part-time positions while under treatment, and to reverse to full-time according to their needs and capability at the end of the therapy. The same right was extended to public employees in 2007 (law n° 247/2007, article 1, and subsection 44). Within the same legal framework, relatives (caregivers) of cancer patients were given priority over part-time applications as long as there were positions available.

In 2003 FAVO was founded as the "Italian Federation of Voluntary Associations in Oncology" at the service of cancer patients and their families. FAVO aimed at creating synergies between voluntary associations and ensuring an institutional representation for the recognition of new needs and new rights. FAVO had at the time of research 194 registered users³³.

In addition, since 2009 there has been an observational study on the welfare condition of cancer patients³⁴ within the FAVO with members of the various cancer organisations: FAVO, the AIOM, SIPO, AIRTUM, SICO, MI. The project aimed to inform regional authorities about the organisation and preparation of rehabilitation activities in their own areas.

In 2008, the FAVO made its first important contribution with regards to cancer rehabilitation by publishing "the White Book"³⁵ (Libro Bianco) in collaboration with the Fondazione IRCCS Istituto Nationale dei Tumori. In this book, FAVO condemned the lack of rehabilitation as the equivalent to a denied right. The White Book was one of the biggest efforts, which could be found within this search to put together a detailed strategy/guidelines for cancer rehabilitation. It was the result of the work realised by a group involving several important associations in the field of oncology and supported and financed by the ministries of Health, of Work and Social Policies. The White Book displayed important aspects and new challenges of cancer rehabilitation. The quantitative data revealed in the White Book were based on a 2006 survey, in which 980 health institutions and associations had been included.

Since 2009 FAVO has been publishing a report on the state of care of cancer patients every year,³⁶ presenting it officially at the National Day of Cancer Patients

As an example, the 2016 report showed a total of 67 millions of medical interventions (diagnostic, laboratory, therapeutic etc.) and 1 million of rehabilitation interventions (1.6%). The largest part of the rehabilitation interventions (45%) accounted for physical activity, physical restoration, and strengthening. The intensity of the physical activities for physical re-education and recovery was 10 sessions of 30 minutes. A little part counted for physical re-education interventions in groups: 5 patients, 10 sessions of 30 minutes. The second most frequent intervention (17%) was lymphatic drainage with an average duration of 30 minutes per session.

In 2009, the state issued the Oncology Strategy 2010-2012³⁷. The strategy was adopted by the Conference of State Regions. Oncological rehabilitation was referred to only in a small section of the strategy (3.2.2 Riabilitazione per i malati oncologici) with no special focus on the future planning of cancer rehabilitation. This national cancer strategy seemed to be still referred to in 2018 and there seemed not to have been any further cancer strategy published.

Since 2010, further researches, agreements, and guidelines concerning rehabilitation in general or cancer rehabilitation have been elaborated and published:

Two nationwide research programmes started in 2010 to provide an evidence base to reform the national care plans and address the needs of the growing number of Italian people with a history of cancer. Mattioli et al.³⁸ stated that the main barriers for adequate access to care were: patient-related barriers including reluctance to report pain, fear of side effects, fear of distracting physicians from cancer surveillance, and belief that pain is indicative of cancer progression or recurrence; professional barriers including lack of knowledge of the principles of pain relief, management of side effects, and treatment of neuropathic pain; system-related barriers including low referrals to supportive care services, as well as external system barriers including reimbursement and regulatory constraints.

In 2011, there was a national agreement for “rehabilitation in general” between the government and the regions³⁹ (remark: the health system in Italy is regional) providing guidelines for the rehabilitation of the Italian population. This agreement was based on the first guidelines for rehabilitation of 1998 and it seems to be a key official document. In this document, outpatient rehabilitation was discussed, among the other forms of rehabilitation (inpatient, daycare rehabilitation, rehabilitation at home, etc.). This national agreement, however, was not specific to cancer.

Furthermore, the Italian Ministry of Health published in 2011 in collaboration with a large number of associations and scientific institutions one issue⁴⁰ of the Quaderni della Salute (Health notebooks): The centrality of the person in rehabilitation: new organisational and management models. Foreword and Introduction were also in English. The scenario of growing chronic conditions for the upcoming decades and the challenge of their management and disability prevention had prompted the Italian Ministry of Health to review the guidelines issued in 1998. The review aimed to improve rehabilitation by establishing a strategy that would encompass patient care, patient assessment, the design of a rehabilitation project and the implementation of a specific programme focused on the individual. At the same time, it was recognized that a revision of the outcome identification and evaluation, as well as the criteria for intervention suitability, was required. Thus, the document gave further recommendations as to how a unique rehabilitative programme should be defined. A chapter (p82-p85) was dedicated to oncological rehabilitation.

Since 2011, except for the annually published report on the state of care of cancer patients of FAVO⁴¹, no other concepts or guidelines on a national level had been published.

In 2017, another concept paper was published with regards to the clinical implementation of exercise guidelines for cancer patients in an adaptation of ACSM’s guidelines to the Italian model (Stefani et al. 2017)⁴². The purpose of this review was to outline an evidence-based model to evaluate cancer patients

and provide guidelines for post-cancer treatment rehabilitation programmes. The Italian model for cancer rehabilitation for complete lifestyle restoration was a multidisciplinary model, organised around the sports medicine physician and supported by ancillary health care professionals such as physical therapists, occupational therapists, nutritionists and exercise trainers. The entry of a patient for an “exercise medicine programme” was initiated by the oncologist, while the evaluation and the assessment of the programme needed for the patient required a specific competence in sports medicine.

In the context of the 45th National Congress SIMFER of Rehabilitation Medicine in Genoa (October 2017) 265 abstracts had been published out of which only 8 displayed a reference to cancer⁴³.

For the years of 2018 to 2023, there seemed to be a legislative agreement between patient associations, the technical and scientific committee, the national parliamentary intergroup, regional intergroup and participants in the project “Health: A good to be defended, a right to be promoted” for the correct and uniform care of the oncological and onco-haematological patient⁴⁴. Here again, cancer rehabilitation was not specifically addressed.

To sum up, after studying and compiling all the above-mentioned documents the impression was, that despite many national recommendations, platforms, workgroups, and even guidelines and models, there is little evidence that these guidelines and recommendations were really used and applied. It seemed to be highly region-dependent.

A large amount of contribution to the evolution of the cancer rehabilitation came from the FAVO, starting with the white book in 2008. The role of the state was not clear. Nevertheless, the state appeared to support the organisations and their concepts, sometimes even financially, and to bring the proposals to the permanent conference of the state and regions for approval.

It is interesting to note that there seemed to be a commitment as to what cancer rehabilitation should provide: every person who needs rehabilitation should have access to it, rehabilitation should make part of the continuum of care, the organisational model of the network is an important aspect in cancer rehabilitation etc. However, little seemed to be known about the variation between the regions regarding the degree of implementation of cancer plans and rehabilitation guidelines.

Table 2-10 Summary of outpatient cancer rehabilitation measures in Italy



Indicator	
Outpatient cancer rehabilitation is provided	Yes, but only region-specific offers
National outpatient cancer rehabilitation guidelines	There is a national agreement between the government and the regions (health system in Italy is regional) for rehabilitation in general but no national.
Legislation	No information could be found
Financing	<p>The Italian Public Health System provides cancer patients with free medical, social services, and insurance coverage, but it does lack a definite welfare agenda addressed specifically to those patients who are considered to be “cured” of cancer.</p> <p>Nevertheless, many health problems of cancer survivors are treated free of charge or through a very modest cost via outpatient services.</p> <p>This health coverage (i.e. professional services of pain management, psychotherapy, physical rehabilitation, cardiology, pneumology, reconstructive surgery, etc.) is usually prescribed by the general practitioner, oncologist or another specialist during routine follow-up visits. Despite these valuable services, Italy still has no comprehensive rehabilitation programme or guidelines on how to meet cancer survivors’ needs.</p>
Start of the rehabilitation	Region-specific: Before, during or after treatment or no rehabilitation.
Recommendation	Patient must be referred by a physician, general practitioner, oncologist, specialist of rehabilitation or sports (not clear)
Responsible person	-
Coordination	-
Multiprofessional	Yes
Sports therapist vs. physiotherapist	physical therapists, exercise trainers (concept paper 2017)

Interventions	Mostly physical activity, lymphatic drainage, and psychosocial support
Mandatory interventions	-
Duration	-
Intensity	The intensity of the physical activities for physical re-education and recovery is 10 sessions of 30 minutes. Information is scarce, not clear how many times per week.
Information flow	The absence of an established, well-utilized network of communication, information sharing, sharing of the objectives among all the health professionals involved in cancer survivors' care.
Prerequisites	-
Assessment	ECG, blood pressure, monitoring, body composition, strength, flexibility, quality of life (concept paper 2017)
Quality criteria	-
Main barriers	Patient-related barriers such as reluctance to report pain, fear of side effects, fear of distracting physicians from cancer surveillance, and belief that pain is indicative of cancer progression or recurrence. Professional barriers include lack of knowledge of the principles of pain relief, management of side effects, and treatment of neuropathic pain. System-related barriers include low referrals to supportive care services, as well as external system barriers including reimbursement and regulatory constraints.

2.2.2.10 LUXEMBOURG

The below report is mainly based on the interview realized on June 22nd, 2018 with Mr Diederich, Directeur Santé et Spa Domaine thermal de Mondorf-les-bains.

In 2014, Luxembourg made rehabilitation one of the priorities of its national cancer plan (2014-2018)⁴⁵. Luxembourg national cancer plan was articulated around ten main axes, one of which, the axis number seven focused on post-cancer rehabilitation. The overall objective of axis seven was to improve the

quality of life of people with cancer by reducing the impact of cancer on personal and family life. Additionally, this axis addressed the following specific objectives:

- Limit hospital re-admissions due to nutritional, psycho-oncological or socio-economic problems,
- Mitigate the economic and social consequences of cancer,
- Prioritize job continuity or reintegration,

The first measure being implemented to reach the objectives was the development of specific inpatient and outpatient rehabilitation offers in oncology in Luxembourg. The first inpatient post oncological rehabilitation centre opened in April 2018 in Colpach. The outpatient rehabilitation centre was planned to be located at the "Domaine thermal Mondorf-Les-Bains". Its opening was foreseen for Quarter one 2019. A decision was made to offer both types of programme (outpatient and inpatient) to ensure that everyone has easy access to cares.

At the time of the interview, there were no guidelines published. The aspired functioning of these centres was however precisely described in a presentation⁴⁶. It was planned to have the operating principles of rehabilitation in Luxembourg stated in the law.

A coordination doctor, approved by Colpach and Mondorf centres, was thought to be involved very early in the patient path and to participate in the multi-disciplinary meetings, which take place in the different hospitals of the country. Should an oncologist think that rehabilitation could be good for his patient, he would address the patient's record to the coordination doctor, who in his turn would decide based on the patient's record, health state and constraints if the patient should go to Colpach for a three-week-cure or to Mondorf for outpatient rehabilitation.

Both rehabilitation programmes started (would start) after treatment and no later than three months after the end of the acute cancer treatment. Clear inclusion criteria had been defined⁴⁶ (see details below in the corresponding indicators table). All patients requiring nursing care or having comorbidities should automatically be addressed to Colpach (inpatient programme). It is important to note that should a person not have any comorbidities but at the same time not have any mean of transportation, this person could be referred to the inpatient programme as well. The patient's personal situation plays a key role in the patients' orientation to one programme or the other. Patients in the outpatient programme should be people who have already started their social, familial or professional reintegration. Excluded from the post-oncological rehabilitation programmes should be patients in end of life palliative care. There should be no differentiation between the type of cancer and the gravity stage of cancer. There should always be a common basis for treatment and then depending on the type of cancer and its gravity stage some interventions could be individualized. There should not be, however, a specific programme for specific cancer or gravity stage or even life prognosis.

Organisation of the future outpatient rehabilitation programme:

Each specialist should see the patient and realize a preliminary assessment. The tools to be used for these preliminary assessments were not defined at the time of the interview. A meeting with the complete team should take place at the beginning, in the middle and at the end of the Rehabilitation

programme. The programme was meant to consist of 12 modules of 3h, which corresponds to one module per week. 24 hours out of the 36 were to be dedicated to physical activity. Following disciplines should also be represented: a re-education doctor, a physiotherapist, a sports therapist, a psychologist (with specialization in oncology), and a dietician. Furthermore, there should be a collaboration with a psycho-beautician. The re-education doctor was foreseen to supervise the outpatient programme and coordinate the interventions. The communication between team members would happen through regular meetings.

Financing:

The majority of hospital facilities in Luxembourg are budgeted. Mondorf was the only hospital that worked according to rates. For this reason, the working group sought the validation of the “commission de nomenclature” to be able to, afterwards, negotiate a rate with the CNS (Caisse Nationale de Santé = National Health Insurance Fund). The group expected the reimbursement rate to be similar to other existing rehabilitation programmes (e.g. obesity) for which the CNS reimburses 80% of the treatment. Cares would be subject to a flat rate (“tarification forfaitaire”, “pauschal”). Excluded from the flat rate would be the physicians’ services. All treatments realized in Mondorf would be in the nomenclature of the “Centre thermal et de santé de Mondorf” whereas the doctors approved by the centre would have a liberal status. All their services would have to appear in the physician’s nomenclature. In a sense, there was a double negotiation: one through the physician association for the medical surveillance of the patient and one for the cares for the centre nomenclature.

Certification:

Two and a half years after the start of the programme, it was foreseen to realize an external audit. Besides, the creation of a scientific committee is foreseen for the post-oncological rehabilitation programme (inpatient and outpatient).

Barriers:

One of the barriers to post-cancer rehabilitation seemed to be the lack of awareness of these programmes. Therefore, an awareness-raising campaign for the whole programme (inpatient and outpatient) for all doctors including oncologists was being planned.

Table 2-11 Summary of outpatient cancer rehabilitation measures in Luxembourg



Indicator	
Outpatient cancer rehabilitation is provided	As of Quarter One 2019
National outpatient cancer rehabilitation guidelines	Not yet (July 2 nd , 2018). Will be included in the law.
Legislation	The legal impact is being discussed.

Financing	Financing impact is being negotiated with the “Commission de Nomenclature” and the CNS (“Caisse Nationale de Santé”)
Start of the rehabilitation	At the end of the acute treatment Latest 3 months after the end of the treatment.
Recommendation	A general practitioner or oncologist through a Coordination doctor that recommends the patient either for inpatient or outpatient rehabilitation.
Responsible person	Coordination doctor
Coordination	Re-education physician
Multiprofessional	Following disciplines will be represented: a re-education doctor, a physiotherapist (Kinésithérapeute in French) and a sports therapist respectively, a psychologist (with specialization in oncology), a dietician. In addition, there is a collaboration with a psycho-beautician
Sports therapist vs. physiotherapist	Sports therapist and Physiotherapist
Interventions	Physical activity module: re-exercise training, strengthening, rehabilitation in the gym or the pool, walking or swimming, Nordic-walking Nutrition module: conference, workshops and therapeutic re-education Psychological support module: conference, workshops and therapeutic re-education Others: hydrotherapy, electro-therapy, lymph drainage, relaxation, cosmetic
Mandatory interventions	24 hours out of 36 assigned to physical activity
Duration	8 to 12 weeks
Intensity	12 modules a 3 hours
Information flow	Each specialist sees the patient at the beginning of the programmes. After assessments, all therapists sit together and define the intervention programme. The patient will be re-evaluated in the middle and at the end of the programme. Information will be shared between all acteurs through regular meetings.

Prerequisites	<p>TARGET POPULATION FOR POST-ONCOLOGY REHABILITATION</p> <ul style="list-style-type: none"> -Patients over 18 years of age with invasive or in situ cancer, which required heavy treatment. -General condition allowing physical activity. -Residents or non-residents, CNS insured or not. -Having received cancer treatment in Luxembourg or abroad. <p>The following are excluded from the programme:</p> <ul style="list-style-type: none"> -Patients with cognitive impairments that do not allow them to benefit. -Patients for whom a palliative care request is active. -Patients who did not require heavy treatment. <p>OUTPATIENT REHABILITATION - INCLUSION CRITERIA:</p> <p>Patients:</p> <ul style="list-style-type: none"> - with consolidation needs in the areas of physical activity, nutrition, and psychological support. -Having resumed a family and/or social and/or professional life. -The necessity of autonomy or having someone to support during the whole rehabilitation -Having a means of transport
Assessment	Assessment tools have not been defined so far (22.06.2018). They might inspire themselves from the reha logbook from the Swiss cancer league.
Quality criteria	2.5 years after the start of the programme there will be an external audit. In addition, a scientific committee is foreseen for the post oncological rehabilitation programme (inpatient and outpatient).
Main barriers	Lack of awareness and recognition of these programmes by oncologists and general practitioners

2.2.2.11 NORWAY

At the time of our research cancer rehabilitation was provided at the oncology departments of national hospitals, at the municipal level in local hospitals or at the rehabilitation centres. Rehabilitation centres provided mainly inpatient rehabilitation, but some of them had also an outpatient option. Rehabilitation provided at the hospitals were mainly in an outpatient setting^{47,48}.

The main goal of the rehabilitation in Norway was to increase the chances to return to daily life as quickly as possible and help to handle the changes that result from the treatment and the illness. Rehabilitation should encourage those on sick leave to return to work quickly, and it was a national priority to increase the opportunities for rehabilitation at work⁴⁸.

Based on Gjerset et al. (2012)⁴⁹, these were the existing cancer rehabilitation services in Norway in 2012:

- 'Teaching and coping' centres that provided information and promoted social contact between the participants, organised with one or bi-weekly sessions during a 3-4 weeks period.
- Regional hospitals offered specific rehabilitation services like physical therapy, physical training, occupational therapy, consultation with a social worker or mental health personnel.
- Some hospitals also offered outpatient multidisciplinary rehabilitation programmes including physical training and lectures given by different professionals such as physiotherapists, social workers, and physicians often organised as weekly sessions and the courses generally last for 6-8 weeks.
- Rehabilitation and coping courses run by cancer societies or by community health care.
- Inpatient multidisciplinary rehabilitation programmes lasting for one to four weeks had been set up at several rehabilitation centres.
- *Vardesenteret*, established by the Norwegian Cancer Society and Oslo University Hospital, was a place to meet where activities aimed at enhancing the quality of life, well-being and coping were offered.

Table 2-12 Summary of outpatient cancer rehabilitation measures in Norway



Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	We were not able to detect any rehabilitation guidelines
Legislation	No information could be found
Financing	Outpatient cancer rehabilitation interventions are free for the patients, they are covered by universal national health care
Start of the rehabilitation	During or after treatment
Recommendation	Treating medical staff at the hospital the patient is being treated. Often self-referral (patient can take the initiative to get an individual plan by talking to the doctor, nurse or social worker at the hospital, the general practitioner and other healthcare personnel in the municipality)
Responsible person	No information could be found
Coordination	Cancer care coordinator

List of all the professionals	Sexologist, psychologist, social worker, clinical nutrition physiologist, physiotherapist, occupational therapist, nurse or cancer care coordinator
Sports therapist vs. physiotherapist	Physiotherapist
Interventions	Physical activity and training during and after treatment, consultation, and guidance from sexologist, psychologist, social worker, clinical nutrition physiologist, physiotherapist, occupational therapist, nurse and/or cancer coordinator; dietary advice, return to work intervention
Mandatory interventions	Tailored to patients' needs. Physical activity training and/or recommendation is a key area.
Duration	Tailored to patients' needs, outpatient multidisciplinary rehabilitation in hospitals generally last for 6-8 weeks
Intensity	Tailored to patients' needs. No info about the average intensity
Information flow	-
Prerequisites	-
Assessment	-
Quality criteria	-
Main barriers	-

2.2.2.12 SWEDEN

In Sweden, the first cancer rehabilitation guidelines were published in 2014⁵⁰. These were revised in 2017⁵¹. The 2017 guidelines focused on cancer rehabilitation during the acute treatment phase. In the framework of this research, we exchanged with Dr Maria Hellbom, Operations Manager, Centre of Cancer rehabilitation in the Stockholm area. The exchange took place in September 2018. Mrs Hellbom kindly shared with us an overview of the organisational aspects of cancer rehabilitation in Sweden, which can be found below.

At the time of the exchange, 6 coordination regional centres serve as competence centres. Their main goals were to provide guidelines and stimulate the development of cancer care. No cancer care was provided at the coordination of regional centres.

There were also 21 health care regions, whose responsibility was to organise cancer rehabilitation at a regional level.

Cancer care and, thus, cancer rehabilitation was organised differently in each region of Sweden:

- In Stockholm, cancer rehabilitation was organisationally situated in primary care and focussed on persisting symptoms and late effects of cancer treatment. The centre for cancer rehabilitation in Stockholm had a multi-/interdisciplinary approach and worked with specialized, planned rehabilitation in an outpatient setting, providing an in-depth assessment of needs and individually tailored rehabilitation programmes. These programmes varied in length according to the patients' needs. Issues such as general physical rehabilitation needs, lymphedema, fatigue, urinal and faecal leakage, sexual problems, scarring, health-related anxiety, difficulties returning to work were common among patients at the Stockholm cancer rehabilitation centre and were addressed with specific interventions.
- In Skåne and Gothenburg, cancer rehabilitation was organisationally situated close to the cancer care at the hospitals. Rehabilitation programmes in hospitals often focussed on acute rehabilitation needs, i.e. intending to facilitate the cancer treatments and the patients' adjustment to these.
- Other health care regions were mentioned to have sparse or no specific cancer rehabilitation.
- Furthermore, some health care regions provided inpatient cancer rehabilitation by way of private enterprises or foundations that were reimbursed by public means.
- Even though the content and organisational aspects varied between the regions, cancer rehabilitation has undergone rapid development in Sweden and planned cancer rehabilitation was under development at the time of interview.

Content of rehabilitation:

Based on the 2017 cancer rehabilitation guidelines, there were four levels of rehabilitation⁵¹:

- **Green level:** the patient had basic rehabilitation needs. Rehabilitation was mainly offered by the medical team who provided cancer treatment (mainly through a contact nurse and a social counsellor).

Interventions at this level: empathetic treatment, emotional support, advice and support around physical activity and other health promotion measures, information/support programmes.

Example: a patient has surgery for non-metastatic skin cancer. The doctor oversees the patient, the social counsellor gives the patient advice on problems related to the workplace during the healing period, and the contact nurse mainly follows up the course of the symptoms.

- **Yellow level:** the patient has additional rehabilitation needs.

Interventions at this level: the cancer treatment medical team is mainly responsible for the patient, but there are as well consultations with the rehabilitation staff (e.g. occupational therapist, physiotherapist). There is teamwork between medical and rehabilitation specialists. The patient is assigned to rehabilitation interventions/programme.

Example: a patient is operated for non-metastatic skin cancer. This operation combined to the fact that his own mother died of cancer results in him having a serious nervous breakdown. The counsellor, the patient, and the husband estimate that additional support is needed. The patient communicates both with the medical and the rehabilitation team.

- **Orange level:** the patient has advanced needs and requires more complex and direct rehabilitation interventions.

Interventions: Consultation with rehabilitation staff, appointments with different professionals in the rehabilitation team.

Example: a patient has surgery for brain metastases. He has remaining speech difficulties and problems with balance after the procedure. The home hospital does not have the competence for neurorehabilitation. The patient is therefore referred to a nearby hospital which has competence in neurorehabilitation. At this hospital, further assessment of the patients' needs and rehabilitation will take place.

- **Red level:** the patient has very advanced needs.

Interventions: through the rehabilitation team with additional support from external sources, e.g. psychiatry.

Example: Issues related to fertility, long-term follow-up of cured patients for the risk of late treatment complications and rehabilitation of patients with complications after radiotherapy in the pelvic region.

When we were running this research, there seem to have been a nationwide specific effort underway to develop clinical guidelines for follow up of rehabilitation needs and survivorship care plans. In addition, a revision of the guidelines for cancer rehabilitation and regional implementation of these guidelines was in progress.

Table 2-13 Summary of outpatient cancer rehabilitation measures in Sweden



Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	Yes. <i>Cancerrehabilitering – Nationellt värProgramme</i> . ⁵¹ (published in 2017, in Swedish)
Legislation	No information could be found
Financing	Cancer rehabilitation is free for the patients, covered by universal publicly financed health insurance

Start of the rehabilitation	Individual, but based on the guidelines, rehabilitation should start during the treatment
Recommendation	Medical team, physician or contact nurse should make the referral. Often patients may refer themselves. About 30% of patients at the Centre for cancer rehabilitation in Stockholm refer to themselves. There is no structured referral criteria to define if a patient should be referred to either in- or outpatient rehabilitation – it depends on the availability of rehabilitation programmes in each region.
Responsible person	Based on the guidelines, the multi-disciplinary team should have an appointed leader/operations manager (<i>versamhetschef</i>) who is leading the work of the institution.
Coordination	A contact nurse is a central person who ensures the communication between healthcare providers and the patient. The contact nurse is responsible to contact the rehabilitation staff outside the medical team if deemed necessary.
Multiprofessional	Physician, social counsellor, psychologist, psychiatrist or nurse with psychosocial education, dietician, speech therapist, physiotherapist, dental hygienist, dentist, urotherapist, occupational therapist, sexologist, hospital priest/deacon, stoma therapist.
Sports therapist vs. physiotherapist	Physiotherapist
Interventions	Physical training, physiotherapy, psychological support, psychiatric support, stoma and incontinence therapy, speech and language therapy, dietary advice, occupational therapy, sexual advice, counselling with a priest, dental interventions
Mandatory interventions	Rehabilitation is tailored to patients' needs. Physical activity should be recommended to all the patients.
Duration	Tailored to patients' needs
Intensity	Tailored to patients' needs and often offered on an ad-hoc basis. May vary considerably between patients and regions.
Information flow	Multidisciplinary team meetings. Contact nurse is responsible for the communication between patient and healthcare providers.
Prerequisites	No information could be found

Assessment	Assessments should be done at critical breakpoints, e.g. at diagnosis and in the beginning and end of different treatments. Using e.g. Distress Thermometer, VAS/NRS, BPI, Brief Pain Inventory if VAS/NRS>4, MFS, ROAG.
Quality criteria	Based on the guidelines, county councils, administrations and areas of activity are responsible for ensuring good quality in health care. It includes some form of measurement or registration. However, the quality records in the area of cancer care are not designed to highlight rehabilitation aspects. Therefore, each unit should define key areas for cancer rehabilitation, measure quality with a regional/local methodology, carry out improvement work and measure again
Main barriers	Developmental areas: structured assessment of patients' needs, structured follow-up of late effects, and knowledge of late effects, appropriate care for specific needs. Assessment of rehabilitation needs by nurses is a fairly difficult and time-consuming task. Lack of staffing and staff turnover complicate the situation, making adequate assessment and referral to specialists a challenge for contact nurses and for the health care system as a whole. The role of primary care in cancer care and cancer rehabilitation is unclear.

2.2.2.13 UNITED KINGDOM

In the United Kingdom, the National Cancer Action Team (NCAT) has been a major force to build an evidence base for cancer rehabilitation and support the development of rehabilitation services at a local level. However, in 2013, the NCAT was disbanded and from there on, the advocacy for cancer rehabilitation in England has weakened⁵².

During our work, we came across different guidelines: rehabilitation guidelines for Wales and rehabilitation guidelines for England. Both varied in their content:

- "National Standards for Rehabilitation of Adult Cancer Patients in Wales" mainly set a base for coordination aspects of cancer rehabilitation. For example: As of the diagnosis, multidisciplinary teams should allocate to each patient an experienced key worker or navigator. The choice of a key worker depends on each patient's needs and the person can change over time (e.g. when the patient moved from hospital-based care to home-based care). The assigned key worker will be the most appropriate health or social care professional who is involved with the patient⁵³.
- The National Cancer Action Team of England provided evidence-based information and tools, which should enable service managers, clinicians, and commissioners to develop services using the best available evidence for the development of cancer rehabilitation services. For instance, an analysis

had been conducted, to assess the current situation and changes in the workforce responsible for providing cancer rehabilitation and its impact on the patients⁵⁴.

Moreover, an Independent Cancer Taskforce established by NHS England on behalf of the Care Quality Commission, Health Education England, Monitor, Public Health England, and the Trust Development Authority develop a five-year strategy for cancer services. The report of this work was published in 2015 and stated that: "...rehabilitation is not yet embedded across the cancer pathway. There are variations in access to allied health professionals [AHPs] who deliver rehabilitation services. AHPs are commonly part of multi-disciplinary palliative care teams, but not always part of the multidisciplinary team before the palliative stage." This report also contained recommendations, one of which was dedicated to rehabilitation (recommendation n°70): "NHS England and Health Education England should support a national review of the cancer rehabilitation workforce and promote the role of AHPs in multi-disciplinary teams."⁵⁵

Macmillan Cancer Support, a charity registered with the English Charity Commission, published a report in 2018, showing the results of a UK wide survey of (AHPs). This survey data covered dietitians, occupational therapists, physiotherapists and speech and language therapists who supported people living with cancer and provided insights into the roles and contribution of AHPs⁵⁶.

The same year, Macmillan Cancer Support issued "Cancer Rehabilitation Pathways", which is a guide to the types of rehabilitation interventions that patients may need at different stages of their treatment. It is a guideline for healthcare professionals who work with adults affected by cancer, as well as for providers and commissioning organisations⁵⁷. This document described the three main components of the pathway:

- generic interventions: These interventions may be relevant to any type of primary cancer, i.e. provide advice about general exercise programme or nutritional assessment.
- specific interventions: These interventions are specific to a small number of cancer sites, i.e. managing communication, voice and swallowing problems following treatment for brain, breast, lung, head and neck, sarcoma, gynaecology, upper gastrointestinal, lower gastrointestinal, haematology, colorectal, skin or urologic cancer.
- symptom pathway (there are symptoms that patients experience which can occur at different stages in the treatment pathway e.g. breathlessness, fatigue, anorexia, etc.)

This document also provides symptoms assessment methods, treatments, and referrals during the treatment, post-treatment and palliative care.

Table 2-14 Summary of outpatient cancer rehabilitation measures in the United Kingdom



Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	Yes (but not specified if outpatient). Also, regional (e.g. Wales, England) guidelines exist.
Legislation	-
Financing	-
Start of the rehabilitation	Rehabilitation should start at the point of diagnosis (prehabilitation)
Recommendation	<p><u>Cancer rehabilitation pathways</u></p> <p><u>Wales:</u> clinical team managing the patient from diagnosis</p>
Responsible person	"The network board should agree to a single named lead for cancer rehabilitation for the network, who should be a qualified member of one of the Allied Health Professions and a member of the network palliative care group. The network board should agree on a list of responsibilities, and a specified time in their timetable or job plan, for the role of network cancer rehabilitation lead".
Coordination	<u>Wales:</u> a key worker/navigator, who may change over time. The choice of key worker will depend on each patient's needs (can be a GP/primary care team).
Multiprofessional	Physiotherapist, lymphedema practitioner, occupational therapist, speech and language therapist, orthoptist, diagnostic radiographers, orthotist and prosthetist, art, music and drama therapist, dietician, therapeutic radiographer
Sports therapist vs. physiotherapist	Physiotherapist
Interventions	Activities of daily living
Mandatory interventions	-
Duration	-
Intensity	-
Information flow	-
Prerequisites	-

Assessment	Generic (basic holistic care assessment) and specific (specialist disease and symptom) assessment should be undertaken at a diagnosis/care planning, treatment, and post-treatment phase. Cancer Rehabilitation Pathways provides a comprehensive list of aspects that should be identified and considered.
Quality criteria	"The Network Cancer Rehabilitation Group should produce a baseline mapping of the current service provision for cancer rehabilitation in the network every three years. The mapping should be done according to the national baseline mapping tool AHP mapping tool kit available from the National Cancer Action Team."
Main barriers	England: lack of uniformity of care and missing links in providing theory to practice. Commissioning of cancer rehabilitation is fragmented and poorly coordinated. No homogenous programmes across the region. Widespread inequity of workforce both geographically and across specialities. The number of lymphedema practitioners is low. Wales: implementation of cancer rehabilitation has been inconsistent in South Wales, mainly due to lack of understanding the role of cancer rehabilitation amongst physiotherapists working within oncology and palliative care. Also, there is a deficiency in cancer patients' perception of the role of rehabilitation and its benefits.

2.2.2.14 UNITED STATES OF AMERICA

Despite the advanced level of the United States in cancer research and treatment, we could not identify any information on national guidelines for cancer rehabilitation. We found ourselves reinforced in our view by an article of Cheville et al. who stated that in 2017 that there were no criteria that would require institutions to provide high-quality rehabilitation services in the United States⁵⁸. Furthermore, in an article published in 2013, Stubbefield et al. mentioned that comprehensive cancer rehabilitation programmes were exceptions rather than the rule in the United States⁵⁹. As the information was abundant and scattered and we could not identify any nation-wide coordinated system, it proved to be a challenge to summarize the situation of outpatient cancer rehabilitation in the United States. We, therefore, decided to use Cheville et al article entitled "Cancer Rehabilitation: An overview of current need, delivery models and levels of care"⁵⁸ published in 2017 as the main source of information for our analysis of the situation in the United States. It is interesting to note that Cheville et al. pointed out that the Commission on Accreditation of Rehabilitation Facilities, CARF International, which is an independent, non-profit accreditor of health and human services founded in 1966 issues regularly since 2014 a medical standard manual, which also include cancer rehabilitation. These standards can be applied in a variety of settings including hospitals, outpatient clinics, healthcare systems and community-based programmes and

represent an important action towards specifying the mandatory components of cancer rehabilitation programmes.

Table 2-15 Summary of outpatient cancer rehabilitation measures in the United States of America



Indicator	
Outpatient cancer rehabilitation is provided	Limited number of outpatient cancer rehabilitation programmes seemed available.
National outpatient cancer rehabilitation guidelines	No
Legislation	-
Financing	Partly covered by health insurance (range depends on insurance). Fee-for-service care.
Start of the rehabilitation	-
Recommendation	Cancer treatment multidisciplinary team should develop a plan for rehabilitation (each member of the team should develop a plan for his/her specific area of expertise). Often patients have to ask for a referral.
Responsible person	Physiatrist
Coordination	Often primary care provider, oncologist or physiatrist.
Multiprofessional	-
Sports therapist vs. physiotherapist	-
Interventions	-
Mandatory interventions	-
Duration	Tailored to patients' needs
Intensity	-
Information flow	-
Prerequisites	-
Assessment	-
Quality criteria	-

Main barriers	<ul style="list-style-type: none"> • A limited clinical workforce having had cancer rehabilitation training. • The American system is a fractured system, which requires multiple visits to a range of specialists to address even a single issue. • Access barriers (due to the geographically dispersed clinical workforce, travel time and costs.) • Lack of clarity regarding the essential components of a cancer rehabilitation programme.
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2.2.2.15 THE NETHERLANDS

In 2011, the Netherlands Comprehensive Cancer Organisation (*Integraal Kankercentrum Nederland*, IKNL) issued^{60,61} the first national evidence-based cancer rehabilitation guidelines. The guidelines were revised and updated in 2017.

The main focus of these guidelines is to describe the organisational aspects of cancer rehabilitation in the Netherlands and provide an evidence-based overview of the best practices in cancer rehabilitation.

The 2011 guidelines stated that based on the definition of the Health Care Insurance Board (*College voor zorgverzekeringen*, CVZ), cancer rehabilitation was a care that focused on functional, physical, psychological and social problems associated with cancer. It provided advice and, where needed, guidance in dealing with the disease (coping), recovery, prevention of deterioration and physical condition improvement. This concerned the period during or after completing treatment with curative intent and during the disease- and symptom-focused palliative phase. During the palliative phase, the aim shift to optimizing the physical condition and quality of life of patients. The CVZ indicated that physical activities (exercise) should be part of cancer rehabilitation during all phases.

Cancer rehabilitation comprised all three forms of aftercare that were provided to cancer patients in the Netherlands in 2011: interventions in primary care (e.g. physiotherapy), rehabilitation by multidisciplinary rehabilitation team, and rehabilitation medicine.

In 2017, the guidelines were revised and a new definition of cancer rehabilitation was adopted. Based on the 2017 guidelines, cancer rehabilitation referred solely to rehabilitation medicine, which is an outpatient interdisciplinary treatment aimed at maximizing autonomy and participation of (former) cancer patients who have multiple and interrelated problems on the physical, cognitive, emotional or social level, and/or regarding role functioning as a result of having cancer and/or the treatment of it.⁶²

As of 2017, the concept of “cancer rehabilitation” in the Netherlands did no longer comprise interventions in primary care (e.g. physiotherapy), although this service was offered to cancer patients to improve the functional, physical, psychological or social problems associated with cancer as non-coordinated monodisciplinary measures. In the present document, the wording “rehabilitation interventions in primary

care" will be used when describing rehabilitation interventions that cancer patients undergo in primary care.

Figure 2-1. displays the different organisational aspects of cancer rehabilitation in the Netherlands in 2017.

Figure 2-1 Organisational aspects of cancer rehabilitation: Different forms of cancer rehabilitation interventions in the Netherlands in 2017.

Rehabilitation interventions in primary care	Outpatient rehabilitation medicine	Inpatient rehabilitation
<ul style="list-style-type: none">• Patients who have single or unrelated functional problems on the physical, cognitive, emotional or social level are referred to receive rehabilitation interventions in primary care (e.g. physiotherapy and/or occupational therapy)•• Mono- or multidisciplinary interventions•• Costs are covered partly by insurance companies	<ul style="list-style-type: none">• Aimed at maximizing autonomy and participation of (former) cancer patients with various related functional problems on the physical, cognitive, emotional or social level•• Provided by interdisciplinary team under the coordination of the rehabilitation physician•• About 5-10% of cancer patients receive rehabilitation medicine	<ul style="list-style-type: none">• Patients who have very complex problems are referred to inpatient rehabilitation, e.g. patients who undergo amputation and patients with spinal cord lesion•• Very uncommon

Rehabilitation interventions in primary care

Most of the cancer patients received rehabilitation interventions in primary care. Based on the 2017 cancer rehabilitation guidelines, such care was no longer classified as "cancer rehabilitation" and therefore not in the scope of the guidelines. Interventions in primary care might have been monodisciplinary (e.g. physiotherapy) or multi-disciplinary (e.g. patient receives physiotherapy and occupational therapy interventions, but they are provided independently and without "team effort").

In the present report, the concept "rehabilitation interventions in primary care" will be used when describing rehabilitation interventions that cancer patients undergo in primary care.

The costs of rehabilitation in primary care were not (fully) covered by insurance companies.



As patients have to (partly) pay for the primary care interventions (e.g. physiotherapy) themselves, they often choose not to undergo recommended interventions. Consequently, there is an under-use of primary care rehabilitation interventions among cancer patients.

Cancer rehabilitation specialists in the Netherlands have been working for many years to improve this situation. The main goal is to ensure that the referral to rehabilitation interventions is done in a structured way for all the cancer patients such that all the patients are referred to an appropriate physician(s). In addition, close discussions with insurance companies were performed at the time of the study, in order to decrease the share that patients have to pay when undergoing rehabilitation interventions in primary care.

However, insurance companies are not reciprocal to cover primary care interventions for cancer patients, as the number of cancer patients in the need of primary care increases and, as a consequence, the costs of the care are high.

Inpatient rehabilitation

Inpatient cancer rehabilitation was not very common in the Netherlands. It was offered only to cancer patients who had very complicated problems, e.g. patients who underwent amputation or patients with spinal cord lesion.

Outpatient rehabilitation medicine

Cancer rehabilitation medicine was provided to (former) cancer patients who had multiple and interrelated problems on the physical, cognitive, emotional and/or social level. Rehabilitation medicine was offered in an outpatient setting in about 30 rehabilitation clinics or rehabilitation departments of hospitals all over the Netherlands. The programme was led by an interdisciplinary team under the coordination of a rehabilitation physician.

The costs of outpatient rehabilitation medicine were fully covered by insurance companies, which explains that patients were normally highly motivated to undergo such a programme.

Admission criteria and referral process

The cancer rehabilitation guidelines provided a Decision tree, which described a referral pathway to different forms of cancer rehabilitation interventions (see appendix 1.1.2 and 1.1.3). The present report is based on the newest version of the Dutch cancer rehabilitation guidelines (2017)⁶².

According to the 2017 guidelines, referral to the rehabilitation should be done by primary health care providers, e.g. oncologist, surgeon, radiotherapist, specialized nurse, physician assistant, general practitioner and/or company doctor.

For a structured referral, primary health care providers should answer the following questions:

- Is there a disturbance in the patient's ability to exert themselves in relation to the desired functioning?
- Is there an indication for treatment of fatigue after completing treatment with curative intent (Distress Thermometer, VAS fatigue ≥ 4 , patient history)?
- Does the Distress Thermometer show any emotional problems and/or does the patient have a need for support on a psychological/emotional level (Distress Thermometer, CES-D ≥ 16)?
- Is social functioning in work/household tasks, relationship, social relationships, role in family and recreational activities disrupted and/or threatened compared to the situation before the illness?

Based on these criteria, primary health care providers should decide whether the patient should be referred to rehabilitation interventions in primary care, outpatient rehabilitation medicine or inpatient care. The decision should be made as follows:

- The patient is referred to **primary care** if he/she has:
 - functional problems at a single level,
 - functional problems at various levels (physical, cognitive, emotional or social and/or in role functioning and/or in the increased risk of it), but these problems are not interrelated. In this case, patients will be provided with co-existing monodisciplinary treatments. Although the patient receives rehabilitation interventions, this kind of care is not called rehabilitation in the Netherlands (rehabilitation=rehabilitation medicine).
- The patient is referred to **rehabilitation medicine** if he/she has functional problems at various levels (physical, cognitive, emotional or social and/or in role functioning and/or is in the increased risk of it) and these are interrelated.
- The patient is referred to **inpatient care** when he/she has very complex problems, mainly patients who underwent amputation or have spinal cord lesion.

If a primary health care provider was not sure whether a patient should be referred to rehabilitation medicine, he/she could consult with a rehabilitation physician, psychosocial care provider or another relevant professional in the rehabilitation medicine team.



One of the biggest obstacles towards successful cancer rehabilitation in the Netherlands is that primary health care professionals do not implement the referral pathway adequately and systematically.

Namely, in 2014, only 3% of the referrals to rehabilitation were done based on the criteria of referral pathway. In addition, 76% of structured referrals were done or supervised by a rehabilitation physician (Gijsen B, 2014). This indicates that the referral pathway is not adhered by primary care providers and is mainly initiated by rehabilitation physicians.

Consequently, patients might not be referred to the aftercare they would need.

Various measures have been implemented to improve this situation. For example:

- implementation of nation-wide information campaigns to inform caregivers and patients about the rehabilitation programme;
- articles published in magazines to point out under which circumstances oncologists (and other primary health care professionals) should refer patients to rehabilitation;
- contacting patient organisations to empower patients in the need of rehabilitation.

Rehabilitation specialists in the Netherlands see it as an ongoing battle to initiate primary health care providers to systematically implement the referral pathway.

If a primary health care professional referred a patient to rehabilitation medicine, the rehabilitation physician made a second triage to decide whether the patient is truly eligible for this type of intervention. The rehabilitation physician relied on the same criteria as primary health care providers: the patient should have multiple and interrelated problems on the physical, cognitive, emotional and/or social level.

If rehabilitation medicine was not needed, the rehabilitation physician referred the patient back to the referrer (primary health care provider) with a recommendation that the patient should be referred to rehabilitation interventions in primary care.



One of the most complicated, yet important factors in assessing whether a person should undergo rehabilitation medicine or not, is **interrelatedness**. Rehabilitation physicians in the Netherlands are relying on the domains of International Classification of Functioning, Disability and Health (ICF) to decide whether there is an interrelationship.

According to rehabilitation physician Dr. van de Weg, experienced rehabilitation professionals in the Netherlands are familiar with and trained to recognize whether the patients' problems are interrelated or not. In addition, the same way of thinking is applied to other groups, e.g. patients in the need for cardiovascular rehabilitation.

Example:

- 1) A woman has had a depression for many years. At one point, she is diagnosed with breast cancer. She starts to feel tired and continues to be depressed. By definition, these symptoms are not interrelated.
- 2) A woman is diagnosed with breast cancer. She undergoes a mastectomy and, therefore, develops a depression. This is a serious form of interrelatedness.

Overview of the outpatient rehabilitation medicine programme

Rehabilitation medicine was offered in an outpatient setting in approximately 30 rehabilitation clinics or rehabilitation departments of hospitals all over the Netherlands.



In total, about 5,000 to 10,000 patients go through rehabilitation medicine per year, which is about 5 to 10% of all cancer patients. This model is derived from evidence, which suggests that in total 5 to 10% of cancer patients have complex problems and therefore need comprehensive and interdisciplinary rehabilitation.

Cancer rehabilitation began mostly during or after the treatment and could be provided either in curative or palliative form. In some cases, rehabilitation interventions might have been provided already before the treatment, e.g. before chemotherapy.

A Decision tree describes the patient pathway within the rehabilitation programme.

Measurement instruments

After the admission to rehabilitation medicine, each patient should undergo a pre-rehabilitation measurement process, in order to receive a tailored rehabilitation programme.

The 2017 Guidelines provided a list of measurement instruments, which could be used by various rehabilitation team members for diagnostic, prognostic and evaluation purposes. The list of measurement instruments was evidence-based. A literature search had been performed by the Dutch comprehensive Cancer Organisation to ensure that all the suggested instruments would be reliable and validated. Measurement instruments were divided into four categories:

- Measurement instruments for functional and anatomical characteristics
- Measurement instruments for physical activity
- Measurement instruments for health-related quality of life
- Psychological measurement instruments for psychological well-being

For a comprehensive list of suggested assessment instruments tree (see appendix 1.1.4).

In addition, it was suggested to assess the lifestyle factors of patients. People who belong to risk group (e.g. alcohol consumption, lower level of education) could require additional monitoring and attention.

Content of the programme

The rehabilitation programme was tailored to patients' needs, which explained why there were no mandatory interventions. The Decision Tree (see appendix 1.1.2 and 1.1.3) provided step-by-step guidance aiming at defining which interventions would be the most appropriate for the patient given his/her condition.

For example, in the area of psychological support, patients can have either psychosocial guidance intervention in a group or as an individual session or the patient might be referred to psycho-education in a group or as an individual session (see appendix 1.2.2: Diagram IV: From psychological goals to intervention).

The framework and goals of rehabilitation differed slightly between rehabilitation during treatment, after treatment, and during the palliative phase:

Rehabilitation during curative treatment

- The main aspects, which should be taken into account, are the long-term and late effects of cancer treatment: fatigue, depression, anxiety and generally poorer physical health, which is expressed in reduced physical functioning and loss of condition.
- Providing lifestyle advice to all patients during cancer treatment planning, stressing the importance of physical activity.
- Offering supervised physical training during cancer treatment to reduce fatigue.
- Offering behavioural therapy as a psychosocial intervention to prevent chronic fatigue.

- **Interventions:** pre-rehabilitation measurement, information, physical training, psychosocial intervention, nutritional advice, work reintegration, cognitive behavioural therapy, and post-rehabilitation measurement.

Rehabilitation after curative treatment

- A tailor-made programme, which is defined for each patient, taking into account the characteristics of the disease and the patient's preferences and personal goals.
- There are no mandatory interventions, but physical training is always part of the rehabilitation programme.
- A Physical training programme of at least moderate intensity: **aerobic training** (walking and cycling) to improve aerobic capacity, cancer-related fatigue, and role function.
- A Physical training programme of at least moderate intensity, consisting of **progressive resistance training** to improve muscle strength, cancer-related fatigue, and role function.
- **Interventions:** pre-rehabilitation measurement, information, physical training, psychosocial intervention, nutritional advice, energy distribution intervention, psycho-education, work reintegration, cognitive behavioural therapy, post-rehabilitation measurement.

Rehabilitation during the palliative phase

- Should focus on personal goals and preferences of the patient (and his/her relatives).
- The aim of the rehabilitation during this phase is to prevent and treat symptoms and optimize the quality of life.
- For patients who gradually fall out of the programme due to progressive illness, it is advisable to facilitate a more limited version at home.
- **Interventions:** pre-rehabilitation measurement, information, physical training, psychosocial intervention, nutritional advice, energy distribution intervention, post-rehabilitation measurement.

Programme duration and intensity

As the rehabilitation programme is tailored to each patient's needs, guidelines do not state any fixed duration and intensity of the programme. However, the average duration of the rehabilitation medicine programme is 12 weeks.



Insurance companies in the Netherlands do not specify the length of the rehabilitation. This allows for a patient tailored rehabilitation, which can address specific problems, which arose during the acute treatment phase. Therefore, the programme duration might vary from 6 to as many as 36 weeks.

Most of the rehabilitation clinics/rehabilitation departments of hospitals displayed following average intensities:

- Physiotherapy twice a week
- Occupational therapy once or twice a week
- Treatment by activity therapist once a week
- Dietetics once every two weeks
- Counselling by a social worker once every two weeks
- Counselling by a psychologist once every two or three weeks.

Organisational aspects

Rehabilitation medicine was provided by an interdisciplinary team, under the coordination of the rehabilitation physician.

The interdisciplinary team of rehabilitation medicine consisted of the following health care providers (not an exhaustive list): rehabilitation physician, (specialized) physiotherapist, occupational therapist, psychologist, medical social worker, spiritual care providers, and dietitian.

The rehabilitation physician was responsible to guarantee the information flow within the interdisciplinary team and between the rehabilitation team and the primary health care providers.



There are regular interdisciplinary team meetings to guarantee the information flow within the rehabilitation team. Team meetings take place once every six weeks for each patient who is undergoing rehabilitation medicine.

However, the team meetings can take place more or less frequently, depending on the need of the patient. For example, when a patient undergoes rehabilitation in a palliative phase and most of the problems have been identified, meetings can take place less frequently. Contrarily, when a patient is in an acute phase, team meetings can take place more frequently.

On average, interdisciplinary team meets three times during the stay of each patient.

Quality criteria

Quality of rehabilitation medicine was ensured through regular quality checks. Each rehabilitation clinic/rehabilitation department of a hospital followed checklist describing: which qualities/diplomas each professional should have, which facilities rehabilitation centres should include, which equipment is needed for various measurements, etc. The inspection committee evaluates the compliance to this checklist once every five years.

Further sources of information

- 1) Phone interview with Dr Miranda Velthuis (consultant in the area of cancer rehabilitation, IKNL).
09.05.2018
- 2) Phone interview with Dr Bas van de Weg (rehabilitation physician at Revalidatiecentrum Lindenhof & ADRZ Goes)

Table 2-16 Summary of outpatient cancer rehabilitation measures in the Netherlands



Indicator	
Outpatient cancer rehabilitation is provided	Yes
National outpatient cancer rehabilitation guidelines	Yes, published in 2011 and updated in 2017
Legislation	No information could be found
Financing	Rehabilitation (rehabilitation medicine) costs are covered by insurance companies. Rehabilitation interventions in private care are only partly financed by insurance companies.
Start of the rehabilitation	Before, during or after treatment
Recommendation	Ideally by primary health care providers (oncologist, surgeon, specialized nurse, physician assistant, general practitioner)
Responsible person	Rehabilitation physician
Coordination	Rehabilitation physician
List of all the professionals	Rehabilitation physicians, (specialized) physiotherapists, occupational therapists, psychologists, medical social workers, spiritual care providers, social workers and dieticians (not an exhaustive list)
Sports therapist vs. physiotherapist	Physiotherapist
Interventions	Information, physical training (aerobic training, muscle strength training), psychosocial intervention, nutritional advice, energy distribution intervention, psycho-education, work reintegration, cognitive behavioural therapy, occupational therapy
Mandatory interventions	No mandatory interventions, but physical activity (exercise) offered in most of the cases
Duration	Tailored to patients' needs; on average 12 weeks

Intensity	Tailored to patients' needs; on average physiotherapy twice a week, occupational therapy once or twice a week, treatment by activity therapist once a week, dietician once every two weeks, social worker once every two weeks, psychologist once every two or three weeks (= at least ca. 6 units/interventions per week)
Information flow	Rehabilitation physician must ensure frequent contact with the primary care providers, e.g. oncologist, specialized nurse, GP in order to provide information, to coordinate and complete the rehabilitation. Interdisciplinary team meetings take place ca. once every 6 weeks for each patient.
Prerequisites	Patient has multiple and interrelated problems
Assessment	Assessment is done before and after rehabilitation
Quality criteria	Yes, quality criteria exist. An audit takes place once every five years.
Main barriers	Structured referral not systematically implemented by primary care health providers; rehabilitation during treatment is less comprehensively implemented than rehabilitation after treatment; single rehabilitation interventions in primary care are not reimbursed by insurance companies, which leads to under coverage.

2.2.3 COUNTRY COMPARISON

In this paragraph, we will compare countries to each other representing the data we have found for each of the steps of the patient pathway (see figure 2-2).

Figure 2-2 Patient pathway as defined in the framework of our survey



2.2.3.1 ORGANISATION

We identified **six** countries that have national cancer rehabilitation guidelines, which include outpatient care (table 2-17):

- **Austria** (in German)
- **Germany** (in German)
- **Denmark** (in Danish)
- **The Netherlands** (in Dutch and English)
- **Sweden** (in Swedish)
- **United Kingdom** (in English)

Table 2-17 Overview of national cancer rehabilitation guidelines mentioning outpatient rehabilitation for the analysed countries (N=15)

Australia	-
Austria	Yes
Belgium	-
Canada	-
China	-
Germany	Yes
Denmark	Yes
Italy	-
Luxembourg	-
The Netherlands	Yes
Norway	-
Sweden	Yes
UK	Yes
USA	-

Programme leadership

Depending on the country, there was a different leadership responsible for the rehabilitation. Most countries for which we found information on this topic have a **rehabilitation physician** as a programme leader (table 2-18).

Table 2-18 Overview of outpatient cancer rehabilitation leaders for the analysed countries (N=15)

Australia	Selected member within the rehabilitation team
Austria	Rehabilitation physician or internal medicine specialist
Belgium	-
Canada	Selected member within the rehabilitation team (most often physiotherapist)
China	-
Denmark	-
Germany	-
France	-
Italy	Rehabilitation (or sport) physician
Luxembourg	Coordination doctor
The Netherlands	Rehabilitation physician
Norway	-
Sweden	Selected member within the rehabilitation team
UK	Selected member within the rehabilitation team
USA	Rehabilitation physician

Patient pathway coordination

Almost all the outpatient cancer rehabilitation programmes displayed a coordinated patient pathway.

The coordinator, however, varied between countries (table 2-19).

Table 2-19 Overview of patients pathway coordination for the analysed countries (N=15)

Australia	Lead health personnel, most often exercise physiologist
Austria	-
Belgium	-
Canada	-
China	-

Denmark	General practitioner at the municipality level
France	General practitioner (in all instances, not only for cancer rehabilitation)
Germany	-
Italy	Rehabilitation physician or sport physician
Luxembourg	Not clear at the time of study
The Netherlands	Rehabilitation physician
Norway	Cancer care coordinator
Sweden	Contact nurse
UK	Depending on patients individual needs
USA	-

2.2.3.2 PREREQUISITES TO ENTER OUTPATIENT REHABILITATION

Travel time, distance or means of transport available are prerequisites for some countries to enter outpatient cancer rehabilitation programmes. Even though critical from the researchers' perspective for an outpatient programme, sometimes these material criteria seem not to be considered as a prerequisite by some countries, the focus being made on physical and cognitive parameters (table 2-20).

Table 2-20 Overview of Patients prerequisites when entering an outpatient rehabilitation programme for the analysed countries (N=15)

	Travel distance to programme	Patient needs and health status
Australia	-	Each clinic has specific inclusion criteria mainly based on cognitive and medical stability
Austria	Travel distance below 50 km (one way)	-
Belgium	-	-
Canada	-	-
China	-	-
Denmark	-	-
France	-	-

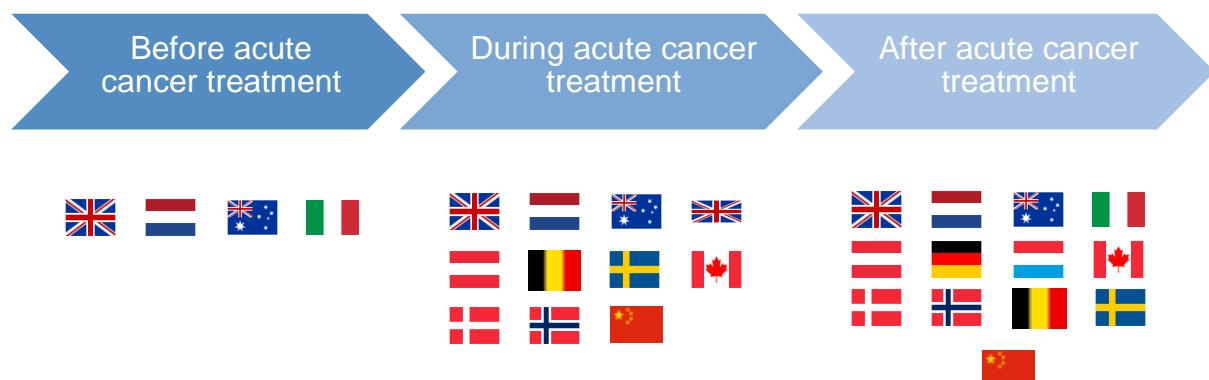
Germany	Travel time below 45 minutes (one way)	-
Italy	-	-
Luxembourg	Mean of transport available	>18 years of age; condition allowing physical activity; having received cancer treatment; needs in the areas of physical activity, nutrition and psychological support
The Netherlands	-	Patient has multiple and interrelated problems (based on Interview, Distress Thermometer, Visual Analogue Scale (VAS) for cancer-related fatigue ≥ 4 , CES-D > 16 , Patient-Specific Complaints Questionnaire PSK ≥ 4 on a minimum of 1)
Norway	-	-
Sweden	-	-
UK	-	-
USA	-	-

2.2.3.3 PROGRAMME FLOW

Start of the rehabilitation programme

Most countries started outpatient cancer rehabilitation programmes during or after the treatment. Eight countries out of 13 countries for which we could find some information had outpatient cancer rehabilitation programmes starting during the acute cancer treatment and 13 out of 13 had programmes starting after the acute treatment. Our research showed that the United Kingdom, The Netherlands, Italy and Australia had outpatient programme starting before the acute cancer treatment (figure 2-3).

Figure 2-3 Start of outpatient rehabilitation in the analysed countries (N=15)



Referral

The referral to outpatient cancer rehabilitation was very different between countries. In most countries, a health professional was involved in the referral process, but in six countries out of 15, self-referral seemed to play a key role (table 2-21).

Table 2-21 Overview of Patients referral process for the analysed countries (N=15)

	Referral through a medical specialist	Referral through a medical team	Self-referral
Australia	-	X	X
Austria	-	X	-
Belgium	-	-	-
Canada	Oncologist (mainly)	X	X
China	-	-	-
Denmark	General practitioner (mainly)	X	-
France	-	-	-
Germany	-	X	X
Italy	Oncologist, General practitioner, rehabilitation physician, sport physician	-	-
Luxembourg	Oncologist, general practitioner through a coordination doctor	-	-
The Netherlands	Oncologist, specialised nurse, surgeon, physician assistant, General practitioner, rehabilitation physician	-	-
Norway		X	X
Sweden		X	X
UK		X	
USA		X	X

Information flow within programmes

When mentioned it appeared that the most common method to exchange information between rehabilitation team members was through meetings. We could not always find information on the meeting frequency or the meeting content (review of all patients, or review patients with acute needs or issues).

Table 2-22 Information flow variants in the analysed countries (N=15)

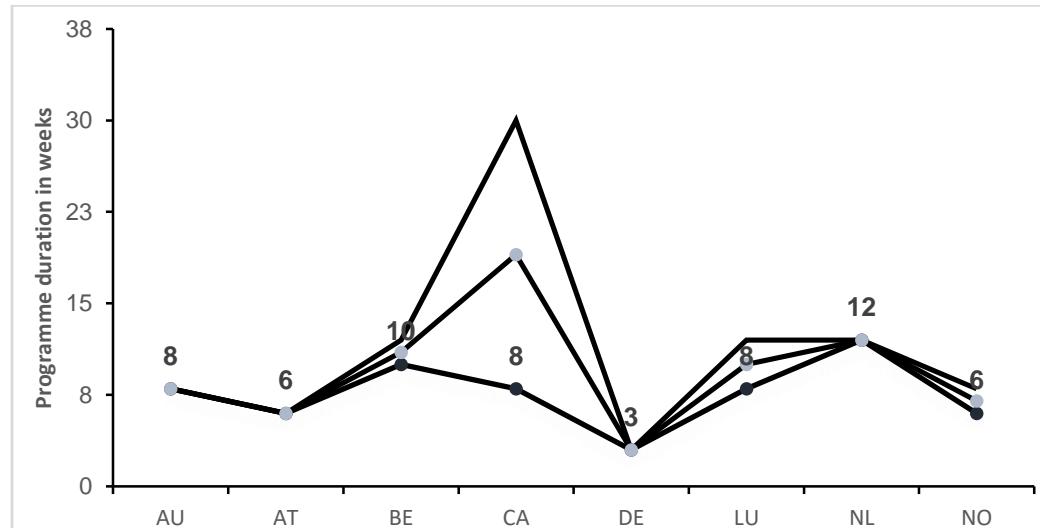
Australia	Rehabilitation team meetings
Austria	-
Belgium	-
Canada	-
China	-
Denmark	-
France	-
Germany	A physician with rehabilitation experience has the lead and is supposed to organise weekly update meetings
Italy	-
Luxembourg	Outlook: information will be shared between all acteurs through regular meetings
The Netherlands	Interdisciplinary team meetings ca. every 6 weeks for each patient; rehabilitation physician must ensure contact with primary health care providers
Norway	-
Sweden	multidisciplinary team meetings; contact nurse is responsible for information flow between patient and healthcare providers
UK	-
USA	-

2.2.3.4 THERAPIES AND REHABILITATION TEAMS

Programme duration

Based on the information we could gather, we could observe that outpatient cancer rehabilitation programme durations varied between 3 weeks in Germany and up to 30 weeks in some of the Canadian programmes, the average duration being $9.5 \text{ weeks} \pm 4.5 \text{ weeks}$.

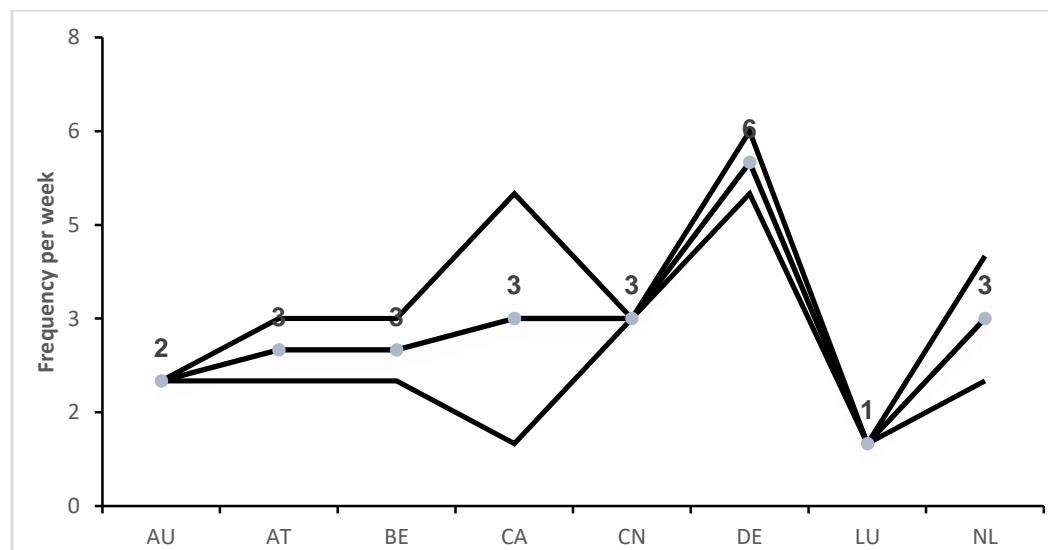
Figure 2-4 Average programme duration in the analysed countries (N=15)



Programme intensity

When analysing the intensity of the programme, looking at the frequency of rehabilitation interventions (or sessions) per week we also identified a high degree of variation between countries. Nevertheless, the average intensity seemed to be around 2 to 3 sessions/interventions per week.

Figure 2-5 Average programme intensity in the analysed countries (N=15)



Professionals and interventions

Physiotherapists, dieticians, social worker and psychologist seemed to be the key players among the cancer outpatient rehabilitation team (Table 2-23). The exhaustive list of all professionals cited in relation to cancer rehabilitation programmes can be found in appendix 1.1.5.

Professionals

Table 2-23 Most often cited outpatient rehabilitation team members in the analysed countries (N=15)

	TOTAL										
Physiotherapist	X	X		X	X	X	X	X	X	X	10
Dietitian	X	X		X	X	X	X		X	X	9
Social counselor/worker	X	X	X	X	X		X	X	X		9
Psychologist	X	X		X	X	X	X	X			8
Occupational therapist		X					X	X	X	X	6
Speech-language therapist		X		X	X			X	X	X	6
Nurse			X	X	X		X	X			5
Rehabilitation physician	X		X		X	X			X		5

Interventions

When looking at the top five most-cited interventions, we noticed that two of them were related to physical activity (general physical training and physiotherapy). Interestingly even though psychologists were part of the five most often cited professionals, psychological support and occupational therapy were not part of the top five most-cited interventions in the studied countries (table 2-24). The exhaustive list of all interventions cited in relation to cancer rehabilitation programmes can be found in appendix 1.1.6.

Table 2-24 Most often cited outpatient rehabilitation team interventions in the analysed countries (N=15)

	TOTAL													
Physical training (general)	X	X	X	X	X	X	X	X	X	X	X	X	X	12
Dietetics	X	X			X	X	X		X	X	X	X	X	9
Physiotherapy	X	X		X		X	X			X	X	X	X	8
Social therapy/counseling	X	X	X		X	X				X	X	X	X	8
Education	X	X		X	X	X	X			X	X			8
Strength training	X	X		X	X			X	X	X				7
Psychological support			X		X				X	X	X	X	X	6
Occupational therapy	X			X		X				X	X	X	X	6

It appeared that interventions were only rarely mandatory. Most of the data found supported the fact that programmes are usually tailored to the patients' needs. Nonetheless, when information was found on mandatory interventions, we observed that it was solely regarding physical activity (table 2-25).

Table 2-25 Most often cited outpatient rehabilitation team interventions in the analysed countries (N=15)

Australia	No mandatory Intervention. Programme is tailored to patients' needs
Austria	No mandatory Intervention. Programme is tailored to patients' needs
Belgium	-
Canada	No mandatory Intervention. Programme is tailored to patients' needs
China	-
Denmark	-
France	-
Germany	No mandatory Intervention. Programme is tailored to patients' needs

Italy	-
Luxembourg	24 hours out of 36 affected to physical activity
The Netherlands	No mandatory Intervention. Programme is tailored to patients' needs. Important to note almost all patients have physical activity
Norway	No mandatory Intervention. Programme is tailored to patients' needs. Important to note: Physical activity is a key recommendation
Sweden	Physical activity recommendation
UK	-
USA	-

Assessment tools

Our data showed that there seems to be no consensus as to which assessment tool is best serving the purposes of OMCR programmes. Most assessment tools were discipline-specific and not programme-specific. Some of the assessment tools were mentioned more than once, for example, the 6-min walk test, BMI or quality of life questionnaires (table 2-26)

Table 2-26 Assessment tools observed in the analysed countries (N=15)

Australia	Most common assessment tools: 6-min walk test, symptomatic, BORG
Austria	-
Belgium	-
Canada	Most common assessment tools: Numeric Pain Rating Scale, Manual Muscle testing, goniometry
China	-
Denmark	Distress Thermometer, changes on physical function, quality of life questionnaires, patient satisfaction
France	-
Germany	-
Italy	ECG, blood pressure, monitoring, body composition, strength, flexibility, quality of life (Basis concept paper 2017)
Luxembourg	Not Defined at the time of enquiry

The Netherlands	No mandatory assessment tools only Suggestions: -Exercise Aerobic capacity (diagnostic maximal cardiopulmonary exercise test with ECG and breathing-gas analysis or a 6-minute walk test), -Muscle strength (1-RM), body composition (BMI), abdominal circumference and skinfold measurement), -Patient-Specific Complaints Questionnaire, -Multidimensional Fatigue Inventory, -Centre for Epidemiologic Studies Depression Scale (CES-D), 10-item State-Trait Anxiety Inventory (STAI), EORTC-QLQ-C30
Norway	-
Sweden	Distress Thermometer, VAS/NRS, Brief Pain Inventory if VAS/NRS>4, MFS, ROAG
UK	-
USA	-

2.2.3.5 CERTIFICATION AND PROGRAMME QUALITY

We could not find any mention of programme certification as such. What we could observe was that many countries seemed to have quality standards for their programmes (table 2-27).

Table 2-27 Assessment of programme quality in the analysed countries (N=15)

Australia	-
Austria	Standards with respect to education, the number of personal and measures offered are defined (Rehabiliationsplan 2016)
Belgium	-
Canada	-
China	-
Denmark	No national monitoring system existing. Each municipality should assess the quality of their own programme and if it meets the goals set.
France	-
Germany	Standards with respect to education, the number of personal and measures offered are defined (Rahmenempfehlungen 2004)

Italy	-
Luxembourg	2.5 years after the start of the programme it is planned to have an external audit of the programme. Also, a scientific committee is foreseen for the post oncological rehabilitation programme (both inpatient and outpatient).
The Netherlands	An audit takes place every 5 years
Norway	-
Sweden	No national monitoring system existing. Each region should define its key areas and measure the quality with a predefined methodology.
UK	-
USA	-

2.2.3.6 BARRIERS TO SUCCESSFUL PROGRAMME IMPLEMENTATION

Table 2-28 summarizes all barriers to a successful cancer rehabilitation programme that the project team could gather. These barriers have been grouped by type: organisational aspects, patient-related aspects, centre related aspects, scientific related aspects, programme accessibility, programme framework and rehabilitation content.

Table 2-28 Assessment of programme quality in the analysed countries (N=15)

	AU	AT	BE	CA	CN	DE	DK	FR	IT	LU	NL	NO	SE	UK	US	total
Organizational aspects	Difficulties in referral process	X			X			X			X					4
	Financing	X			X	X				X						4
	Difficulties in cooperation with other parties, e.g. medical teams							X			X					2
	Assessment of patients' needs is difficult and time-consuming											X				1
	Follow-up of patients is difficult											X				1
Implementing/practical aspects	Traveling distance	X														1
Patient-related	Timing of interventions	X														1
	Car parking fees	X														1
	Programme promotion	X														1
	Many cancellations							X								1
Center-related aspects	Lack of space				X											1
	Lack of equipment				X											1
	Lack of health care professionals/staff turnover				X							X				2
Knowledge-related	Lack of awareness of the benefits of the exercise among doctors	X														1
	Lack of awareness of the benefits of rehab among patients	X														1
	Lack of evidence							X					X			2
	Lack of assessment tools							X								1

2.3 CONCLUSION

For the international assessment, fifteen countries were analysed. Six of them had national guidelines for outpatient cancer rehabilitation: the Netherlands, Sweden, Germany, Austria, Denmark and the UK. From the analysis, it became clear that approaches to rehabilitation, patient pathways, interventions included in rehabilitation programmes, but also aspects such as finances differ from country to country or even within a country.

Countries analysed

- Australia: some regional guidelines exist, but the content differs between them (but in all of them exercise is considered as important)
- Austria: mainly inpatient rehabilitation, but some outpatient rehabilitation programmes exist
- Belgium: only non-coordinated initiatives for cancer rehabilitation programmes
- Canada: there was lacking insight but cancer rehabilitation does not seem to be part of the standard care plan
- China: no strategy found, but cancer rehabilitation is mostly in hospitals and clinics
- Denmark: national guidelines and a progress programme that sets goals and describes the desired situation in Denmark
- France: differs from most countries in several ways, e.g. the cancer patient pathway. The cancer rehabilitation is coordinated at a national level, but some local initiatives are very close to Swiss programmes
- Germany: very detailed description of cost coverage and who is entitled to rehabilitation measures (does this refer to outpatient rehab or rehab in general?)
- Italy: many documents and guidelines available, but not very much evidence that they are used; programmes are more region-dependent and/or region-specific
- Luxembourg: rehabilitation is one of the priorities of the national cancer plan, but the country does not have national guidelines yet but is described somewhere else
- Norway: the goal is to return to daily life & work
- Sweden: cancer rehabilitation is handled differently in each region
 - an effort for guidelines of a follow-up for rehabilitation needs & survivorship care plans is made
 - revision of guidelines & their regional implementation
- UK: different guidelines for Wales & England
- USA: cancer rehabilitation programmes not the norm and not controlled nationwide
- The Netherlands:
 - Special referral pathway (decides whether primary care, outpatient or inpatient rehabilitation) -> is not always implemented
 - Many criteria for the different aspects of a rehabilitation programme

Country comparison:

- Organisation:
 - Programme leadership = mostly rehabilitation physician
 - Coordinated patient pathway (mostly)
- Prerequisites: depends on the country but there are two different kinds of criteria:
 - Material criteria = travel time, distance, means of transport
 - Physical & cognitive criteria = health status
- Programme flow:
 - Start = mostly during or after treatment
 - Referral = very different between the countries but mostly by health professionals
 - Information flow = mostly ensured by meetings of whom?
- Therapies & team:
 - Programme duration = 3-30 weeks with an average of 9 weeks
 - Intensity = average of 2-3 sessions per week; the interventions are rarely mandatory (if so it is mostly a physical intervention)
 - Assessment = no consensus which serves best; the ones used are mostly discipline-specific
- Certification: none but there are sometimes quality standards
- Barriers to successful programmes: mostly problems in the referral process & financing

3 EFFECTS OF MULTIDISCIPLINARY OUTPATIENT CANCER REHABILITATION: A SYSTEMATIC REVIEW

3.1 INTRODUCTION

Cancer rehabilitation has been proven effective in decreasing the long-term effects of cancer and cancer treatment. WHO has defined rehabilitation as a “set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment.”⁶³ Evidence suggests that physical activity interventions help reduce cancer-related fatigue and anxiety and increase the functional quality of life as well as aerobic fitness and muscle strength⁶⁴. Psychological interventions reduce fatigue⁶⁵ and anxiety⁶⁶. Interventions such as consultation with an occupational physician support cancer survivors in returning to the workplace⁶⁷.

However, a large proportion of studies focus on measuring the effect of individual rehabilitation interventions. There is growing evidence that emphasizes the importance of inter-/multidisciplinary rehabilitation, which addresses the complex needs of cancer patients through a more comprehensive approach compared to monodisciplinary care^{59,68,69}. Interdisciplinary rehabilitation refers to a programme where several health care specialists agree on mutual goals while working on these goals in individual sessions. Regular meetings and coordinated information flow are an integral part of such programmes. However, interdisciplinary rehabilitation is often mixed up with multidisciplinary rehabilitation, which, in contrast, does not necessarily include synergic teamwork⁷⁰.

So far, to the best of our knowledge, two systematic reviews have been conducted on the effects of multidisciplinary cancer rehabilitation, but not on interdisciplinary cancer rehabilitation:

- Mewes J, et al. (2012) Effectiveness of multidimensional cancer survivor rehabilitation and cost-effectiveness of cancer rehabilitation in general: a systematic review. The study included 16 effectiveness and 6 cost-effectiveness studies, in which interventions were delivered after treatment either in out- or inpatient setting. Multidimensional rehabilitation programmes were found to be more effective than usual care, although not on all outcome measures. Multidimensional rehabilitation programmes were not found to be more effective than monodimensional interventions⁷¹.
- Scott DA, et al. (2016) Multidimensional rehabilitation programmes for adult cancer survivors (Review). The study included 12 RCTs that measured the effects of multidimensional rehabilitation programmes consisting of a physical component and a psychosocial component. Programmes were delivered either out- or inpatient setting. Brief and focused multidimensional rehabilitation programmes were found to be effective⁷².

Studies use terms such as effectiveness, effects, efficacy and impact to describe the outcome of rehabilitation programmes. We decided to only use the term “effect” in this report. In general, until some years ago, in countries such as Austria, Germany, and Switzerland, cancer rehabilitation was almost

exclusively an inpatient care. However, due to political and structural changes, such as the increasing number of cancer survivor and the financial restrictions for inpatient care, outpatient rehabilitation has become increasingly more important. However, outpatient rehabilitation, in particular, inter- or multidisciplinary rehabilitation, may not be optimal for each patient and require a better collaboration of the specialists involved.

3.2 METHODS

3.2.1 OBJECTIVES

Our systematic review focused on outpatient cancer rehabilitation, which refers to rehabilitation that is offered at a hospital or medical facility without being admitted to this facility. As multi-/interdisciplinarity is often mixed up in the studies⁷⁰, and the level of synergy between the health care specialists is often not reported, all included studies were handled as providing multidisciplinary rehabilitation.

The study aimed to review the characteristics of inter-/multidisciplinary outpatient rehabilitation programmes in research published so far and to assess the effects of such programmes in terms of improving the physical, psychosocial and/or return to work status of adult cancer patients. Further, the aim of the study is to evaluate whether and how the outcomes of cancer rehabilitation differ depending on the time after rehabilitation.

This is, to the best of our knowledge, the first systematic review to assess the effects of multi-/interdisciplinary outpatient cancer rehabilitation.

3.2.2 INCLUSION CRITERIA

The systematic review included all quantitative studies conducted with adult cancer patients - independently on the cancer type - who underwent multidisciplinary outpatient cancer rehabilitation.

Randomized controlled trials (RCTs) - studies with the highest methodological quality - as well as other quantitative studies, were included. We hypothesized that including quantitative study types other than randomized controlled trials will supplement RCT evidence. Furthermore, the body of available research in the field of multidisciplinary outpatient cancer rehabilitation is expected to be small.

The PICO statement was used to set criteria for considering studies for the review:

Table 3-1 PICO statement - inclusion criteria for the systematic review

Population	Adult cancer patients (≥ 18 years old), independently of cancer type and stage
Intervention	Multidisciplinary outpatient cancer rehabilitation (≥ 2 interventions), which was delivered during or up to two years after the end of the primary treatment. Interventions may have been delivered individually or in a group, by a trained person or healthcare professional.
Control	Not specified
Outcome	<p>Effects of multidisciplinary outpatient cancer rehabilitation in terms of improving the physical and/or psychosocial and/or return to work status of adult cancer patients.</p> <p>The precondition is that assessment was done before and after the intervention and measured in the same way.</p> <p>Primary outcomes*:</p> <ul style="list-style-type: none"> (1) Physical outcomes in terms of changes in: <ul style="list-style-type: none"> - physical or functional status (e.g. physical fitness, measured by 6-minute walk test; muscle strength, measured by 1 repetition maximum test) - symptom control (e.g. pain, measured by the Visual Analogue Scale; fatigue, measured by Multidimensional Fatigue Inventory) - physical aspects of quality of life (e.g. role limitations due to physical health, measured by Short Form-36, QLQ-C30) (2) Psychosocial outcomes in terms of changes in: <ul style="list-style-type: none"> - psychological status (e.g. depression level, measured by Center for Epidemiology Depression-Scale; anxiety level, measured by State-Trait Anxiety Inventory scale) - psychosocial aspects of quality of life (e.g. role limitations due to emotional problems, measured by SF-36). (3) Return to work in terms of changes in: <ul style="list-style-type: none"> - work status

* - examples of assessment tools, not a comprehensive list

3.2.3 LITERATURE SEARCH

Literature searches were performed on June 19th, 2018 in the following databases:

- MEDLINE
- EMBASE
- CINAHL
- Cochrane Central Register of Controlled Trials
- PEDro

The search strategy was developed based on the PICO statement by review authors (DK and SC). Subsequently, the search strategy was updated and the search was conducted by an expert librarian. The search terms for each bibliographic database can be found in appendix 1.2.1.

Neither language nor time restrictions were set with respect to the selection of publications. The reference lists and bibliographies of all articles retrieved were not searched any further. Pertinent articles found during the preparation phase of the study were integrated. The initial exclusion of duplicates was performed by the expert librarian.

3.2.3.1 SELECTION OF STUDIES

The results of the literature search were downloaded into the Mendeley reference manager. Appropriate Excel sheets were prepared to document the selection of the studies. Selection of the studies was carried out in two steps:

1. Title and abstract screening

Two reviewers (DK and ZC) independently assessed the title and abstract of the first 50 papers to test initial agreement, and both continued thereafter independently.

Inclusion criteria of abstract and title screening:

- Criterion 1: cancer
- Criterion 2: rehabilitation
- Criterion 3: NOT children
- Criterion 4: study design (comparative quantitative studies: observational studies and clinical trials).

The term „multidisciplinary“, „interdisciplinary“ and „outpatient“ were not included as search terms at this stage because a preliminary search did not yield many hits and studies already known to the study group as relevant had not been found in this way.

Two reviewers made a decision whether to include or exclude each study, according to the above inclusion criteria. The decisions were recorded as follows: 0=criterion not fulfilled; 1=criterion filled;

9=unclear. In case one of the criteria was not met, the reviewer did not continue to evaluate the next criterion, but decided to exclude the study.

The decisions of the two reviewers were compared. The articles marked '1-1', '1-9', '9-1' were included for the full-text screening, articles marked '0-9', '9-0', '0-0' were excluded. In case of inconsistent decisions '1-0', '0-1' a second title and abstract screening was conducted independently by DK and ZC. In case of further disagreements, a third reviewer (AD) conducted a title and abstract screening.

Final decisions of title and abstract screening were recorded (0=exclude; 1=order for full-text assessment) in an Excel file.

2. Full-text screening

Two reviewers (DK, ZC) independently evaluated full texts of all potentially eligible papers.

Inclusion criteria of the full-text screening:

Criterion 1: ≥2 interventions, out of which:

- One was a physical training (e.g. aerobic training or strength training).
- One was NOT a physical training (e.g. nutritional intervention, occupational therapy, massage).
- If both physical and non-physical component (e.g. physical training with relaxation exercises in the end) were included in only one intervention (by the same health care professional), the study was excluded.
- If the content of the intervention was unclear to an extent that it was not possible to determine whether it was a physical training/not a physical training (e.g. physiotherapy without further explanation), the study was excluded.
- Studies measuring the effect of fast-track rehabilitation were excluded.
- Studies measuring the effect of pharmacological intervention were excluded.

Criterion 2: rehabilitation was delivered during or up to two years after the end of the acute cancer treatment.

Criterion 3: rehabilitation was delivered in an outpatient setting

If the word "outpatient" or "ambulatory" was not mentioned, we searched for hints (e.g. that the patients declined from the intervention due to too far travelling distances).

If both in- and outpatient settings were included, the study was excluded.

Criterion 4: quantitative study design

Comparative quantitative studies: observational studies and clinical trials were included

Criterion 5: physical, psychosocial or return to work status was measured by using at least one assessment tool, and measurement took place before and during/end of the rehabilitation.

The two reviewers decided whether to include or exclude each study. They rated each inclusion criterion and finally included the study if all criteria were fulfilled (0= 1 or more criterion not fulfilled, thus excluded; 1= every criterion fulfilled, thus included; 9=unclear).

The decisions of the two reviewers were compared. The articles marked '1-1', '1-9', '9-1' were included for the final selection, articles marked '0-9', '9-0', '0-0' were excluded. A second full-text screening was conducted independently by DK and ZC in case of inconsistent decisions '1-0', '0-1'. Any disagreements and unclear decisions were resolved by consensus with close attention to the inclusion/exclusion criteria. If needed, a third reviewer (SR) made the final decision.

3.2.3.2 DATA EXTRACTION

The review authors (DK and ZC) independently extracted data from the included studies, using a pre-developed data extraction template. Explicit information was extracted and tables/figures reporting the results were saved as pictures to prevent any reporting bias linked to the data extraction process. The data extracted covered the following topics:

- General aspects: author(s), title, year of publication, journal, the status of publication.
- Methods: study design, study duration, aim(s) of the study and/or hypothesis.
- Participants: recruitment, inclusion criteria, exclusion criteria, sample size calculation, sample size, completion rate, reasons for withdrawal/exclusions, unit of participant allocation, cancer type, severity of illness, co-morbidities, country, age, gender, other sociodemographic aspects, baseline imbalances, representativeness.
- Interventions: intervention settings, list of interventions, number of interventions, timing of interventions, professionals included, intensity of the program, duration of the programme. For each intervention separately: name, mode of delivery, content, professional, intensity, duration.
- Outcome: list of assessment tools, timing of assessments, procedure of assessment, physical outcome, psychosocial outcome, return to work outcome, cost-effectiveness outcome, statistical methods used.

3.2.3.3 QUALITY ASSESSMENT

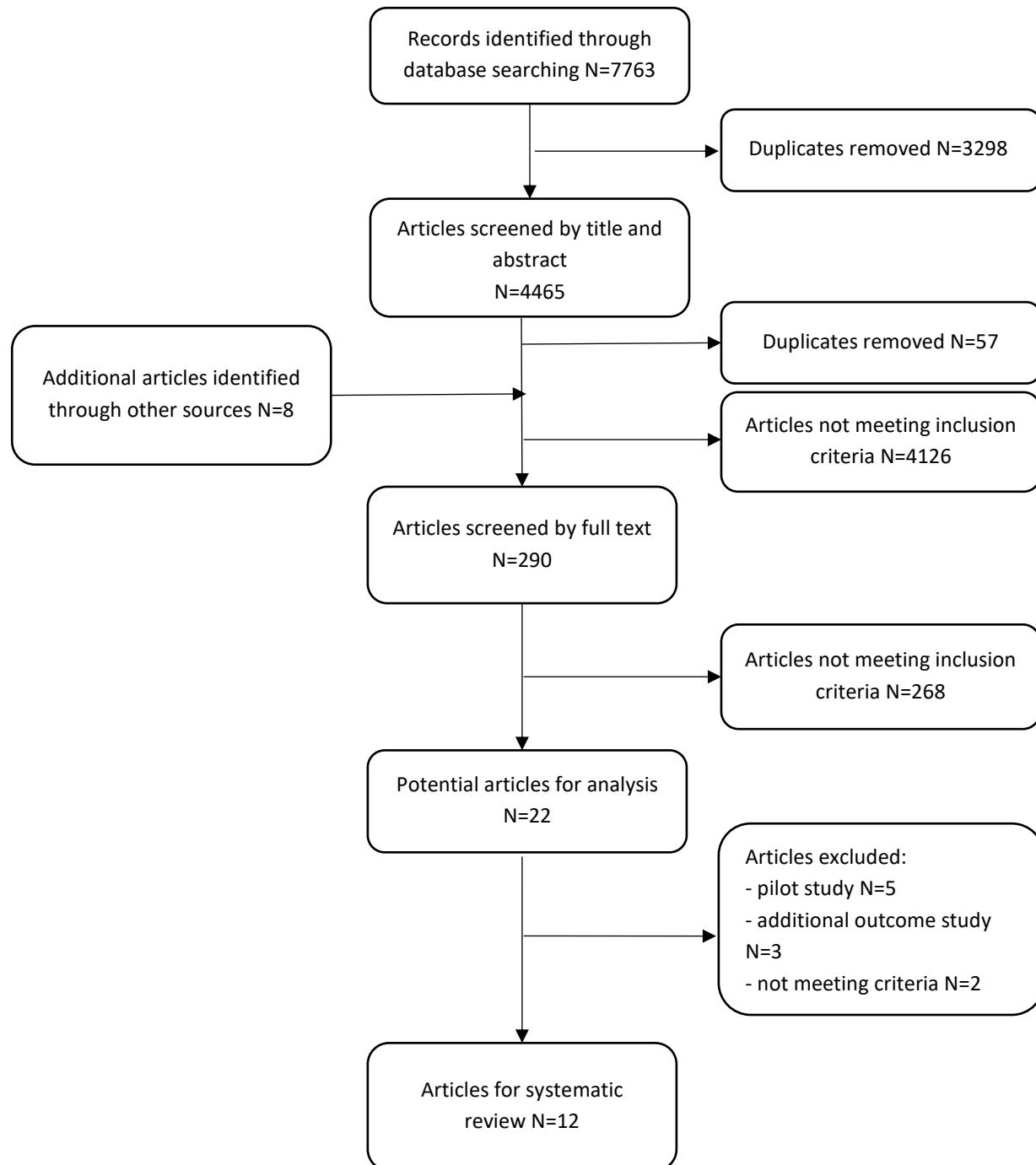
The review authors (DK and ZC) independently assessed the methodological quality of the articles included. The Cochrane Collaboration's risk of bias tool⁷³ was used to assess the risk of bias resulting from random sequence generation (selection bias), allocation concealment (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective reporting (reporting bias), and bias due to confounding in each study. If no conclusion about a bias could be drawn due to the nature of the study (e.g. blinding of participants in either receiving or not receiving rehabilitation interventions), or the study design (e.g. random sequence generation in non-randomized trials), the entry was judged with „high risk of bias“. Bias due to confounding was added to the original Cochrane tool of bias list to evaluate further bias in non-randomized studies.

3.3 RESULTS

3.3.1 STUDY SELECTION

The electronic database search performed by the expert librarian yielded 7763 results (figure 3-1). After the initial removal of duplicates, 4465 articles were included for the title and abstract screening, out of which 282 articles met the inclusion criteria and were included in the full- text screening. An additional

Figure 3-1 Workflow of the systematic review



8 articles identified by other resources were included in the full-text screening.

Out of the 290 articles that underwent full-text screening, 22 were included in the data extraction process and 268 were excluded. In a next step, further ten studies were excluded due to the following reasons:

- five were pilot studies,
- five studies fit the full-text screening inclusion criteria but were detected as unsuitable during the data extraction process (reported outcomes that were not of our interest N=3, rehabilitation was delivered more than two years after the treatment N=1, interventions delivered in inpatient and outpatient setting N=1).

Finally, 12 articles met the criteria for data extraction and quality assessment.

3.3.2 STUDY CHARACTERISTICS

Five of the studies included were carried out in Denmark (Adamsen et al. 2009⁷⁴, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶, Andersen et al. 2006⁷⁷, Seibaek et al. 2016⁷⁸), two in the United States (Clark et al. 2013⁷⁹, Rummans et al. 2006⁸⁰), and the remaining ones in South Korea (Cho et al. 2006⁸¹), Australia (Gordon et al. 2005⁸²), Belgium (Leclerc et al. 2018⁸³), the Netherlands (Leensen et al. 2017⁸⁴), and Norway (Thorsen et al. 2016⁸⁵).

Out of 12 studies included, six were randomized controlled trials (RCT) (Adamsen et al. 2009⁷⁴, Cho et al. 2006⁸¹, Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶, Rummans et al. 2006⁸⁰), two were controlled before-after studies (Gordon et al. 2005⁸², Leclerc et al. 2018⁸³) and four were uncontrolled before-after studies (Andersen et al. 2006⁷⁷, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸, et al. Thorsen 2016⁸⁵).

In the following text, RCTs and before-after studies were analysed separately due to the differences in methodological quality and level of evidence.

Randomized controlled trials

Detailed information is listed in table 3-2. In summary, the sample size of the six RCTs varied from 65 (Cho et al. 2006⁸¹) to 269 cancer patients (Adamsen et al. 2009⁷⁴) resulting in a total of 862 participants. In four RCTs, multidisciplinary rehabilitation was provided for cancer patients undergoing cancer therapy, either chemotherapy and/or radiation therapy (Adamsen et al. 2009⁷⁴, Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Rummans et al. 2006⁸⁰). Midtgård et al. 2013⁷⁶ included cancer survivors who had completed chemotherapy less than six months before the start of the intervention. Cho et al. 2006⁸¹ included patients who had completed the primary cancer treatment (mastectomy, chemotherapy and/or radiotherapy), but some patients were still receiving hormone therapy during the rehabilitation.

Multidisciplinary rehabilitation programmes all included physical training and some kind of psychological counselling interventions, partly also relaxation methods. They lasted from 2–4 weeks (Rummans et al. 2006⁸⁰) to 12 months (Midtgård et al. 2013⁷⁶) and the intensity varied from 1,5h per week (Midtgård et al. 2013⁷⁶) to 9h per week (Adamsen et al. 2009⁷⁴) (see appendix 1.2.2).

Cancer site: Out of six RCTs, two (Cho et al. 2006⁸¹, Jarden et al. 2016⁷⁵) evaluated the results by one specific cancer type. Cho et al. 2006,⁸¹ included breast cancer patients and Jarden et al. 2016⁷⁵ included patients with acute leukaemia.

Four RCTs (Adamsen et al. 2009⁷⁴, Clark et al. 2013⁷⁹, Midgaard et al. 2013⁷⁶, Rummans et al. 2006⁸⁰) included cancer patients with different types of cancer. In the study of Adamsen et al. 2009⁷⁴, 269 participants with 21 different cancer diagnoses were included (17 solid tumours and 4 malignant haematological diseases). In Clark et al. 2013⁷⁹, of 131 participants, 22% had brain tumours, 37% gastrointestinal tumours, 16% head and neck tumours, 13% lung and 12% other types of cancer. In Midgaard et al. 2013⁷⁶, 66% of the 108 participants in the intervention group had breast cancer, 6% had bowel cancer, 12% had cancer of ovaries or uterus, 3% had cancer of testes, 10% other oncological diagnoses and 12% had haematological malignancies. In Rummans et al. 2006⁸⁰, 38% of the 103 participants had colorectal cancer, 17% had primary head and neck cancer, 15% had lung cancer, 12% had primary brain tumours, and 18% had other cancers.

Table 3-2 Characteristics of the participants and of rehabilitation programmes in randomized controlled trials

Author, year of publication	Country	Participants		Multidisciplinary Interventions					Control group	Outcome	
		Sample size*	Cancer site	Timing of rehabilitation	Interventions	Intensity	Duration of the programme	Professionals		Measures	Timepoint of assessment
Adamsen, 2009	Denmark	269 I:135, C:134	21 different types (17 solid tumours, 4 malignant haematological diseases)	During treatment	High-intensity physical training, relaxation training, body awareness training, massage	9h per week (physical training 3 times per week for 90min, relaxation 3 times per week for 30min, massage 2 times a week for 30min, body-awareness training once per week for 90min)	6 weeks	Physiotherapists, specially trained nurse	Standard medical care	EORTC QLQ-C30, MOS SF-36, VO2max, 1RM, physical activity questionnaire	Baseline, 6 weeks after baseline (post-rehabilitation)
Cho, 2006	South Korea	65 I:34, C:31	Breast cancer	After primary treatment	Psychology-based education, physical training, peer support group activity	5,5h per week (education once per week for 90min, exercise twice per week for 90min, group activity once per week for 60min)	10 weeks	Psychology-based education: oncology nurse, surgeon, dietician, image consultant. Physical training: not specified. Peer support group activity: researcher.	No rehabilitation	Range of motion of the affected shoulder joint, psychosocial adjustment (18-items, 4-point scale)	Baseline, 10 weeks after baseline (post-rehabilitation)

Clark, 2013	United States	129 I:65; C:64	Different types (brain, head and neck, lung, gastrointestinal, other)	During treatment	Physical therapy, cognitive behavioural therapy, education around cancer management , relaxation, spirituality training, social therapy, phone counselling	4,5h per week (3 sessions per week, 90min each)	2-4 weeks + phone counselling for 22 weeks	Physical therapist, clinical psychologist/ psychiatrist, advanced practised nurse, hospital chaplain, clinical social worker	Standard medical care	FACT-G (The Caregiver Quality of Life Index-Cancer Scale - not of our interest)	Baseline, 4 weeks after baseline (post-intensive rehabilitation), 27 weeks after baseline (post less intensive rehabilitation)
Jarden, 2016	Denmark	70 I:34, C:36	Acute leukaemia	During treatment	Physical training (including relaxation), health counselling sessions	Ca 3h per week (physical training 3 times per week 60min) + 30-60min health counselling at W1, W6, W12	12 weeks	Not specified	Standard medical care	6MWD, VO2max, FACT-An, HADS, EORTC QLQ-C30, sit to stand, biceps curl, physical activity questionnaire, MOS SF-36	Baseline, 6 weeks after baseline (mid-rehabilitation), 12 weeks after baseline (post-rehabilitation)

Midtgård, 2013	Denmark	214 I:106, C:108	Different types (60% breast cancer + bowel, ovaries, uterus, testes, haematological malignancies, other)	After treatment	Physical training, counselling sessions	Physical training: 1 session per week, 90min each; counselling sessions: 9 sessions per year, 1-2 hours each	12 months	Trained psychologist (counselling); not specified (physical training)	Health evaluation (3 sessions per year, 15min each; education on the health benefits of regular exercise)	Saltin and Grimby questionnaire, incremental exercise test, 1RM, HRQOL, EORTC QLQ- C30, HADS, MOS SF-36, VO2max	Baseline, 6 months after baseline (mid- rehabilitation), 12 months after baseline (post- rehabilitation).
Rummans, 2006	United States	115 I:57, C:58	Different types (brain, head and neck, lung, ovarian, gastrointestinal, other)	During treatment	Physical therapy, cognitive behavioural therapy, social therapy, emotional support intervention, spiritual intervention	3-4,5h per week (8 sessions over 3 weeks, 90min each)	3-4 weeks	Physical therapist, psychiatrist/psyc hologist, advanced practice nurse, hospital chaplain, social worker	Standard medical care	Spitzer QOL Uniscale and LASAs of QOL; Symptom Distress Scale, POMS Short Form; FACIT- Spiritual wellbeing	Baseline, 4 weeks after baseline (post- rehabilitation), 8 weeks after baseline (post- rehabilitation), 27 weeks after baseline (post- rehabilitation)

* I=Intervention, C=Control

Before-after studies

The sample size of studies included varied from 88 (Andersen et al. 2006⁷⁷) to 275 cancer patients (Gordon et al. 2005⁸²) with a total sample size of 1153 participants (for details see table 3-3).

In two studies (Andersen et al. 2006⁷⁷, Leensen et al. 2017⁸⁴), the rehabilitation programme included cancer patients undergoing chemotherapy; in the other 4 studies (Gordon et al. 2005⁸², Leclerc et al. 2018⁸³, Seibaek et al. 2016⁷⁸, Thorsen et al. 2016⁸⁵), rehabilitation was provided after completion of (primary) treatment.

Multidisciplinary rehabilitation programmes included physical training as well as different kinds of psychological counselling and lasted from 4 weeks (Seibaek et al. 2016⁷⁸) to 12 weeks (Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴) and an intensity ranging from 1–2h per week (Gordon et al. 2005⁸²) to 9h per week (Andersen et al. 2006⁷⁷) (see appendix 1.2.3). One study included two control groups receiving either home-based physiotherapy intervention or no rehabilitation⁸². The controls in the second before-after study did not receive any rehabilitation⁸³.

Cancer site: Out of six before-after studies, two evaluated the results by single cancer type: Gordon et al. 2005⁸² and Leclerc et al. 2018⁸³ provided rehabilitation for breast cancer patients. Andersen et al. 2006⁷⁷ included 54 patients, of whom 45 had solid tumours and 9 had malignant haematological diseases. In Leensen et al. 2017⁸⁴ 83.9% of the 93 participants had breast cancer, 8.6% had colorectal cancer, 5.4% had non-Hodgkin's lymphoma and 2.2% had other diagnoses. Seibaek et al. 2016⁷⁸ investigated 217 women with gynaecological cancers (61% endometrial cancer, 27% cervical cancer, 2% other). In Thorsen et al. 2016⁸⁵ 64 women had breast cancer, 33 had gynaecological cancer, 7 women had lymphoma and 2 had oesophagus cancer.

Table 3-3 Characteristics of the participants and of rehabilitation programmes in before-after studies

Author, year of publication	Country	Participants		Multidisciplinary interventions					Comparison	Outcome	
		Sample size*	Cancer site	Timing of rehabilitation	Interventions	Intensity	Duration of the programme	Professionals		Outcome measures	Timepoint of assessment
Andersen, 2006	Denmark	88	Different types (45 solid tumours, 9 malignant haematological diseases)	During treatment (chemotherapy)	Physical training, relaxation, massage, body-awareness training	9h per week	6 weeks	Trained physiotherapists, specially trained nurse	No comparison group	Common Toxicity Criteria—CTC questionnaire (symptoms and side effects)	Daily self-assessment from baseline to 6 weeks after baseline (post-rehabilitation)
Gordon, 2005	Australia	275 I:31, C1:36; C2:208	Breast cancer	After treatment	Physical training targeting shoulder movement, education, psychosocial advice, peer support	1-2h per week	8 weeks	Exercise physiologist	C1: home-based physiotherapy intervention group; C2: no rehabilitation	FACT-B, DASH	Baseline, 8 weeks after baseline (post-rehabilitation), 6 months after the diagnosis (post-rehabilitation), 12 months after the diagnosis (post-rehabilitation)

Leclerc, 2018	Belgium	209 I:103; C:106	Breast cancer	After primary treatment	Physical training, psychoeducational sessions	6,5h per week (4,5h physical training, 2h psychoeducation)	12 weeks	Physiotherapist, psychologist, professor in physiotherapy and rehabilitation, dietician, neurologist	C: no rehabilitation	EORTC QLQ-C30, EQ-5D, FACIT-Fatigue, STAI, HADS, FPACQ	Baseline, 3 months after baseline (post-rehabilitation), 6 months after baseline (post-rehabilitation), 12 months after baseline (post-rehabilitation), 24 months after baseline (post-rehabilitation)
Leensen, 2017	Netherlands	95	Different types (breast [84%], colorectal, non-Hodgkins lymphoma, other).	During treatment (chemotherapy)	Physical training, personal occupational counselling	2h per week for physical exercise + 1-3 counselling sessions per 12 weeks	12 weeks	Physiotherapist, oncological occupational physician	No comparison group	Work resumption questionnaire , VAS, self-efficacy scale, WAI, WLQ, 1-RM, VO2 peak test, MFI, SQUASH, EORTC-QLQ-C30,	Baseline, 6 months after baseline (post-rehabilitation), 12 months after baseline (post-rehabilitation), 18 months after baseline (post-rehabilitation)

Seibaek, 2016	Denmark	371 217 cancer patients 154 relatives	Gynaecological cancer (ovarian, endometrial, cervical, vulva, other gynaecological)	After treatment	Information, physical training, and supportive group sessions	3h per day once a week	4 weeks	Nurse specialists, chief surgeon, physiotherapist, body therapist, sexologist, psychotherapist	No comparison group	SF-36	Baseline, 12 months after baseline (post-rehabilitation)
Thorsen, 2016	Norway	115	Different types (breast, gynaecological, lymphoma, oesophagus)	After primary treatment	Physical training, patient education, group discussion	4-5h per day once a week	7 weeks	Social worker, health practitioner, physiotherapist	No comparison group	Self-reported work status, EORTC QLQ-C30, Fatigue Questionnaire	Baseline, 6 months after baseline (post-rehabilitation)

* I=Intervention, C=Control

3.3.3 CONTROL GROUPS

Randomized controlled trials

In all RCTs, cancer patients allocated to control group received standard medical care only, except for Midtgård et al. 2013⁷⁶, in which control group patients received a less intense intervention (health evaluation sessions, which took place three times per year for 15 minutes and consisted of education on the health benefits of regular exercise).

Before-after studies

Of the six before-after studies, two had a control group. In the study by Leclerc et al. 2018⁸³, patients allocated to the control group received no rehabilitation interventions; in the study of Gordon et al. 2005⁸², the effects of multidisciplinary outpatient rehabilitation was compared with a home-based physiotherapy group and with a “no rehabilitation” group. Four studies were uncontrolled before-after studies.

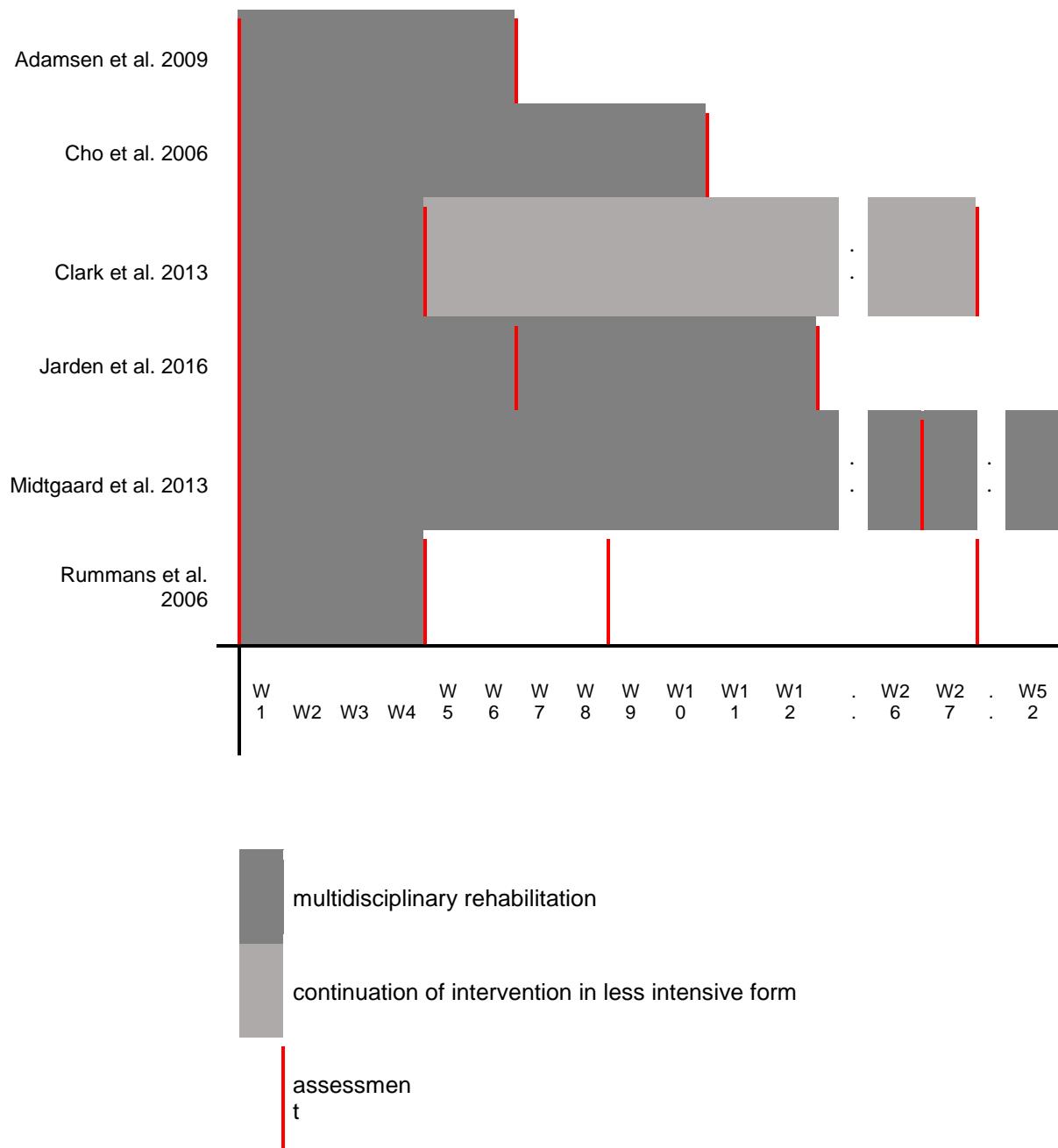
3.3.4 OUTCOME ASSESSMENT

Randomized controlled trials

The most commonly used outcome measurements among the six RCTs were the EORTC (European Organisation for Research and Treatment of Cancer) quality of life of cancer patients questionnaire (EORTC QLQ-C30) and the Medical Outcomes Study 36-Item Short-Form Survey Instrument (MOS SF-36), both used in three studies (Adamsen et al. 2009⁷⁴, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶). In addition, three studies (Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Rummans et al. 2006⁸⁰) used one or more subscales of Functional Assessment of Chronic Illness Therapy (FACIT) and three studies (Adamsen et al. 2009⁷⁴, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶) assessed cardiorespiratory fitness via VO₂max/peak test (appendices 1.2.2 and 1.2.6). Others used less known quality of life questionnaires or psychosocial adjustment scales (e.g. Cho et al. 2006⁸¹).

Outcomes were assessed at various time points (figure 3-2). In all RCTs, assessments were done at baseline and directly after the end of the rehabilitation. Only one study (Rummans et al. 2006⁸⁰) assessed the outcome of rehabilitation not only after the intervention, but also approximately 4 and 23 weeks after the end of the intervention.

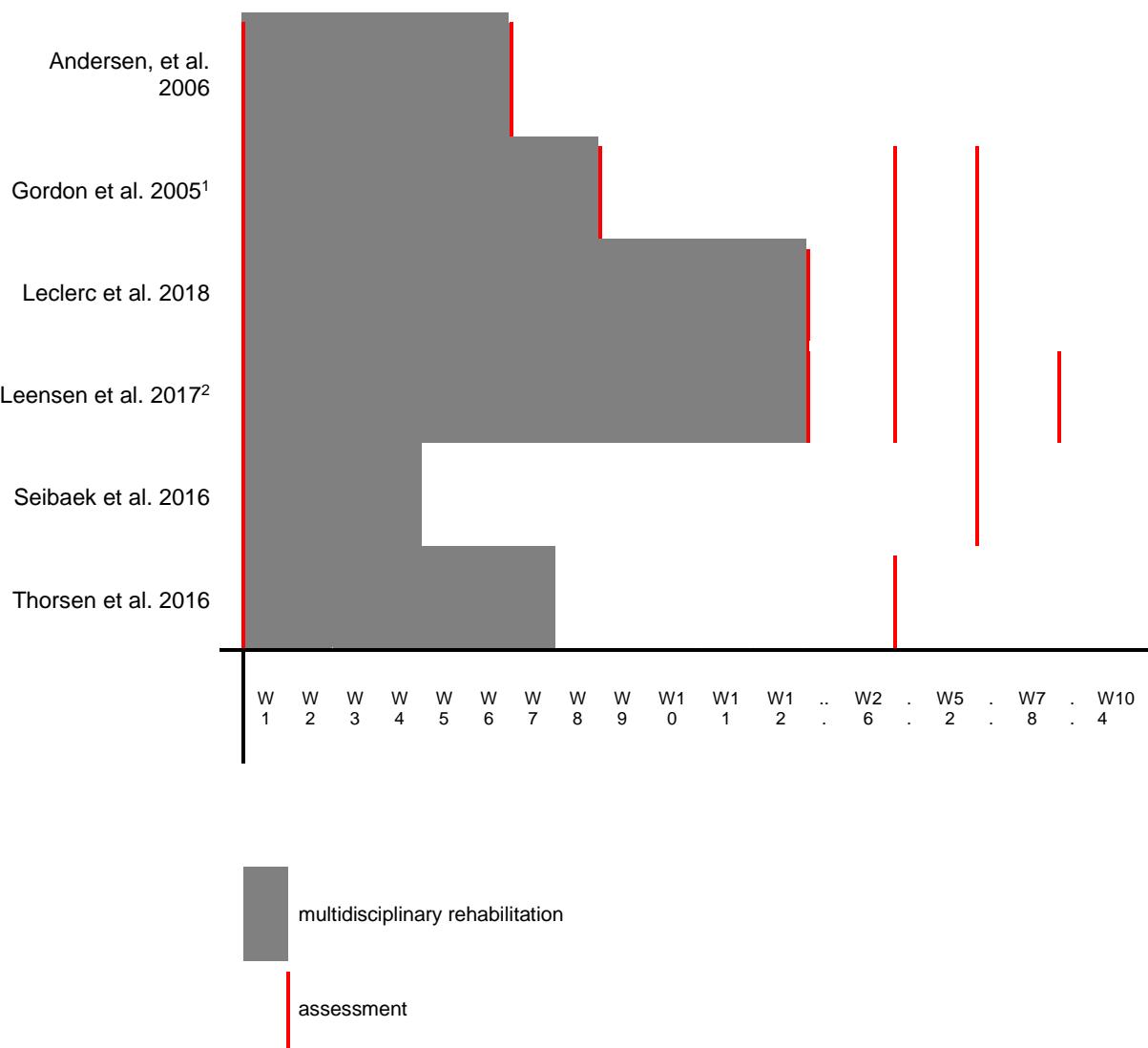
Figure 3-2 Duration of multidisciplinary rehabilitation and time of outcome assessment in RCTs



Before-after studies

Similarly to RCTs, the EORTC QLQ-C30 was most commonly used (Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴, Thorsen et al. 2016⁸⁵). Two studies (Gordon et al. 2005⁸², Leclerc et al. 2018⁸³) used a subscale of FACIT, and two studies (Leensen et al. 2017⁸⁴, Thorsen et al. 2016⁸⁵) asked a question about return to work status (appendices 1.2.3 and 1.2.7).

Figure 3-3 Duration of multidisciplinary rehabilitation and time of outcome assessment in before-after studies



¹ W26 and W52 post-rehabilitation measurements were performed 26 weeks and 52 weeks after cancer diagnosis and not 26 weeks and 52 weeks after the start of rehabilitation

² Assessments after completion of rehabilitation included only muscle strength and cardiorespiratory fitness

Outcomes were assessed at various time points (figure 3-3). In three studies (Andersen et al. 2006⁷⁷, Gordon et al. 2005⁸², Leclerc et al. 2018⁸³), assessments were performed at baseline and directly after the end of the rehabilitation (short-term outcome). Except for the study of Andersen et al. 2006⁷⁷, all before-after studies measured outcomes also weeks after the end of rehabilitation, e.g. 104 weeks after the baseline in Leclerc et al. 2018⁸³.

3.3.5 RISK OF BIAS

Randomized Controlled Trials

The results of quality assessments are presented in figures 3-4 and 3-5, with more detailed information in appendix 1.2.4.

Two studies (Cho et al. 2006⁸¹, Jarden et al. 2016⁷⁵) did not clearly mention the method of random sequence generation and were classified as being of unclear risk of bias. Four studies (Adamsen et al. 2009⁷⁴, Cho et al. 2006⁸¹, Jarden et al. 2016⁷⁵, Midtgaard et al. 2013⁷⁶) did not describe the method of allocation concealment or it remained unclear and thus, were classified as being of unclear risk of bias.

Due to the nature of the interventions, it was not possible to blind the participants and personnel to the allocated interventions. This, however, establishes a high risk for performance bias, and all studies were classified accordingly. In all studies, at least one assessment was performed by using a patient self-reported outcome, which means that outcome assessors were not blinded to the allocated intervention. Therefore, all studies were classified as being at a high risk of detection bias.

All studies reported the numbers and reasons for missing data and either stated that the dropouts were equal in intervention and control group and/or performed an appropriate analysis to prove that the missing data had no impact on the results. Therefore, all studies were classified as being at low risk of attrition bias.

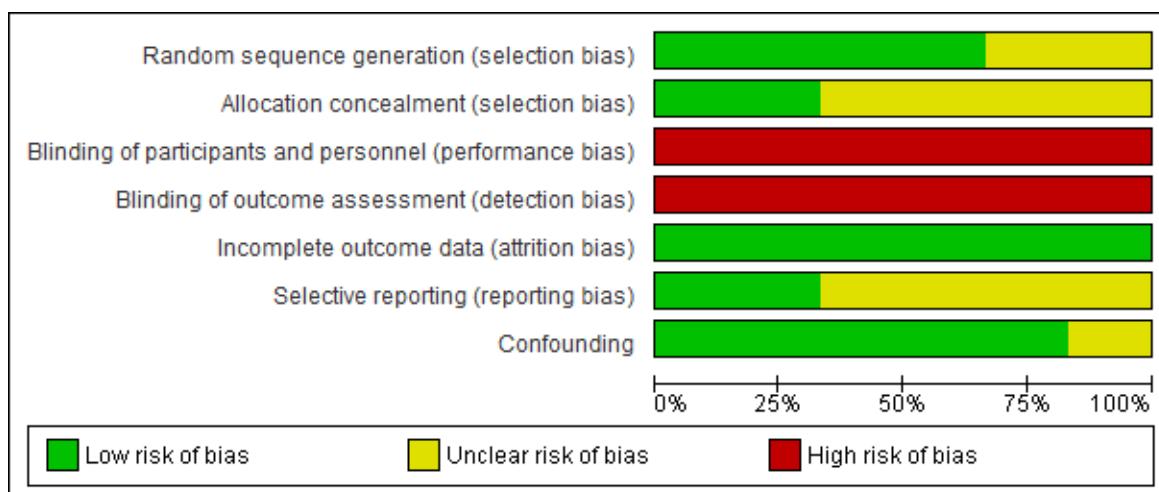
The review authors (DK, ZC) were only able to detect two study protocols (Adamsen et al. 2009⁷⁴, Jarden et al. 2016⁷⁵) and as all the prespecified primary and secondary outcomes have been reported in the publication, both studies were classified as of being at low risk of reporting bias. However, for the rest of the studies, there was insufficient information to allow for any judgment other than „unclear risk of bias“.

Bias due to confounding was classified as being low in all studies except for the study of Clark et al. 2013⁷⁹ that was classified as unclear.

Figure 3-4 'Risk of bias' summary: review authors' judgments about each risk of bias item for each included study (RCTs, N=6).

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Confounding
	+	?	-	-	+	+	+
Adamsen et al. 2009	+	?	-	-	+	+	+
Cho et al. 2006	?	?	-	-	+	?	+
Clark et al. 2013	+	+	-	-	+	?	?
Jarden et al. 2016	?	?	-	-	+	+	+
Midtgård et al. 2013	+	?	-	-	+	?	+
Rummans et al. 2006	+	+	-	-	+	?	+

Figure 3-5 'Risk of bias' graph: review authors' judgments about each risk of bias item presented as percentages across all included studies (RCTs, N=6)



Before-after studies

The results of quality assessments are presented in figures 3-6 and 3-7, with more detailed information on each judgment in appendix 1.2.5.

Two studies (Gordon et al. 2005⁸², Leclerc et al. 2018⁸³) were controlled studies, which did neither use randomization nor allocation concealment and were, therefore, rated as being of high risk of selection bias. The remaining studies did not have a control group, which indicates that randomization and allocation concealment were not applicable. This, however, establishes a high risk for selection bias, and all studies were rated in this way.

Due to the nature of the interventions and the study design in all before-after studies, it was not possible to blind the participants.

Four studies (Andersen et al. 2006⁷⁷, Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸) were assessed as being of high risk of attrition bias, as the dropout rate was high (around 30%) in each study. The study of Thorsen et al. 2016⁸⁵ was rated as being of unclear risk of attrition bias, as the attrition and exclusions were reported incompletely.

Review authors were not able to detect study protocols of any included study and, therefore, all were classified as being of unclear risk of reporting bias.

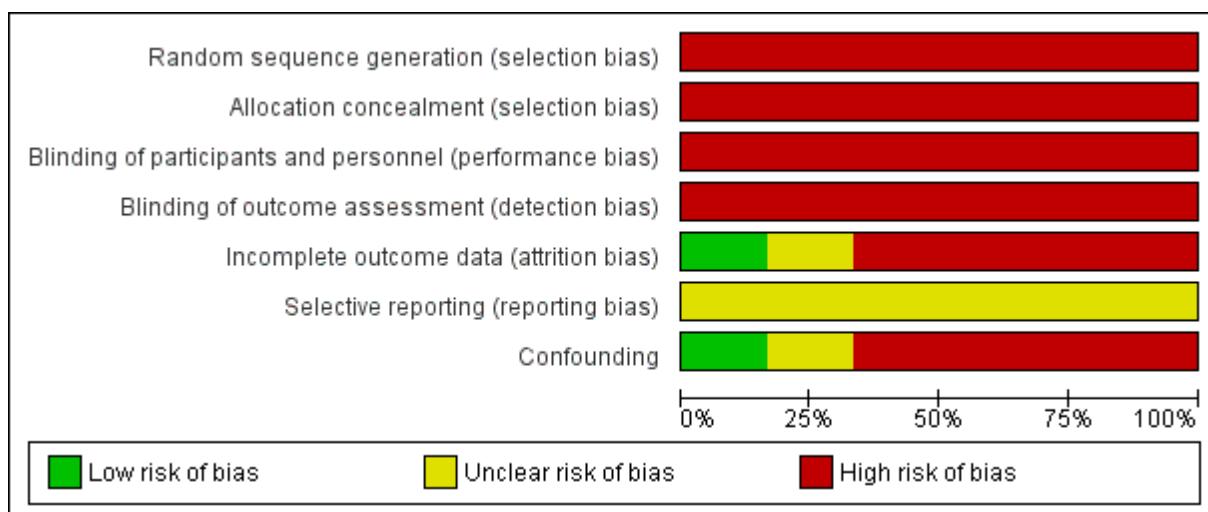
Four studies (Andersen et al. 2006⁷⁷, Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸) did not use any other form of control for confounding other than restriction and were, thus, classified as being of high risk of bias due to confounding. Gordon et al. 2005⁸² conducted multivariable analysis and adjusted results for baseline characteristics, but the study remained insufficient in explaining baseline imbalances in quality of life between intervention and control groups. Therefore, the study was assessed as being of unclear risk of bias.

Overall, all before-after studies were assessed as being of high risk of bias in most categories. This is due to the study design and the nature of the interventions.

Figure 3-6 'Risk of bias' summary: review authors' judgements about each risk of bias item for each included study (before-after studies, N=6).

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Confounding
Andersen et al. 2006	-	-	-	-	-	?	-
Gordon et al. 2005	-	-	-	-	+	?	?
Leclerc et al. 2018	-	-	-	-	-	?	-
Leensen et al. 2017	-	-	-	-	-	?	-
Seibaek et al. 2016	-	-	-	-	-	?	-
Thorsen et al. 2016	-	-	-	-	?	?	+

Figure 3-7 'Risk of bias' graph: review authors' judgements about each risk of bias item presented as percentages across all included studies (before-after studies, N=6)



3.3.6 RESULTS OF INDIVIDUAL STUDIES

Randomized controlled trials

Results of all six RCTs are listed in table 3-4. Cancer patients who underwent rehabilitation had higher physical and/or psychosocial status and/or quality of life compared to the control group. Five studies (Adamsen et al. 2009⁷⁴, Cho et al. 2006⁸¹, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶, Rummans et al. 2006⁸⁰) observed a beneficial effect on both, physical and psychosocial status, whereas one study (Clark et al. 2013⁷⁹) found a beneficial effect on physical status only. In addition, four studies (Cho et al. 2006⁸¹, Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Rummans et al. 2006⁸⁰) reported a beneficial effect on the overall quality of life and/or global health. No RCT measured the effect of rehabilitation on return to work status.

In detail, Adamsen et al. 2009⁷⁴ detected statistically significant improvements in the intervention group compared to the control group (in week 6 after baseline) regarding fatigue, muscle strength, physical capacity, and various aspects of physical and psychosocial well-being measured by MOS SF-36, which includes 8 scales (physical functioning, role physical, physical component scale, role emotional, mental health, mental component scale, vitality).

Cho et al. 2006⁸¹ observed statistically significant improvements in the range of motion of the affected shoulder joint, psychosocial adjustment and overall quality of life in the intervention group compared to the control group in the week 10 after baseline.

Jarden et al. 2016⁷⁵ detected statistically significant positive effects in the intervention group compared to the control group regarding physical activity and capacity, muscle strength, physical, functional, and emotional well-being, anxiety, depression, nausea and vomiting, emotional functioning, and overall quality of life 12 weeks after baseline.

Midtgård et al. 2013⁷⁶ observed effects 52 weeks after baseline with statistically significantly greater changes in the intervention group compared to the control group regarding physical activity levels, cardiorespiratory fitness, muscle strength, depression, and mental health. However, these effects were also observed in the control group.

Effectiveness was measured by Rummans et al. 2006⁸⁰ directly after multidisciplinary rehabilitation (week 4 after the start of rehabilitation), followed by two further assessments at week 8 after the start of rehabilitation and week 27 after the start of rehabilitation. Compared to the control group, the intervention group had statistically significantly improved the spiritual, emotional, and social well-being, as well as emotional distress, physical symptoms, and overall quality of life, measured at week 4. However, no statistically significant between-group results were detected 27 weeks after the rehabilitation. Importantly, intervention participants maintained their QOL, whereas control participants, who collectively experienced a significant decrease in QOL during radiation therapy, slowly returned to their QOL baseline levels before radiation therapy.

In the study of Clark et al. 2013⁷⁹, the assessments were conducted at two time points: at week 4 after baseline (directly after intensive multidisciplinary rehabilitation) and at week 27 (after the end of 22-week phone counselling). While significant improvements in physical well-being and overall quality of life were seen at week 4, no significant results were observed at week 27. More detailed results are listed in appendix 1.2.6.

Table 3-4 Overview of results of individual studies in randomized controlled trials

Author, year of publicatio n	Time of measure	Results of the intervention group (IG) compared to control group (CG)	
		Significant Results, i.e. health improvements	Non-significant results
Adamsen, 2009	Week 6 after baseline (post- rehabilitation)	<ul style="list-style-type: none"> Cardiorespiratory fitness (VO_{2max}) Muscle strength (1RM) <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> Less Fatigue <p>MOS SF-36:</p> <ul style="list-style-type: none"> Physical functioning Role physical Role emotional Mental health Vitality Mental component scale (summary scale) Physical component scale (summary scale) 	<ul style="list-style-type: none"> Self-reported physical activity <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> QoL Role functioning Physical functioning Emotional functioning Cognitive functioning Social functioning Nausea and vomiting Pain Dyspnoea Insomnia Appetite loss Constipation Diarrhoea Financial difficulties <p>MOS SF-36:</p> <ul style="list-style-type: none"> Bodily pain General health perceptions Social functioning
Cho, 2006	Week 10 after baseline (post- rehabilitation)	<ul style="list-style-type: none"> Psychosocial adjustment Quality of life <p>Range of motion of the affected shoulder joint:</p> <ul style="list-style-type: none"> Extension Abduction External rotation Internal rotation Total score 	<p>Range of motion of the affected shoulder joint:</p> <ul style="list-style-type: none"> Flexion
Clark, 2013	Week 4 after baseline (post- intensive rehabilitation)	FACT-G scales: <ul style="list-style-type: none"> Quality of life Physical Well-Being Functional Well-Being 	FACT-G scales: <ul style="list-style-type: none"> Social Well-Being Emotional Well-Being

	Week 27 after baseline (post-less-intensive rehabilitation)		FACT-G scales: <ul style="list-style-type: none">• Quality of life• Physical well-being• Functional Well-Being• Social Well-Being• Emotional Well-Being
Jarden, 2016	Week 6 and week 12 after baseline (post-rehabilitation)	<ul style="list-style-type: none"> • Physical function (6MWD). • Cardiovascular fitness (VO2max) • Muscle strength (Left biceps curl, Right biceps curl) • Self-reported leisure-time physical activity • Physical well-being (FACT-An) • Functional well-being: (FACT-An) • Emotional well-being: (FACT-An) • Fatigue (FACT-G) • Total score FACT-G • Trial outcome Index • Total FACT-An • Physical health (SF36) • Anxiety (HADS) • Depression (HADS) <p>EORTC QOL-C30:</p> <ul style="list-style-type: none"> • Nausea and vomiting • Global Health • Emotional functioning 	<p>FACT-G scales:<ul style="list-style-type: none">• Quality of life• Physical well-being• Functional Well-Being• Social Well-Being• Emotional Well-Being</p> <ul style="list-style-type: none"> • Social well-being (FACT-An) • Fatigue (EORTC QOL-C30) <p>Results that were not described in the article, but probably are not significant:</p> <ul style="list-style-type: none"> • Subscale of FACT-An • Subscales of FACT-G • Subscales of EORTC QOL-C30

			<ul style="list-style-type: none"> • Cardiorespiratory fitness (HR67watt) <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • QoL • Physical functioning • Role functioning • Emotional functioning • Social functioning • Fatigue • Nausea and vomiting • Pain • Dyspnoea • Insomnia • Appetite loss • Constipation • Diarrhoea • Financial difficulties <ul style="list-style-type: none"> • Depression (HADS) • Anxiety (HADS) <p>SF-36:</p> <ul style="list-style-type: none"> • Physical functioning • Role physical • Bodily pain • General health perceptions • Vitality • Social functioning • Role emotional • Mental health • Mental component scale (summary scale) • Physical component scale (summary scale)
		6 months after baseline (post-rehabilitation)	<ul style="list-style-type: none"> • Cardiorespiratory fitness (VO2peak absolute, VO2peak relative, peak power output, time to exhaustion) • Upper and lower muscular strength (1RM) • Cognitive functioning (EORTC QLQ-C30)

Midgaard, 2013	12 months after baseline (post- rehabilitation)	<ul style="list-style-type: none"> • Self-reported physical activity level • Cardiorespiratory fitness (VO₂peak absolute, peak power output, time to exhaustion) • Upper and lower muscular strength (1RM) • Depression (HADS) • Mental Health (SF-36) 	<ul style="list-style-type: none"> • Cardiorespiratory fitness (VO₂peak relative, HRpeak, HR₆₇watt) • Anxiety (HADS) <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • QoL • Physical functioning • Role functioning • Emotional functioning • Cognitive functioning • Social functioning • Fatigue • Nausea and vomiting • Pain • Dyspnoea • Insomnia • Appetite loss • Constipation • Diarrhoea • Financial difficulties <p>SF-36:</p> <ul style="list-style-type: none"> • PF • Physical functioning • Role physical • Bodily pain • General health perceptions • Vitality • Social functioning • Role emotional • Mental health • Mental component scale (summary scale) • Physical component scale (summary scale)
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Rummans, 2006	Week 4 after baseline (post- rehabilitation)	<p>LASA:</p> <ul style="list-style-type: none"> • Overall quality of life • Overall spiritual well-being <p>POMS:</p> <p>Lower emotional distress:</p> <ul style="list-style-type: none"> • Tension/anxiety • Confusion/bewilderment 	<p>LASA:</p> <ul style="list-style-type: none"> • Cognitive • Physical • Emotional • Social • Pain frequency • Pain severity • Fatigue • Social support • Financial • Legal <p>POMS:</p> <ul style="list-style-type: none"> • Total score <p>Symptom distress scale:</p> <ul style="list-style-type: none"> • Physical symptoms <p>Functional Assessment of Chronic Illness Therapy scale:</p> <ul style="list-style-type: none"> • Spiritual well-being
	Week 8 after baseline (post- rehabilitation)	Same measures, no significant results	
	Week 27 after baseline (post- rehabilitation)	Same measures, no significant results	

Before-after studies

Four before-after studies (Andersen et al. 2006⁷⁷, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸, Thorsen et al. 2016⁸⁵) revealed statistically significant results indicating that cancer patients who underwent rehabilitation had higher physical and/or psychosocial and/or return to work status compared to the status before rehabilitation. Two before-after studies including a control group, e.g. non-intervention group (Gordon et al. 2005⁸², Leclerc et al. 2018⁸³) concluded either better health-related outcomes or no differences compared to the control group (see table 3-5).

In detail, Andersen et al. 2006⁷⁷ assessed physical and psychosocial status and observed that compared to the baseline level, pain and side effects had decreased significantly 6 weeks after baseline.

In the study of Leensen et al. 2017⁸⁴, rehabilitation lasted 12 weeks and assessments were conducted 6, 12, and 18 months after the start of rehabilitation. Compared to the pre-rehabilitation assessment, various aspects of physical, psychosocial and return to work status had improved at 6 and 18 months after the rehabilitation (e.g. fatigue, physical activity levels, role functioning, nausea, motivation, perceived importance of work, and work limitations). However, 6 months after the baseline, Vo2 peak, which indicates cardiorespiratory fitness, had statistically significantly decreased by 1.9 points. Regarding return to work status, 59% of the patients had returned to work 6 months after the start of rehabilitation, 86% of the patients 12 months after the baseline and 83% of the patients 18 months after the baseline.

In the study of Seibaek et al. 2016⁷⁸, rehabilitation lasted four weeks and the assessment was conducted 12 months after the start of rehabilitation. Significant improvements were revealed for physical status and emotional role, vitality, and social functioning.

In the study of Thorsen et al. 2016⁸⁵, rehabilitation lasted seven weeks and assessments were executed six months after the start of rehabilitation. 64% of the participants had returned to work and 36% had unimproved work status 6 months after the start of rehabilitation. Physical and psychosocial status of patients were thereafter compared between patients who improved or did not improve their work status. The results were summarized as follows:

„In this outpatient R-RTW programme including a full day weekly activity for 7 weeks, more than one-third of female cancer survivors did not improve their work status. Patients in paired relations and with fatigue before starting the programme were more likely to have unimproved work status. Both groups showed progress within fatigue, physical- and role functioning and GQL, but the unimproved group experienced no improvement in emotional-, cognitive- and social functioning, as well as more financial problems during the R-RTW program.“

Gordon et al. 2005⁸² reported that during the first two months from surgery, there were clinically significant improvements in functional well-being, arm function, global HRQoL and upper-body function (DASH score). In a second, different, intervention group (STRETCH participants), HRQoL across all dimensions was unchanged. However, after 6 and twelve months also the non-intervention group scored

higher, thus, no differences between intervention and non-intervention could have been observed. Improvements in HRQoL between 6 and 12 months after diagnoses did not differ between the intervention and the non-intervention group.

In the study of Leclerc et al. 2018⁸³, rehabilitation lasted three months and assessments were conducted 3, 6, 12, and 24 months after the start of rehabilitation. Patients who underwent rehabilitation programme showed improvement in physical and psychosocial status, whereas patients in the control group maintained the baseline level or improved to a lower degree, e.g. concerning the quality of life, fatigue, pain, anxiety, and depression. See also appendix 1.2.7 for more information.

Table 3-5 Overview of results of individual studies in before-after studies

Author, year of publication	Time of measure	Results in intervention group	
		Significant Results, i.e. health improvements	Non-significant results
Andersen, 2006	Daily self-assessment from baseline until 6 weeks after baseline (post-rehabilitation)	<ul style="list-style-type: none"> • Myalgia • Other pain • Total pain • Symptoms/side effects 	<ul style="list-style-type: none"> • Lack of appetite • Nausea • Vomiting • Diarrhoea • Paraesthesia • Constipation • Physical fatigue • Mental fatigue • Treatment-related fatigue, • Arthralgia
Gordon, 2005	8 weeks after baseline (post-rehabilitation)	<p>DAART clinically but not statistically significant:</p> <ul style="list-style-type: none"> • Functional well-being, • Arm function, • Global HRQoL • Upper-body function <p>STRETCH:</p> <ul style="list-style-type: none"> • FACT-G • FACT-B • FACT-B +4 	<p>DAART:</p> <ul style="list-style-type: none"> • Physical well-being • Functional well-being • Breast Cancer • Arm Morbidity • FACT-G • FACT-B • FACT-B +4 • DASH <p>STRETCH:</p> <ul style="list-style-type: none"> • Physical well-being • Functional well-being • Breast Cancer • Arm Morbidity • DASH
	6 months to 12 months after baseline	Two intervention groups (early home-based physiotherapy DAART and group-based exercise and psychosocial intervention STRETCH) compared to a control group and across time	

	(post-rehabilitation)	<p><u>Differences across time:</u></p> <ul style="list-style-type: none"> • Physical well-being • Breast Cancer • FACT-G 	<p><u>Differences across time:</u></p> <ul style="list-style-type: none"> • Functional well-being • Arm Morbidity • FACT-B • FACT-B +4 • DASH <p><u>Differences across interventions:</u></p> <ul style="list-style-type: none"> • Physical well-being • Functional well-being • Breast Cancer • Arm Morbidity • FACT-G • FACT-B • FACT-B +4 • DASH
Leclerc, 2018	3, 6, 12 and 24 months after baseline (post- rehabilitation)	<p><u>Differences between experimental and control group:</u></p> <p>EORTC QLQ-C30 :</p> <ul style="list-style-type: none"> • Physical functioning • Role functioning • Emotional functioning • Cognitive functioning • Social functioning • Fatigue • Dyspnoea • Financial difficulties • QoL (EQ-5D) 	<p>EORTC QLQ-C30 :</p> <ul style="list-style-type: none"> • QoL • Nausea and vomiting • Pain • Insomnia • Appetite loss • Constipation • Diarrhoea • Fatigue (FACIT) • Anxiety state (STAI) • Level of physical activity (FBACQ)

	<p>EORTC QLQ-C30 :</p> <ul style="list-style-type: none"> • QoL • Physical functioning • Role functioning • Emotional functioning • Cognitive functioning • Social functioning • Fatigue • Pain • Dyspnoea • Insomnia • Appetite loss • Constipation • Financial difficulties • QoL (EQ-5D) • Fatigue (FACT) • Anxiety state (STAI) • Anxiety rate (STAI) • Level of physical activity (FBACQ) 	<p>EORTC QLQ-C30 :</p> <ul style="list-style-type: none"> • Nausea and vomiting • Diarrhoea
<u>Interaction of group and time:</u>		
	<p>EORTC QLQ-C30 :</p> <ul style="list-style-type: none"> • QoL • Role functioning • Physical functioning • Emotional functioning • Fatigue • Pain • Insomnia • Diarrhoea • QoL (EQ-5D) • Fatigue (FACT) • Anxiety state (STAI) • Anxiety rate (STAI) 	(No time and group interaction measures, as interaction was not significant in model with interaction of EORTC QLQ-C30 scales: cognitive functioning, social functioning, nausea and vomiting, dyspnoea, appetite loss, constipation, financial difficulties and for the level of physical activity (FBACQ))

	<p>After rehabilitation (only measures of muscle strength and cardiorespiratory fitness)</p> <ul style="list-style-type: none"> • VO2 peak (ml/min/kg) • 1RM leg press (kg) • 1RM deltid pulley (kg) • Maximal short exercise capacity • (steep ramp test) (W) <p><u>Differences between baseline and months 6:</u></p> <ul style="list-style-type: none"> • Rate of return to work RTW • Perceived importance of work • WLQ, time management • WLQ, physical demands • WLQ, production demands • MFI, general fatigue • MFI, physical fatigue • MFI, reduced motivation • MFI, reduced activity • MFI, total score • Physical activity • <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • Role functioning • Cognitive functioning • Fatigue • Nausea <p><u>Differences between months 6 and months 18:</u></p> <ul style="list-style-type: none"> • Rate of return to work RTW • Perceived importance of work • Work ability (First item of WAI) • Self efficacy regarding RTW • MFI, general fatigue • MFI, physical fatigue • MFI, reduced motivation • MFI, reduced activity • MFI, mental fatigue • MFI, total score • Physical activity <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • Physical functioning • Role functioning • Social functioning • Fatigue • Global health <p><u>Differences between months 6 and months 18:</u></p> <ul style="list-style-type: none"> • WLQ, time management • WLQ, physical demands • WLQ, mental-interpersonal demands • WLQ, production demands <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • Cognitive functioning • Emotional functioning • Nausea • Pain 	
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Seibaek, 2016	12 months after baseline (post- rehabilitation)	<p>SF36:</p> <ul style="list-style-type: none"> • Role Physical • Vitality • Social Functioning • Role Emotional 	<p>SF36:</p> <ul style="list-style-type: none"> • Physical functioning • Bodily Pain • General Health • Mental Health <p>• Sense of Coherence</p>
Thorsen, 2016	6 months after baseline (post- rehabilitation)	<p><u>Patients who improved their work status at 6 months:</u></p> <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • QoL • Physical functioning • Role functioning • Emotional functioning • Cognitive functioning • Social functioning • Fatigue • Nausea and vomiting • Pain • Dyspnoea • Insomnia • Appetite loss <p>Fatigue Questionnaire:</p> <ul style="list-style-type: none"> • Physical fatigue • Mental fatigue • Total fatigue <p><u>Patients who did not improve their work status at 6 months:</u></p> <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • QoL • Physical functioning • Role functioning • Emotional functioning • Fatigue • Appetite loss • Constipation • Diarrhoea • Financial difficulties <p>Fatigue Questionnaire:</p> <ul style="list-style-type: none"> • Physical fatigue • Total fatigue • Physical activity index 	<p><u>Patients who improved their work status at 6 months:</u></p> <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • Constipation • Diarrhea • Financial difficulties <p>Fatigue Questionnaire:</p> <ul style="list-style-type: none"> • Physical activity index <p><u>Patients who did not improve their work status at 6 months:</u></p> <p>EORTC QLQ-C30:</p> <ul style="list-style-type: none"> • Cognitive functioning • Social functioning • Nausea and vomiting • Pain • Dyspnoea • Insomnia <p>Fatigue Questionnaire:</p> <ul style="list-style-type: none"> • Mental fatigue

3.3.7 TIMING OF REHABILITATION

Randomized controlled trials

Significant results were reported in studies in which rehabilitation programmes were provided to cancer patients undergoing cancer therapy (Adamsen et al. 2009⁷⁴, Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Rummans et al. 2006⁸⁰) and in studies in which rehabilitation programmes were provided for cancer patients who had completed their cancer therapy (Cho et al. 2006⁸¹, Midtgård et al. 2013⁷⁶).

Before-after studies

In two before-after studies (Andersen et al. 2006⁷⁷ and Leensen et al. 2017⁸⁴), rehabilitation was provided for cancer patients undergoing cancer therapy. Both studies reported some significant improvements. The study of Andersen et al. 2006⁷⁷ concluded:

„Our results support the hypothesis that patients with advanced disease can also benefit from a rather strenuous multidimensional exercise intervention.“⁷⁷

3.3.8 NON-SIGNIFICANT RESULTS

Randomized controlled trials

Although all six RCTs found significant results on the effects of multidisciplinary cancer rehabilitation on improving the physical and/or psychosocial status of cancer patients, each study also detected many non-significant results.

Adamsen et al. 2009⁷⁴ did not report any statistically significant results on the overall quality of life, measured by EORTC QLQ-C30, as well as regarding nausea and vomiting, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea, financial difficulties and five EORTC QLQ-C30 functional scales (physical, role, emotional, cognitive, social functioning). In addition, three out of 10 subscales of MOS SF-36 (bodily pain, general health perceptions, and social functioning) remained insignificant.

The reported only non-significant result in the study of Cho et al. 2006⁸¹ was a non-significant improvement in flexion of the shoulder compared to the control group.

Clark et al. 2013⁷⁹ did not observe any significant results in any FACT-G subscale assessment at Week 27. In addition, an intent-to-treat analysis, which assumes that non-evaluable patients were failures found no statistically significant difference between intervention and control group on overall FACT-G quality of life at Week 4. Finally, in this study, no significant results were detected on FACT-G psychosocial subscales (emotional and social well-being) at Week 4.

Jarden et al. 2016⁷⁵ did not find any significant results in FACIT social well-being and fatigue subscales (adjusted model), as well as in various EORTC QOL-30 subscales, including the fatigue subscale (*„....which other exercise studies have demonstrated may be attributed to the sample size“*⁷⁵).

Midgaard et al. 2013⁷⁶ did not observe any statistically significant between-group result in EORTC QOL-30 overall scale nor any subscale. In addition, eight out of nine MOS SF-36 subscales had statistically non-significant between-group results, as well as HADS anxiety scale (*„A close examination of the data reveals that the baseline mean of the functional scales was very high indicating a potential ceiling effect“*)⁷⁶.

Rummans et al. 2006⁸⁰ did neither report any statistically significant results at Week 8 nor at Week 27. At Week 4, 7 out of 11 LASA [The Spitzer QOL Uniscale and Linear Analog Scales of Assessment] subscales had statistically non-significant between-group mean scores. In addition, total POMS scale and additional measures with the Symptom Distress Scale and FACIT-Spiritual wellbeing did not have significant differences between the two groups at week 4.

Before-after-studies

In the study of Andersen et al. 2006⁷⁷ 10 out of 12 symptoms/side effects decreased, but only one (pain) reached a significant level. Therefore, 11 out of 12 symptoms/side effects remained insignificant.

Gordon et al. 2005⁸² detected no significant change regarding upper-body disability scale (DASH) nor FACT-B physical and functional well-being, arm morbidity, and breast cancer subscale.

In the study of Leclerc et al. 2018⁸³, the change in the intervention group at month 24 was not significantly greater than in the control group regarding the following aspects: cognitive functions, social functions, nausea and vomiting, dyspnea, loss of appetite, constipation, financial difficulties (all measured by EORTC QLQ-C30), and level of physical activity (measured by FPACQ).

In the study of Leensen et al. 2017⁸⁴, the change of cognitive functioning and pain, both measured by EORTC QLQ-30, did not significantly change over the study period of 18 months. In addition, maximal workload, which was measured only at 6 months after the start of rehabilitation, did not reach statistical significance.

Seibaek et al. 2016⁷⁸ detected no statistically significant change in the following MOS SF-36 subscales: physical functioning, bodily pain, general health, and mental health.

Thorsen et al. 2016⁸⁵ analysed changes in physical and psychosocial status separately among cancer patients who improved and did not improve their return to work status. Among the patients who improved their return to work status, no statistically significant change was found regarding constipation, diarrhoea, financial problems (measured by EORTC QLQ-30), and physical activity index (measured by fatigue questionnaire). Among the patients who did not improve their return to work status, no statistically significant change was found regarding emotional, cognitive, and social functioning, nausea/vomiting, pain, dyspnea, sleep problems, appetite loss, constipation, diarrhoea (measured by EORTC QLQ-30), and mental fatigue (measured by fatigue questionnaire).

3.4 DISCUSSION

3.4.1 SUMMARY OF MAIN RESULTS

This review assessed systematically the effects of multidisciplinary outpatient cancer rehabilitation programmes. The randomized controlled trials and before-after studies provided evidence that multidisciplinary outpatient cancer rehabilitation programmes could effectively improve the physical and/or psychosocial status of cancer patients. However, non-significant changes in a variety of single physical and psychosocial measures were also common.

Physical status

Regarding the physical status (i.e., objectively measured physical components and/or physical well-being) of cancer patients, each of the six RCTs observed statistically significant improvements in at least one of the outcomes measured. The most commonly reported significantly improved outcome was physical capacity/cardiorespiratory fitness, measured by Vo₂ max/peak exercise test (Adamsen et al. 2009⁷⁴, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶). Before-after studies came to similar conclusions, although fewer studies measured physical strength, but rather focused on self-reported physical well-being. Four studies observed statistically significant improvements in the physical status of cancer patients (Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸, Thorsen et al. 2016⁸⁵). One before-after study measured cardiorespiratory fitness and observed a decrease 6 months after the start of rehabilitation (Leensen et al. 2017⁸⁴), which might be because the study aimed more at improving muscle strength than on aerobic exercise because that is an important first step in (work) functioning. From a methodological point of view, the different study types included (RCT vs. before-after design) imply different types and extent of bias, as described in the results. Thus, these controversy results must be interpreted with caution, depending on the type of validity targeted.

Psychosocial status, quality of life and return to work status

Regarding the psychosocial status of cancer patients, five out of six RCTs observed statistically significant improvements of at least one outcome measure (Cho et al. 2006⁸¹, Clark et al. 2013⁷⁹, Jarden et al. 2016⁷⁵, Midtgård et al. 2013⁷⁶, Rummans et al. 2006⁸⁰). Four before-after studies showed that patients who underwent multidisciplinary rehabilitation had improved their psychosocial status in a long-term view (Leclerc et al. 2018⁸³, Leensen et al. 2017⁸⁴, Seibaek et al. 2016⁷⁸, Thorsen et al. 2016⁸⁵). Two before-after studies (Leensen et al. 2017⁸⁴, Thorsen et al. 2016⁸⁵) were designed primarily to enhance return to work of cancer patients. Six months after the start of rehabilitation, 59% and 64% of cancer patients had returned to work, respectively, and in one study 83% of cancer patients had returned to work 18 months after the start of rehabilitation (Leensen et al. 2017⁸⁴).

3.4.2 STRENGTHS AND LIMITATIONS

The main strength of our review was the inclusion of RCTs and before-after studies, which allowed to assess a variety of outcomes, including the return to work status, which was only assessed in before-after studies. However, only two before-after studies included a control group^{82,83}. Thus, the improvements in physical and psychosocial status, as well as returning to work could have occurred due to other reasons, e.g. passage of time, and not necessarily as a result of rehabilitation. Therefore, RCTs with higher methodological quality are needed to further evaluate the potential effects of cancer rehabilitation, especially in improving return to work status of cancer patients.

A main limitation of the current systematic review was its narrative approach, which was not supplemented by meta-analyses. This was due to the large heterogeneity of outcome measures used, which made it difficult to compare the studies, especially due to the variety and a large number of outcome assessments used. Standards to assess rehabilitation effects and, hence, make assessments comparable across studies, are urgently needed.

Furthermore, the quality assessment showed that the overall methodology of the studies included was poor, partly due to the study design and partly due to methodological deficiencies of the studies. Before-after studies, which, except for two studies, did not have a control group, had a high dropout rate and failed to ensure a proper control for confounding at an analytical phase.

Future randomized controlled trials should particularly analyse the long-term effects of outpatient multidisciplinary cancer rehabilitation and the effects of cancer rehabilitation in improving the return to work status of cancer patients. Due to the small number of studies with site-specific cancer, more research is needed regarding cancer-specific rehabilitation programmes.

3.4.3 CONCLUSION

The findings of the systematic review indicate that multidisciplinary outpatient cancer rehabilitation can improve cancer patients' physical, psychological and return to work status. In particular, we conclude:

- All studies observed some statistically significant effects of the interventions, but also non-significant effects. Furthermore, the effects/non-effects of interventions were not consistent across studies. For example, several studies reported improvements in cardiovascular fitness, but the effects were observed for different components.
- There is insufficient evidence to summarize the long-term effects of cancer rehabilitation concerning improving the physical and/or mental health status of cancer patients as well as the effects of multidisciplinary outpatient cancer rehabilitation on return to work status.
- No evidence was found that suggests that the effects of cancer rehabilitation vary depending on the start of rehabilitation. Improvements in the physical and/or psychosocial status of cancer patients have been detected in rehabilitation programmes that are delivered during the cancer treatment or up to 2 years after the cancer treatment.
- Improvements in the physical and/or psychosocial status of cancer patients have been detected in rehabilitation programmes that include cancer patients with site-specific diagnoses as well as in rehabilitation programmes that include cancer patients with different types of cancer.

4 COST-EFFECTIVENESS OF PHYSICAL ACTIVITY INTERVENTION IN CANCER SURVIVORS: A SYSTEMATIC REVIEW

4.1 INTRODUCTION

Cancer is one of the leading causes of death worldwide in the under-70s, with an incidence of 18.1 million persons in 2018 and still increasing each year. Some types of cancer are attributed to lifestyle factors and are associated with increased risk of death, particularly in Western countries⁸⁶. Survival is usually the primary goal following a cancer diagnosis. In some healthcare systems, survival rates are increasing, ranging from 5% for liver, pancreatic or lung cancers to 90% for breast cancer⁸⁷, but daily life after cancer survival remains challenging.

Survivors have to contend with secondary effects, such as psychological, social or physiological impairments, either caused by the disease itself or by the treatment interventions⁸⁸. An overall reduction in quality of life has been reported to be common for several cancer types because of symptoms such as fatigue, pain or functional disabilities^{89–91}, which affect employment, family life and recreation. The symptoms often persist for many years, leading to chronicity and multimorbidity. Most survivors do not achieve previous levels of function and report prolonged fatigue, cognitive limitations, depression, anxiety, sleep problems, pain or sexual dysfunction for up to ten years after diagnosis⁹².

Lifestyle interventions directed at physical activity, diet, weight control and cessation of smoking are thought to be effective in alleviating these side effects and improving quality of life^{93–96}. Physical activity interventions have a positive effect on the quality of life of cancer survivors⁹⁷ and are frequently promoted and well-established in rehabilitation programmes to combat the secondary effects of cancer. It is well documented that they are key drivers in reducing the risks of cancer recurrence, all-cause mortality and secondary chronic disease^{64,98}. In contrast to other types of cancers, physical activity interventions in breast cancer patients are well documented^{98,99}. However, interventions vary widely in design, setting, frequency, intensity and duration, especially in the early years of survivorship. Furthermore, patient long-term adherence to physical activity as a daily routine for up to two, five or ten years post-diagnosis is rare, with only a minimum of patients achieving guideline recommendations in any of the lifestyle aspects of physical activity, nutrition or smoking¹⁰⁰. Programmes to achieve greater long-term compliance¹⁰¹ focus on multidimensional interventions¹⁰² or standalone programmes⁹⁶. However, discrepancies in programme content are seen. It is unclear which kind of intervention is most effective since physical activity programmes and programmes of behavioural change are often performed simultaneously.

Healthcare systems operate under constrained budgets and must consider the increasing demand for rehabilitation programmes for cancer survivors critically. The goals of optimizing the quality of life and preventing secondary chronic diseases must be targeted, together with a focus on patient-specific care needs, within the constraints of the healthcare budget. Therefore, an understanding of financial spending and cost-effectiveness in cancer care is essential. Depending on the cancer type, disease

stage and person's age, net costs to all payers in the US could be expected of between US\$ 20'000 and US\$ 100'000 in the first year after diagnosis, generally lower in the extended survivorship phase, before decreasing in end-of-life treatment¹⁰³. Out-of-pocket expenses for medical care could range from 7% to 11% of medical costs¹⁰⁴⁻¹⁰⁷. The largest cost drivers are histology, immunotherapy, hospitalization, absenteeism, job loss or disability pensions^{103,108,109}. The individual financial strain affects the patient and their family substantially¹¹⁰ and correlates to poor treatment adherence¹¹¹, worsening of symptoms¹¹², poor quality of life¹¹³ and shorter survival¹¹⁴.

Interventions, such as physical activity, must be evaluated carefully regarding their impact on private and/or healthcare system budget allocation. Cost-effectiveness analysis is assigned a central role in the process of decision-making. A systematic review of the cost-effectiveness of physical activity in a multidimensional setting over all types of cancer showed scarce evidence¹⁰². In unidimensional programmes for breast cancer survivors, results remain unclear because of discrepancies in patient populations and healthcare settings¹¹⁵. A tendency in the literature to focus on breast cancer limits the transferability of results to other cancer types¹⁰². The present study systematically reviewed existing literature on the cost-effectiveness of physical activity interventions in cancer survivors for all types of cancer compared to usual care, or another experimental intervention.

4.2 METHODS

A systematic review on the cost-effectiveness of physical activity interventions in cancer survivors compared to usual care, or another experimental intervention was undertaken. QALY, costs or incremental cost-effectiveness were used as outcome data. The predefined study protocol was registered in the (PROSPERO; CRD42019130284).

4.2.1 SELECTION CRITERIA

Included papers were in the English language, clinical trials or analytical model-based cost-effectiveness or cost-utility studies conducted in developed countries, as defined in the UN World Economic Situation and Prospects 2018 to narrow comparability. These included the following countries: USA, Canada, Japan, Australia, New Zealand and the states of Europe. The studies included were considered without time restrictions and papers on studies conducted in other countries or not meeting eligible study designs, were excluded.

The eligible populations were adult cancer survivors over 18 years with histologically confirmed cancer diagnosis of any type, expected survival period of one year or longer, and participating in either a physical activity intervention, referred to usual care or another experimental intervention. Any person not meeting the criteria of a cancer survivor, as defined from the time of diagnosis, through the balance of life and according to the principle of living with, through or beyond cancer¹¹⁶ was excluded. Likewise, physical activity following the definition of Casperson¹¹⁷ that not focused predominantly on physiologic

effects, such as cardio-vascular and/or endurance and/or strength-training, was not considered in the study.

4.2.2 SEARCH STRATEGY

PubMed/Medline via Ovid, CINAHL, Cochrane Library, EMBASE, Centre for Review and Dissemination (CRD), EconLit and Epistemonikos were searched electronically using predefined keywords and medical subject headings (MeSH). Validated search strings of the InterTASC Information Specialists' Sub-Group guidelines (ISSG)¹¹⁸ were used focusing on best optimization of sensitivity and specificity (95.0% and specificity of 95.6%¹¹⁹ for Medline and sensitivity of 98.4% and a specificity of 97.1%¹²⁰ for EMBASE). Advanced searches for grey literature in Google Scholar and the BioRxiv preprint server were performed. Finally, bibliography mining and cited-reference searches using reference lists were undertaken¹²¹. First authors were contacted when necessary. Table 4-1 provides an overview of the search strategy used, which was adapted for the other sources. Further information see appendix 1.3.1 and 1.3.2.

Table 4-1 PubMed/Medline Search Strategy

1	exp Entoplasmas/ or(neoplasm* or cancer* or tumor* or tumour* or carcinoma* or neoplasia* or leukemia* or melanoma* or sarcoma* or lymphoma* or malignan* or oncolog*).ti,ab.
2	exp Exercise/ or exp Exercise Therapy/ or exp Sports/exp or(exercis* or sport* or fitness or exertion* or endurance or gymnastic*).ti,ab. or(physical adj3 (activ* or training)).ti,ab.
3	exp Cost-Benefit Analysis/ or costs.ti,ab. or economic*.ti,ab.or (cost adj3 (effectiv* or efficien* or analy* or utility or benefi*)).ti,ab.
4	1 and 2 and 3
5	4 not(animals not humans).sh.

4.2.3 SCREENING PROCESS

Citations of all search results were downloaded into a literature management package (EndNote X7.8; Thomson and Reuters, Philadelphia, PA) and imported to the free web-based application Rayyan QCRI¹²². The selection criteria, title and abstract were screened blinded by two authors independently. The process was followed by reading of the full-text in the same manner. Discrepancies were solved by discussion or third-party arbitration.

4.2.4 DATA EXTRACTION

The data extraction form was standardized before the conduct of the review, based on Centre for Reviews and Dissemination (CRD) recommendations^{123,124}, the Cochrane Handbook guidance¹²⁵ and ISPOR recommendations¹²⁶. The basic extracted study characteristics included author, year of

publication, country of study performance, study design, population, type of intervention and comparator. To allow for economic evaluation, collection of data on study perspective, analytical approach, time horizon, direct and indirect costs, effectiveness, cost-effectiveness, sensitivity analysis and methods for calculating uncertainty was performed. The data extraction form was tested prior to the review by two authors independently and was adjusted through discussion. Finally, data extraction was performed by one reviewer and verified by a second (see also appendix 1.3.3 and 1.3.4).

4.2.5 QUALITY ASSESSMENTS

Quality of reporting and quality of methodology were determined using different checklists for cost-effectiveness analyses and were assessed by one reviewer and verified by a second. The Consolidated Health Economic Evaluation Reporting Scale (CHEERS)¹²⁷ was used to gather information on the quality of reporting. For clinical trial analysis, the quality of methodology was assessed using the extended Consensus Health Economic Criteria (CHEC) checklist¹²⁸, while for decision-analytic models the guidelines for good practice in decision-analytic modelling (Philips)¹²⁹ was used. Both checklists (CHEC and Philips) were conducted for papers using a combined trial-based and analytical model-based approach. As recommended by the GRADE guidelines¹³⁰, and to ensure the confidence in effect estimates, the Cochrane Rob2 tool¹³¹ was used to assess the risk of bias in the underlying clinical trials and model-based cost-effectiveness analysis included in the review (see appendix 1.3.5 to 1.3.8).

4.2.6 SYNTHESIS

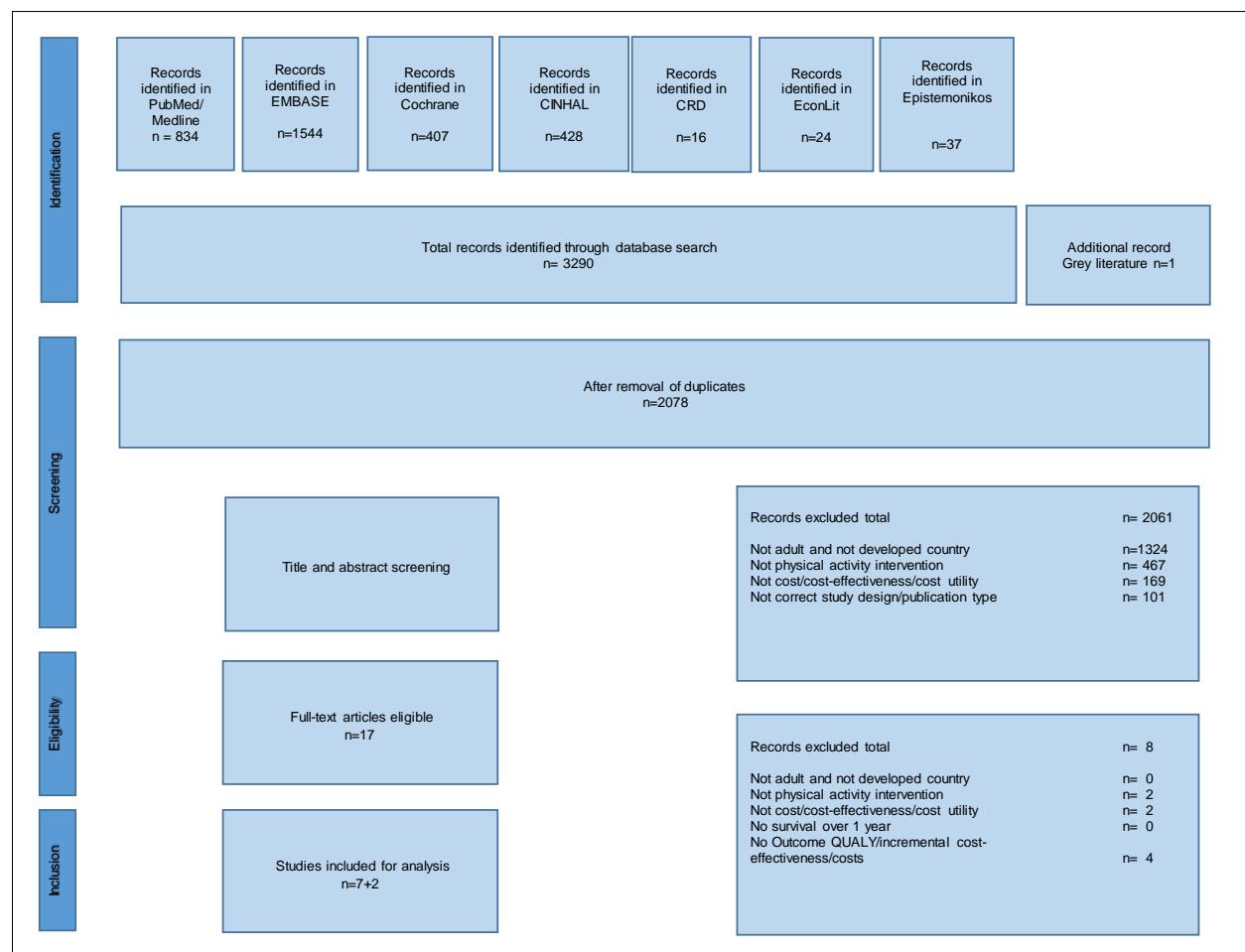
The results were summarized in tables and cost-effectiveness planes and reporting was undertaken following PRISMA guidance¹³². Because of the high level of heterogeneity of papers found, subgroups were developed based on: type of intervention; starting point of intervention, intensity and type of cancer. Categories defined in the subgroups were: interventions - divided into the categories of direct (face-to-face), indirect or combined-support groups; intensity - divided into low intensity (up to 12 Borg¹³³ / 65% of one repetition max^{134,135}), moderate-intensity (13-15 Borg¹³³ / 66-79% or one repetition max.^{134,135}) or high intensity (16-20 Borg¹³³ / 80-100% of one repetition max.^{134,135}) groups; intervention starting point - defined as intervention during radiotherapy and/or chemotherapy, or intervention starting post-radiotherapy and/or chemotherapy.

Cost data extracted from the studies were inflated to 2017 US Dollars using purchasing power parity conversion factors (PPP)¹³⁶, defined as the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as a US dollar would buy in the United States. Further, the per capita health care expenditures over time were used for adaptation of the cost to the base year 2017. In studies not reporting price year data, it was assumed that the price year was one year before study publication (appendix 1.3.9).

4.3 RESULTS

Literature search was conducted in May 2019. A total of 3'290 articles were identified. The grey literature search yielded one additional record, which has been published in the meantime¹³⁷. Deduplication resulted in 2'078 remaining articles, which were screened by title and abstract. Of these, 2'061 records did not meet the inclusion criteria. The full text of the remaining 17 articles was analyzed, resulting in the exclusion of a further eight papers. No more articles were identified from bibliography mining and cited-reference search. Figure 4-1. shows a flow chart of the study selection process. Common reasons for exclusion were; not adult cancer survivor; study not conducted in a developed country; not physical activity intervention as defined; or not appropriate study design. Of the nine papers finally included in the review, the seven papers by May¹³⁸, Gordon¹³⁹, van Waart¹⁴⁰, Kampshoff¹⁴¹, Mewes¹⁴², Haines¹⁴³ and Ha¹³⁷ met all inclusion criteria. The papers by Broderick¹⁴⁴, reporting an incomplete cost-effectiveness analysis due to the unavailability of survival information, and by Gordon¹⁴⁵, representing a cost-consequences analysis, did not meet all inclusion criteria. They were, however, considered to be of interest because they covered different types of cancer and intervention. Both papers were included but were reported separately.

Table 4-2 Study Selection



4.3.1 STUDY CHARACTERISTICS AND PARTICIPANTS

Five cost-utility analyses^{137,138,142,143,146}, two combined cost-utility/cost-effectiveness analyses^{139,140} and two cost-consequences analyses^{144,145} were published between 2010 and 2019 in the Netherlands, Australia, USA and Ireland. Study characteristics are presented in table 4-3. A trial-based approach was chosen by five research groups, plus the two costs-consequences papers. Mewes et al.¹⁴² combined a trial-based and model-based approach, exploring results up to five years, and Ha et al.¹³⁷ carried out a model-based analysis. The various cost-effectiveness evaluations and physical activity interventions included a total of 3'494 patients, ranging from 43¹⁴⁴ to 1'635¹³⁷ participants per study. The distribution of cancer types among these patients was: 1'312^{139–144} breast, 1'635¹³⁷ lung, 493^{138,145,147} colon or colorectal, 29^{141,144} lymphomas, twelve¹⁴¹ ovarian, six^{141,144} cervix, five¹⁴¹ testis and two¹⁴⁴ oesophageal. The mean age of the study populations was between 48.2¹⁴² and 78.9¹³⁷ years and covered a wide range of preliminary physical fitness levels, influenced by different starting points of intervention, age and comorbidity.

4.3.2 INTERVENTION CHARACTERISTICS

Intervention started at different points of time during the treatment process. The start points included: time frame of six weeks after a newly diagnosed cancer and scheduled for chemotherapy¹³⁸; to the first cycle of chemotherapy¹⁴⁰ or, a histologically confirmed diagnosis within the previous twelve months¹⁴⁵. Besides, three to four weeks post-surgery¹³⁹; completed or undergone chemotherapy^{141,142}; undergoing radiation, chemotherapy or hormonal therapy following surgery¹⁴³; or, two to six months after completed chemotherapy¹⁴⁴, were reported. Intervention varied widely from a low to moderate¹⁴⁰ to high intensity¹⁴¹ training of twelve^{141,142} to 125 weeks¹³⁷. The cost-consequences papers were based on eight¹⁴⁴ to 24 weeks¹⁴⁵ duration and moderate intensity. In the control groups, cancer survivors received either usual care, usual care^{139,140,145} with instruction to maintain habitual levels of activity^{138,144}, waiting list control^{141,142}, or active sham intervention with relaxation programme or weekly health education^{137,143}. Interventions focused on cardiovascular^{102,144} or combined cardiovascular and strength training with respect to the needs of the patient.

In several studies, exercise training was supervised by a physical therapist^{138,141,144} or exercise physiologist¹⁴⁰, carried out at hospital outpatient clinics. Others combined supervised and independent training^{137,139,142} delivered by exercise physiologists, or information received and instructed only by DVD¹⁴³. After a preliminary in-house instruction, Gordon et al.¹⁴⁵ decided to use a telephone-based approach, supporting individual home-based training with health-behaviour change intervention. Mewes et al.¹⁴² observed a multidimensional intervention including clinical physiologists, clinical social workers and physiotherapists guiding patients through their exercise programme and rehabilitation progress.

Activities in single sessions varied in duration and frequency. Participants were physically active between 30min¹⁴⁰ to 60min^{138,143,145} per session, from two^{138,141,144} to five¹⁴⁰ times a week, in a range of low to moderate¹⁴³ or high^{102,140,141,143} intensity. Two of the interventions complemented training with a recommendation that the patients be physically active for 30min on three additional days^{138,140}, and one

encouraged participants to do 10'000 steps per day¹⁴⁵. Adherence to the training varied between 48%¹⁴⁰ and 88%¹³⁹.

Table 4-3 Summary of Study characteristics

First Author	May ¹³⁸	Gordon ¹³⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Year of Publication	2017	2017	2018	2018	2015	2010	2019	2014	2015
Country	Netherlands	Australia	Netherlands	Netherlands	Netherlands	Australia	USA	Ireland	Australia
Study design	Cost utility analysis	Cost utility and cost-effectiveness analysis	Cost utility and cost-effectiveness analysis	Cost utility analysis	Cost utility analysis	Cost utility analysis	Cost utility analysis	Cost-consequences analysis	Cost-consequences analysis
Population	165 female with breast cancer; 18 male and 11 female with colon cancer	194 female with breast cancer	230 female with breast cancer	181 female with breast cancer; 49 colon ; 12 ovarian; 26 lymphoma; 4 cervix and 5 testis cancer	422 premenopausal female breast cancer	89 female with breast cancer	1635 (547 women and 551 men) lung cancer	31 female breast cancer; 5 colon; 3 lymphoma; 2 oesophageal and 2 gynaecological cancer	410 patients (221men and 189 women) with colorectal cancer
Sample Characteristics	Mean age 50.0 + 7.9 intervention and 49.4+ 7.6 control in breast cancer; Mean age 57.4 + 11.2 intervention and 59.1 + 8.9 control in colon cancer. Exception patients with breast cancer in the treatment group were higher educated	Average age of 52+- 8years; BMI 26.6 +/- 5.2kg/m2	Mean age of 51 years. Non participants were significantly lower educated and less likely to be working.	Mean age HI: 53 years LMI: 55 years	Mean age of 48.2 years	Mean age of 55.9 years in intervention and 54.2 years in control group.	Mean age of 78.9 years.	Mean age of 51 years.	Mean age 64.9 years intervention; 67.8 years usual care

Setting	Outpatient clinic at 7 hospitals	Home based and telephone based at 4 participating hospitals	In-hospital and home based at 12 participating hospitals	Not known	CBT: hospital based; PE: home-based	Home based	Study center based at 8 different centers and home based	Hospital based and home based	Home based
Intervention specification	<p>Session duration: 60min; Frequency per week: 2 (supervised); Duration of program 18 weeks; Intensity 45-65% of one repetition max.</p> <p>Session duration: 60min; Frequency per week: 2 (supervised); Duration of program 32 weeks; Intensity: no information -</p> <p>Telephone session duration: 45min ; Frequency per week: 4 (telephone support 16 times) ; Duration of program: 48 weeks; Intensity: no information</p> <p>Fit to Future: Session duration: 45min; Frequency per week: 4 (supervised training got reduced from weekly to monthly) ; Duration of program: 32 weeks; Intensity: low; OnTrack: Session duration: 45min ; Frequency per week: 2 (supervised training) ; Duration of program: first cycle of chemotherapy to 3 weeks after the last cycle (mean 17 weeks); Intensity: low to moderate</p> <p>Onco-Move: Session duration: 30min ; Frequency per week: 5 (self managed); Duration of program: first cycle of chemotherapy to 3 weeks after the last cycle (mean 17 weeks); Intensity: low; LMI: Session duration ca. 60min; Frequency per week: 2; Duration of program 12 weeks; Intensity high; LMI: Session duration ca. 60min; Frequency per week 2; Duration of program 12 weeks; Intensity low to moderate</p>	<p>HI: Session duration ca. 60min; Frequency per week: 2; Duration of program 12 weeks; Intensity high; LMI: Session duration ca. 60min; Frequency per week 2; Duration of program 12 weeks; Intensity low to moderate</p>	<p>CBT: Hospital based cognitive behavioral therapy 90min every 6 weeks</p> <p>PE: Session duration: 150 to 180min per week;</p> <p>Session duration: 15 up to 45min;</p> <p>Frequency per week: No information;</p> <p>Duration of program 18 weeks;</p> <p>Intensity 60-80% of VO2max</p>	<p>Session duration: 15 up to 45min;</p> <p>Frequency per week: No information;</p> <p>Duration of program 18 weeks;</p> <p>Intensity 60-80% of VO2max</p>	<p>Session duration: 60min; Frequency per week 2: Supervised and home based activity for 3 more days;</p> <p>Duration of program: 125 weeks;</p> <p>Intensity: Borg 13 for walking and 15/16 exercise training</p>	<p>Session duration: 60min; Frequency per week: 2 with home based activity for 3 more days;</p> <p>Duration of program: 8 weeks; Intensity: 35 to 75% of hart rate recovery</p>	<p>Session duration: 60min; Frequency per week: 10 calls within 6 month;</p> <p>Duration of program 24 weeks;</p> <p>Intensity: moderate.</p>		

Intervention type	Cardiovascular interval training of alternating intensity and strength training with additional 30min physical activity recommendation on 3 days a week	Individually tailored cardiovascular and strength training	OncoMove and OnTrack: cardiovascular and strength training and physical activity recommendation of 30min being active for 5times a week.	Supervised and individualized cardiovascular and strength training with additional recommendation of 30min being physically active on 3 days a week in additional	Cardiovascular training individualized in duration and frequency per week	Cardiovascular, strength and shoulder training delivered by DVD	Cardiovascular and strength training with flexibility and balance components	Individually prescribed cardiovascular training with recommendation of additional home based training	Telephone based health behavior change intervention. Encourage of doing 10000 steps per day
Adherence to the intervention	83% in the class offered	0.88	Onco Move: NI class intervention and 55% home based training OnTrack: 71% class intervention and 48% home based	HI: 74% and LMI: 70%	CBT: 58% PE: 64% and CBT/PE:70%	Adherence to the training was higher in the first 3 month than later on. After 12 month 11 of 37 participants completed their program	PA 63%	1/4 completed full program, 70% attendance to home trainings	NI
Starting point of intervention	Newly diagnosed (< 6weeks for breast and <10weeks for colon cancer) and scheduled for chemotherapy	3-4 weeks post-surgery	Both programs started from the first cycle of chemotherapy until 3 weeks after the last cycle	Completed adjuvant chemotherapy	Undergone adjuvant chemotherapy and/hormonal therapy	Following surgery undergoing adjuvant chemo therapy, 1-2 weeks after starting	Following curative intent and possible walk of 400m within 15min without assistive device or sitting	2-6month after completion of chemotherapy	Histologically confirmed diagnosis within the previous 12 month
Comparator	Usual care with instruction to maintain habitual levels of activity	Usual care	Usual care	Waiting list control	Waiting list control	Active sham intervention with relaxation and flexibility program	Weekly health education	Usual care with instruction to maintain habitual levels of activity	Usual care

Comparator specification	Maintenance to habitual physical activity pattern (incl. routinely offered exercise programs) without further information about intensity and frequency	Depending on hospital involved; From no physical activity advice to encouragement in physical activity without information on intensity and frequency	Variation according to hospital guidelines and preferences. No routine exercises were included.	NI	NI	30min	NI	NI	NI
	Note. HI High intensity; LMI Low to moderate intensity; CBT cognitive behavioral therapy; PE physical exercise; NI no information; NA not applicable								

4.3.3 QUALITY ASSESSMENTS

Table 4-4 summarizes the results of quality of reporting and quality of methodology assessments. The seven included papers^{137–143} showed moderate to the high quality of reporting. Reporting quality was affected by skewed, missing or censored data^{139,140}, insufficient information about discount rates^{139,140,143} and unclear adjusted estimated unit costs to base year^{139,141,143}. The studies by Broderick¹⁴⁴ and Gordon¹⁴⁵ were of low quality of reporting, due to their study design and to insufficient information on uncertainty, heterogeneity and incremental cost-effectiveness.

Table 4-4 Quality of reporting and methodology

First Author	May ¹³⁸	Gordon ¹³⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Quality of Reporting CHEERS	high	moderate	high	high	high	moderate	high	low	low
Quality of Methodology CHEC	high	moderate	high	high	high	moderate	NA	low	low
Quality of Methodology Philips	NA	NA	NA	NA	high	NA	high	NA	NA

Note: NA not applicable

Moderate to high quality of methodology was found overall for the May¹³⁸, Gordon¹³⁹, van Waart¹⁴⁰, Kampshoff¹⁴¹, Mewes¹⁴² and Haines¹⁴³ studies. Weaknesses identified were that some important and relevant costs for alternatives were not identified^{139,142}, not all data were related to reporting¹³⁹ and not all outcomes were valued appropriately¹⁴³. Ha's¹³⁷ model-based cost-effectiveness analysis and the Mewes¹⁴² paper, as a combination of trial-based and model-based analysis, were considered to be of high methodological quality.

Risk of bias judgment of the underlying randomized controlled trials (RCTs) is shown in figure 4-2. The judgment showed low risk of bias in the RCTs of Kampshoff¹⁴⁶ and Pahor¹⁴⁸. Some concerns in the studies by Travier¹⁴⁹, Hayes¹⁵⁰ and Hawks¹⁵¹ were due to lack of assessor blinding. High risk of bias in the studies by van Waart¹⁵², Duijts¹⁵³, Haines¹⁴³ and Broderick¹⁴⁷ was based on lack of information on concealment of the allocation sequence and high losses to follow-up. Generally, information on blinding of participants and/or caregivers in the papers was scarce, probably because blinding was not possible due to the type of intervention.

Figure 4-1 Risk of bias judgement

Cost-Effectiveness Analysis		Underlying RCT for risk of bias judgement											
		Randomization process		Deviations from intended interventions			Missing outcome data		Measurement of the outcome		Selection of the reported result		Overall
May138	Travier149	?	+	+	+	+	+	+	+	+	!		
Grodon139	Hayes150	?	+	+	+	+	+	+	+	+	Some concerns		
van Waart140	van Waart140	?	+	+	+	-	+	+	+	+	Low risk		
Kampshoff141	Kampshoff141	+	+	+	+	+	+	+	+	+	Low risk		
Mewes142	Duijts153	?	+	+	+	+	+	-	?	?	Some concerns		
Haines143	Haines143	+	+	+	+	-	+	+	?	?	Some concerns		
Ha137	Pahor148	+	+	+	+	+	+	+	+	+	Low risk		
Broderick144	Broderick144	-	?	+	+	+	+	+	?	?	Some concerns		
Grodon145	Hawkes151	+	?	+	+	+	+	+	+	!	High risk		

4.3.4 COST-EFFECTIVENESS

Cost-effectiveness results are summarized in Table 4-5 and the cost-effectiveness plane in figure 4-2. For breast cancer, inconsistent results were shown, ranging from cost-effectiveness up to a ceiling ratio of €26'000 and over €36'000 willingness-to-pay threshold. One study reported intervention in colon cancer 100% dominant and so on as cost-effective, and cost-effectiveness for lung cancer on an organisational but not societal level. One paper looked at a mixed cancer population and found cost-effectiveness for high-intensity training.

Table 4-5 Summary study cost-effectiveness data

First Author	May ¹³⁸	Gordon ¹³⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Analytic approach	Trial based	Trail based	Trail based	Trial based	Trial based and model based (exploration up to 5 years)	Trial based	Model based	Trial based	Trial based
Perspective	Societal and health care	Health provider (patients and government), service provider, private (intervention in routine practice of privately working exercise physiologists)	Societal	Societal	Healthcare system	Societal	Organizational and societal	Health system	NA
Definition of treatment effect in cost-effectiveness analysis	QALY	QALY and improvement in Quality of life	QALY and improvement in clinical outcome	QALY	QALY	QALY	QALY and disease free survival	Clinical outcome	Clinical outcome
Primary health outcome cost-effectiveness analysis (utility score)	EQ-5D after 18 weeks for breast cancer: 0.83 intervention and 0.83 control with mean difference of 0.001. Colon cancer: 0.83 intervention and 0.80 control group with mean difference of 0.02	EQ-5D-3L assessed 12 month post surgery for intervention 0.001. Colon cancer: 0.83 intervention and 0.86 and 0.85 control group	EQ-5D-3L assessed after 6month study period. OncoMove 0.63 and OnTrack 0.65.	EQ-5D-3L Global quality of life 64 weeks follow-up: LMI 0.8 and HI 0.83	SF 36 converted to EQ-5D for menopausal symptoms: 0.78 from the first to 0.85 of the last cycle with transition probabilities in CBT of 0.484 und 0.453 in PE	EQ-5D utility after 6 month: Intervention 0.80 and 0.83 control	EQ-5D calculated to an average of 0.79	NR	SF-6D at 6Month intervention group 0.745 and usual care group 0.753 by mean difference of 0.004

Currency	Euro	Australian Dollar	Euro	Euro	Euro	Australian Dollar	US Dollars	Euro	Euro
Cost year	2011	2014	2017	2012	No information	2006	2017	2013	Valued in 2013 Australian Dollar and converted to 2015 Euro
Time horizon	less than 1 year	1 year	1 year	64 weeks	5 years	less than 1 year	median of 2.6 years	less than 1 year	less than 1 year
Discounting	No discounting was performed	No discounting was performed	No discounting was performed	For costs and effects	For costs and effects	No discounting was performed	For costs and effects	No discounting was performed	No discounting was performed
Discount rate	NA	NA	NA	4% costs and 1.5% effect	4% costs and 1.5% effect annually	NR	0.03	0.05	NR
Health care costs intervention group	Societal perspective: Mean of 19623 in breast cancer and 15013 in colon cancer. Health care perspective: Mean of 12713 in breast cancer and 7640 in colon cancer	Service provider model 126620; Private model 112267	OncoMove mean 23191 OnTrack mean 22834	LMI 13278 HI 9153	CBT 500.46 (190.07+210.39+100) per patient, for all 86 patients 43039.56; PE 507.37 (196.98+210.39+100) per patient and 44141.19 over all patients after 1 cycle	Mean 10082	Organizational perspective: 110224 Societal perspective: 116685	NA	274063
Monetary direct intervention costs	PACT in breast cancer mean 794 and PACT in colon cancer mean 824	Service provider model 967.31; Private model 837.81	Onco-Move: 3552.14 OnTrack: 57506.58	LMI:815; HI:858	CBT 190.07 per patient, for all 86 patients 16346.02; PE 196.98 per patient and 17137.26 over all patients	NA	NA	4103	Mean 280.33
Inflation of health care costs to 2017	37965 breast cancer 29046 colon cancer	119970	OncoMove: 35001 OnTrack:34462	LMI: 23782 HI: 16394	75108	15407	139220	NA	436319

Swiss Francs										
Inflation health care costs to 2017 US Dollars	30462 breast cancer 23306 colon cancer	100439	OncoMove: 29335 OnTrack: 28884	LMI: 20102 HI: 13857	62881	11635	116686	NA	368664	
Direct cost control group	Societal perspective: Mean of 17473 in breast cancer and 19154 in colon cancer Health care perspective: Mean of 16335 in breast cancer and 18474 in colon cancer	2680	20795	NR	NR	Mean 3819	Organizational perspective: 105485 Societal perspective: 105967	NR	199445	
Indirect costs intervention group	Societal perspective: Mean of 1104 (SD 1511) unpaid domestic help and 4378 (SD 3650) sick leaves in breast cancer and mean of 1186 (SD 2418) unpaid domestic help and 4887 (SD 4335) sick leaves in colon cancer	NR	OncoMove 18885 OnTrack 17795	LMI 23585 HI 18770	NR	0	Organizational perspective: 6461	NA	NA	

Indirect costs control group	societal perspective: Mean of 934 (SD 1025) unpaid domestic help and 3808 (SD 3120) sick leaves in breast cancer and mean of 411 (SD 427) unpaid domestic help and 5826 (SD 4371) sick leaves in colon cancer	NR	18317	NR	NR	Mean 1280	organizational perspective: 482	NA	NA
Threshold value	20000	50000	30000 and 80000	20000 and 52000 in the main analysis 58000 and 80000 in the side analysis respectively	20000, 30000 and 80000	No adoption in prior	100000	NA	NA
Incremental cost per strategy	2912 breast cancer; 4321 colon cancer	Service provider model: 2644; Private model: 2282	OncoMove: NA; OnTrack: 33313	2429 HI versus LMI	CBT: 184; PE: 185	0	4740	NA	NA
Incremental effectiveness	0.01 in breast cancer; 0.03 in colon cancer	0.009 in service provider model	OncoMove 0.04 OnTrack 0.04	No within group differences	CBT: 0.0079 PE: 0.0067	0.03 (full data set) 0.02 (outliers excluded)	0.6	NA	NA

Sensitivity analysis	Probabilistic and deterministic; Health care perspective, without radio and cancer therapy, subgroup no immunotherapy, maximum cost price PACT, minimum cost price PACT	Probabilistic and deterministic; QALY low to high 95% CI in intervention and usual care group; Leasing car; provider model costs; out of pocket expenses low to high; incremental number of improvers.	Probabilistic and deterministic; OnTrack based on the number of planned sessions instead of the attended session, per protocol approach with 75% of adherence, calculating the costs using the friction cost approach, return to work directly after chemotherapy, estimating costs from a health care perspective, adding intervention costs associated with the time invested by the patients in exercising at home	Probabilistic and deterministic; Fixed intervention costs, patients with disease recurrence excluded, subgroup analysis for general fatigue, grip strength and PeakVO2	Probabilistic and deterministic; One-way analyses with +/- 20% effect lasts 1.5 years, effect lasts 3 years, -20% in menopausal symptoms, +/-20% cognitive behavioral therapy intervention costs, +/-20% physical exercise intervention costs, +/- disease state menopausal symptoms and perceived reduction in menopausal symptoms	Probabilistic and deterministic; Exclusion of 7 extreme outliers	Probabilistic and deterministic; On cost, probability of increasing exercise, and health utility benefit	NA	NA
Result	403.394/QALY for breast cancer; No	Service provider model: 105231/QALY	OncoMove 70052/QALY OnTrack 26916/QALY	87.831/QALY	CBT: 22.502/QALY PE: 28.078/QALY	No information	79504/QALY	NA	NA

	information for colon cancer	Private model: 90842/QALY			
summary of results	<p>Colon cancer: lower health-care costs and less hours absence from work. Breast cancer: higher cost no apparent effect on quality of life</p> <p>Exercise intervention may be cost-effective if society is willing to pay approximately 3000AUSDollar per month</p>	<p>Longer cycles of chemotherapy induces higher health care costs.</p> <p>Probability of cost-effectiveness increases substantially with increased compliance.</p> <p>OnTrack: could be cost-effective for general and physical fatigue depending on willingness to pay.</p> <p>OncoMove is not likely to be cost-effective.</p> <p>Both treatments are not cost-effective for physical fitness.</p>	<p>High intensity training: effect on role and social functioning were significantly lager for HI than LMI.</p> <p>Cardio-respiratory fitness was successfully for short and long-term in both group.</p> <p>HI was cost-effective due to lower health care costs. Dose response relationship of exercise intensity.</p>	<p>CBT and PE are effective and cost-effective. Choice on patient preferences.</p>	<p>7 outlier had extremely intense health care costs. DVD multimodal exercise program improve short term health but of questionable economic efficiency</p> <p>Costs of exercise program were most sensitive to the change of results and the intervention cost-effective on an organizational but not on a societal level</p> <p>NA</p> <p>NA</p>

Probability of cost effectiveness	<p>In colon cancer the intervention was 100% dominant in breast cancer the probability of effectiveness was 2%</p> <p>The likelihood of the service provider model being cost-effectiveness was 44.4% and 46.3% for private model</p>	<p>Irrespectively of the willingness to pay, the maximum probability of Onco-Move and OnTrack being cost-effective at 6month follow up was 17% and 31% respectively;</p> <p>With 80000 willingness-to-pay threshold 55% and 79% respectively</p>	<p>With no willingness to pay the probability of HI exercise being cost-effective compared with LMI was 87%. This probability increases to 91% at a willingness to pay of 20000/QALY</p>	<p>PE has the highest probability of being cost-effective only up to a ceiling ratio of ca. 26000/QALY. Beyond the ceiling ratio, CBT has the highest probability of being cost-effective with a probability of 49% at a ceiling ratio of 30000/QALY up to 56% at 80000/QALY</p>	<p>There was low probability (0.05% utility based QALYs full data set and 25.55% utility based QALYs outliers excluded) that the intervention would be both less costly and more effective than the control condition.</p>	<p>The LIFE exercise program was cost-effective with 71% and usual care with 27% of the time. Increasing willingness to pay to 150000 probabilities were 94% and 4%.</p>	
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Note. NR not reported; NA not applicable; HI High intensity; LMI Low to moderate intensity; CBT cognitive behavioral therapy; PE physical exercise; SD standard deviation

4.3.5 BREAST CANCER

An Australian study reported an incremental effect on EQ-5D-3L of a moderate to high intensity 32-week physical activity intervention of 0.009 with incremental costs of US\$ 2'051 (AUS\$ 2'644) in a service provider model and US\$ 1'770 (AUS\$ 2'282) in a private model¹³⁹. ICER of US\$ 81'648 per QALY (AUS\$ 105'231/QALY) in the service provider model and US\$70'483 per QALY (AUS\$ 90'842/QALY) in the private model showed a likelihood of cost-effectiveness of 44.4% and 46.3%, respectively¹³⁹. Sensitivity analysis indicated that incremental cost-effectiveness ratios were sensitive to EQ-5D-3L weights within the 95% confidence interval¹³⁹. In this case, physical activity intervention in breast cancer may be cost-effective if society is willing to pay AUS\$ 3'000 per month¹³⁹. Another study from the Netherlands conducted 17-week physical activity programmes of both low intensity and of moderate to high intensity and found an incremental effect of 0.04 for both strategies compared to usual care¹⁴⁰. Incremental costs of US\$ 3'252 (€2'571) for the low intensity and US\$ 1'498 (€1'184) for the moderate to high-intensity exercises were reported¹⁴⁰. The low-intensity training showed an ICER of US\$ 8'945 per QALY (€7'072/QALY) and moderate to high an ICER of US\$ 34'047 per QALY (€26'916/QALY). With no willingness-to-pay threshold, the probability of cost-effectiveness was 12% and 31%, respectively¹⁴⁰. With a threshold of €80'000/QALY, cost-effectiveness ranged from 55% for low to 79% for moderate to high-intensity training, respectively¹⁴⁰. In a sensitivity analysis including solely compliant participants, cost-effectiveness seemed to be higher at lower willingness-to-pay values¹⁴⁰. The moderate to high-intensity training may be cost-effective for general and physical fatigue, depending on the willingness-to-pay. Both treatments were not cost-effective for physical fitness¹⁴⁰. The study of Mewes and colleague¹⁴² carried out a 12-week individualized physical activity training, showed an incremental effect of 0.0067 for moderate to high physical exercise intervention without reporting incremental costs¹⁴². ICER of US\$ 39'124 per QALY (€28'078/QALY) for the physical exercise strategy was stated. Exercise had a probability of being cost-effective up to a ceiling ratio of €26'000 per QALY. Beyond this ratio, the second intervention assessed (cognitive behavioral therapy) had a higher probability of being cost-effective. Sensitivity analyses were robust, showing lower cost-effectiveness with shorter treatment duration.¹⁴² Haines and colleagues¹⁴³ undertook a moderate to high intensity 18-week DVD-delivered physical activity intervention. They showed an incremental effect of 0.03 and with incremental costs of zero. Healthcare costs of US\$ 61'506 (AUS\$ 10'082) were stated without reporting any QALY transparently¹⁴³. With a probability of 5%, the intervention was both less costly and more effective than the control condition¹⁴³. Results were robust in sensitivity analysis, excluding extreme outliers¹⁴³.

4.3.6 BREAST AND COLON CANCER

A Dutch 18-week low to moderate physical activity intervention for breast and colon cancer showed an incremental effect of 0.01 for breast cancer and 0.03 for colon cancer¹³⁸. Incremental costs of US\$ 4'325 (€2'912) for breast cancer and US\$ 6'417 (€4'321) for colon cancer were identified¹³⁸. While the intervention for colon cancer was dominant over usual care, an ICER of US\$ 599'083 per QALY (€403'394/QALY) for breast cancer was observed. In breast cancer, the probability of being cost-

effective was 2% to 6% with a willingness-to-pay threshold of €80'000¹³⁸. Sensitivity analysis showed higher costs for a small additional effect on QALY. Therefore, physical activity interventions were shown to be cost-effective for colon, but not breast cancer patients¹³⁸.

4.3.7 LUNG CANCER

A US American study assessing a moderate to high-intensity training over 125 weeks in lung cancer survivors showed an incremental effect of 0.6 by incremental costs of US\$ 4'740. An incremental cost-effectiveness ratio of US\$ 79'504 per QALY led to the cost-effectiveness of 71% with no willingness to pay threshold and 94% with US \$150'000 per QALY¹³⁷. With US\$ 116'686, the moderate to high-intensity training¹³⁷ reported the highest healthcare expenditures in respect to the longest study duration. In this study, the costs of the exercise programme were most sensitive to the change in results¹³⁷. The intervention was cost-effective on an organisational, but not on a societal level¹³⁷.

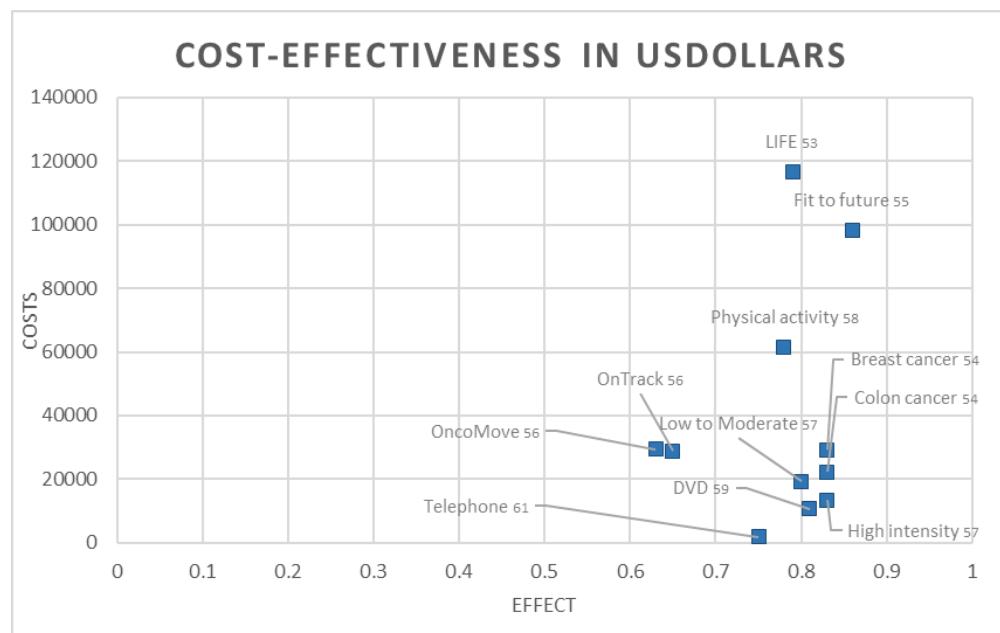
4.3.8 MIXED CANCER POPULATION

The Dutch trial, comparing high and low to moderate intensity training of 12 weeks, indicated a significant effect on the role and social functioning for high-intensity participants, with both a short and long-term increase in cardiorespiratory fitness in both groups, whereby no between-group difference was observed. With incremental costs of US\$ 3'544 (€2'429) for high-intensity training, an ICER of US\$ 128'163 per QALY (€87'831/QALY) was indicated¹⁴¹. With no willingness-to-pay threshold, the probability of cost-effectiveness was 87%, increasing with a willingness-to-pay of €20'000 per QALY to 91%¹⁴¹. Sensitivity analyses for payment of all scheduled exercise sessions and disease recurrence were robust¹⁴¹. High-intensity training was cost-effective and reduced healthcare costs¹⁴¹.

4.3.9 COST-CONSEQUENCES ANALYSIS

The cost-consequences analysis, describing the costs of an 8-week low to moderate activity programme, was up to US\$286 (€196) per patient¹⁴⁴. The intervention had a clinically relevant effect on the FACT-G physical well-being subset with a mean difference of 2.9 (96% CI 1.3 to 4.5), FACIT-F fatigue subscale of 6.7 (95% CI 2.0 to 11.4) and total score of 12.3 (95%CI of 3.9 to 20.7), as well as on the TOI-F score 10.8 (95% CI 4.3 to 17.4). The second cost-consequences paper delivered a programme of moderate-intensity and documented costs of US\$ 371 (€280) per intervention. Over 6 months, the SF 36 physical component of health-related quality of life improved statistically significantly by 1.7 (95% CI -0.2 to 3.5).

Figure 4-2 Cost-Effectiveness in US-dollars



4.4 DISCUSSION

This systematic review assessed the cost-effectiveness of physical activity interventions in cancer survivors, including all types of cancer. Seven cost-utility and/or cost-effectiveness studies and two cost-consequences papers were included and systematically analysed^{137–145}. The cost-consequences papers were reported separately because they did not fully meet the inclusion criteria. Eleven different types of interventions, in four settings and at three different levels of intensity were discussed. Study quality was of moderate to high methodological quality and reporting quality. The risk of bias ranged from low to high risk. Whereas results for breast cancer remain unclear, physical activity interventions for lung cancer patients seems to be cost-effective, with 71% probability with no given willingness-to-pay threshold rising to 94% with US \$150'000 per QALY willingness-to-pay. For colon cancer, results were 100% dominant and in the high-intensity training of Kampshoff et.al. a probability of cost-

effectiveness of 87% was stated, increasing with a willingness-to-pay threshold of €20'000 per QALY up to 91%.

Our results are in line with previous reviews, which showed contrasting results. Mewes and colleagues reported ICER's below the prevailing willingness-to-pay threshold in multidimensional rehabilitation programmes applied to various types of cancer¹⁰². They found four economic evaluations published between 2005 and 2011 and stated that comparability between the studies found was low due to different types of interventions. In their review with focus on breast cancer survivors, Khan et. al. documented contrasting conclusions due to heterogeneity in the interventions delivered¹¹⁵. Guillon et. al. discussed unclear results in three included cost-effectiveness analyses of physiotherapy-led exercise programmes for breast and head and neck cancer patients^{154,155}.

Our findings for colon cancer^{138,141} are underlined by documented effects of physical activity interventions on quality of life in colon and colorectal cancer survivors^{94,156}, but reliable data on cost-effectiveness are missing. A comparable picture is drawn for lung cancer. With a probability of being cost-effective of 94% with a willingness-to-pay threshold of \$150000 per QALY¹³⁷, physical activity interventions are stated in the literature to be effective¹⁵⁷, but with scarce information on cost-effectivity.

A study newly published by van Dongen and colleagues included patients with hematologic malignancy treated with stem cell transplantation. The training, a supervised 18-week high-intensity interval and resistance training, showed no effect on physical fitness, general fatigue or on cost-effectiveness¹⁵⁸. One reason could have been suboptimal compliance, or the timing of the intervention delivery, due to the lengthy time of recurrence in stem cell transplantation¹⁵⁸. Another published analysis on head and neck cancer stated a probability of being cost-effective of 83% with a willingness-to-pay threshold of €20000¹⁵⁹.

High-intensity interventions, such as described by van Waart¹⁴⁰ and Kampshoff and their colleagues, could be more cost-effective relative to usual care than light to moderate physical activity programmes, due to the potential reduction in healthcare use¹⁴¹. Manifestation of evidence in literature is seen. A comparison of low-volume and high-intensity training to low-to-moderate intensity training or usual care for cancer survivors including breast, ovarian, appendix anal cervical, oesophageal, and liver cancer, as well as melanoma leiomyosarcoma was undertaken¹⁶⁰. Researchers described an effect on quality of life, cardiorespiratory fitness, lower body strength and waist circumference of low-volume-high-intensity training¹⁶⁰. The result is underlined by another study which delivered a well-tolerated, high-intensity intervention over 20 weeks in lung cancer patients, showing significant effects on peak oxygen uptake, total muscle strength and muscle mass, functional fitness and quality of life¹⁶¹. Data on cost-effectiveness are scarce. A newly published article by van Dongen and colleagues did not find a high-intensity intervention to be cost-effective in 109 patients who had undergone an autologous stem cell transplantation¹⁵⁸.

Papers indicating positive cost-effectiveness of physical activity interventions were of high quality of reporting and methodology^{137,138,140,141}.

Programme duration and adherence to intervention could play important roles in the cost-effectiveness of physical activity intervention, due to long-term support resulting in adherence to training and less hospitalization¹⁶². In our review, intervention duration varied from 12 to 125 weeks. But no correlation to cost-effectiveness could be made. Adherence to physical activity intervention, which was measured at between 48% for home-based activities¹⁴⁰ and 83% for supervised classes¹³⁸, did not state any conclusions to cost-effectiveness. Two-thirds of cancer survivors do not meet physical activity recommendations in the US¹⁶², with women of low education and comorbid conditions being affected the most¹⁶³. Adhering to basic physical activity could result in cost-savings of US\$ 4'686 per person annually¹⁶². Therefore, delivered programmes must meet cancer survivors needs. Continuous compliance to physical activity constitutes an important factor in cost savings and intervention effectiveness. In general, adherence to multiple health behaviour interventions is low^{164,165}, except in older cancer survivors¹⁶⁶ and oncologist-referred recommendations¹⁶⁷. With low to moderate adherence, programme duration could play an important role in affecting quality of life, as seen in a previous study.¹⁶⁸

Delivered forms of physical activity programme vary widely, from personal support to distance-based interventions. In our study, the interventions that were cost-effective^{137,138,140,141} were personal support delivered by a home-based additional training or recommendation. Patients diagnosed with cancer often report difficulties in the adoption and maintenance of exercise. Concerns about safety, desire for professional guidance, physical limitations, fatigue or lack of time were reported^{166,169,170}. This indicates that personal support could be beneficial. A systematic review of 27 distance-based physical activity interventions in cancer survivors found no effect on reported physical activity¹⁷¹. Goode reported an effect in non-face-to-face lifestyle interventions in three-quarters of the 27 studies observed, with a preference for telephone-based activities. Novel technologies, with the possibility of delivering physical activity interventions to meet patients' needs with an optimal allocation of resources, should be investigated. This could perhaps lead to new methods of rehabilitation.

The starting point of the rehabilitation process does not seem to affect cost-effectiveness. Both strategies, of starting during chemo-/radiotherapy or afterwards, may be cost-effective. Cost-effectiveness depends on the healthcare resources used during the intervention period^{138,141,143}. Therefore, the cost-effectiveness of strategies needed to be evaluated for all three survivorship phases separately.

The strength of this study is that it uses a robust methodological procedure, based on clear eligibility criteria and standardized, valid instruments of judgement. Two independent reviewers and a professional librarian were involved in the defined search process and analysis undertaken. Thorough analyses of different aspects of intervention were performed and the implications for cost-effectiveness assessed. There are some limitations to point out. Due to heterogeneity and unequivocal judgements made in the assessment tools, researchers were unable to summarize the results quantitatively. Further on the population in the trials do not reflect the general population, with those included in the trials probably at an advanced stage of cancer, at an older age, more likely to be female and more active¹⁷²⁻¹⁷⁴. This results in an underestimation of effects. Physical activity arrangements outside the study protocol were not assessed or reported and could have led to a misinterpretation of effects. In respect

to cost-effectiveness, the same information was not necessarily available from all studies, except for direct costs, indirect costs and productivity losses. Furthermore, the economic burden of early retirement, productivity loss and disability pensions is enormous¹⁷⁵ and was not reported in the studies included.

4.5 CONCLUSION

This systematic review has performed a cost-effectiveness analysis of physical activity intervention in cancer survivors over all types of cancer. Few conclusive results could be found because of the high heterogeneity of interventions and cost data available. Interventions for colon cancer and lung cancer and a high-intensity training intervention appear to be cost-effective on willingness-to-pay thresholds of €20'000 and \$150'000, respectively. More research is needed to make results more robust. A greater focus on the several aspects of intervention, such as starting point of the intervention, frequency, intensity, duration and intervention delivery modalities, could deliver more in-depth results. Furthermore, a focus on software-assisted tools or wearables will be more common in future discussions.

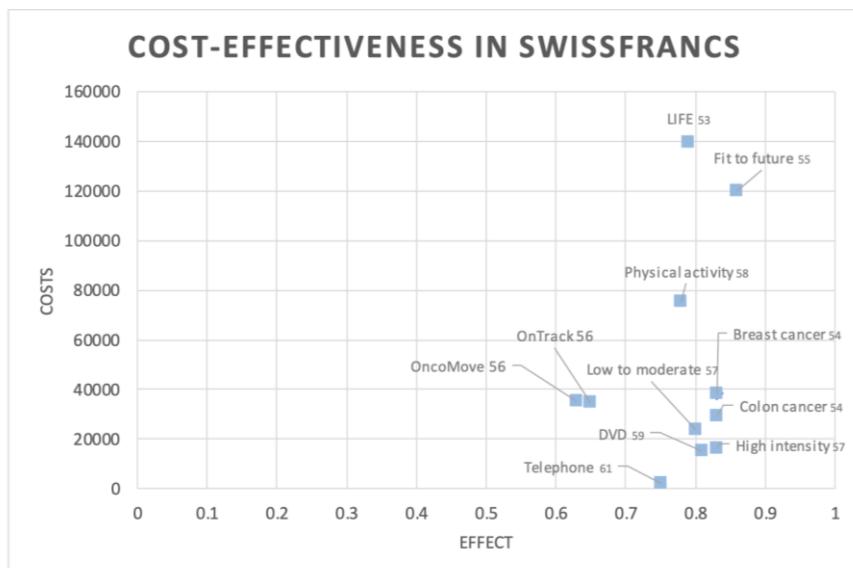
4.6 IMPLICATION TO THE SWISS HEALTH CARE SYSTEM

The transferability of the results of this review to Switzerland is challenging. Cost-effectiveness in Swiss Francs is shown in figure 4-3. and does not differ substantially from the cost-effectiveness plane in US Dollars (figure 4-2.). The different structures and funding of healthcare systems included in the analysis are not directly comparable to the Swiss healthcare system. The main cost drivers in cancer care in the United States are histology, immunotherapy and hospitalization based¹⁰³. These are comparable to Switzerland, where 6.6% of male and 5.0% of female hospitalizations are based on cancer diagnosis^{176–178}. Therefore, physical activity interventions could be important in avoiding side effects and related hospitalizations¹⁷⁹. But, it must also be mentioned that cancer costs in Switzerland vary regionally¹⁸⁰ and that out-of-pocket expenditures of 32.1% of total health expenditure are very high compared to OECD standards¹⁸¹. Transparency in cancer costs, including direct, indirect and psycho-social costs, set in a conceptual framework is essential for analysis and subsequent decision-making¹⁰³.

Swiss cancer rehabilitation was defined in 2015 as a medical treatment method to support cancer patients with suitable tools and coordinated efforts to regain participation and autonomy¹⁸². It is not known to what extent this definition is understood and practised in the field today. Structured interventions, such as physical activity, adapted to several stages of survivorship and types of cancer are needed to reach the highest probability of effectiveness¹⁸³ and transparency of cost-effectiveness. Regarding the results presented in the review above, two necessities should be pointed out: firstly, data sources on costs, and secondly, data sources on structured interventions. These two aspects are essential to building country-specific evaluations and have an impact on policy.

As a first step, based on the study results presented, the implementation of physical activity programmes using a moderate-to-high intensity form should be considered for colon cancer and lung cancer, as well as building of cost data sources are recommended.

Figure 4-3 Cost-effectiveness in Swiss Francs



C. SWISS NATIONAL SURVEY 2018, Q2

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1 INTRODUCTION

The assessment of Swiss outpatient multidisciplinary cancer rehabilitation addressed the following questions:

- **1:** What is offered in Switzerland as part of outpatient cancer rehabilitation?
- **2:** What do the programmes look like in comparison to the "SWISS REHA criteria" (start, duration, scope, multi-professionality, management, coordination, etc.)?
- **3:** How are the programmes financed?
- **4:** How satisfied are the patients?

To answer these questions, a questionnaire was created and sent to all providers of outpatient multidisciplinary cancer rehabilitation in Switzerland.

2 ASSESSMENT OF THE SITUATION IN SWITZERLAND

2.1 MATERIALS AND METHODS

2.1.1 SCOPE

For the assessment of Swiss outpatient multidisciplinary cancer rehabilitation, all ongoing programmes, as well as programmes in development (as of March 2018), were included in the study. In total, 17 different programmes were examined.

The programmes were identified by the Swiss national cancer league and were then informed by a letter about the purpose of the study, requesting their support. The table below (table 2-1) lists the centres that were included in the study sorted by region and status at the time of the study. Note that for the Italian-speaking part, there is an overall programme with five different locations. In this study, only the overall programme was analysed.

Table 2-1 Overview of the analysed centre

German-speaking part	French-speaking part	Italian-speaking part
Ongoing programmes as of March 2018		
<ul style="list-style-type: none"> - Kantonsspital St. Gallen - Kantonsspital Winterthur - Krebsliga Zürich/ Klinik Susenberg - Spital Schwyz - Kantonsspital Nidwalden - Spital Interlaken (Spitäler fmi AG) - Spital STS AG Thun - Inselspital, Universitätsspital Bern 	<ul style="list-style-type: none"> - Le centre de santé la corbière - Réadaptation oncologique ambulatoire, Hôpital du Jura 	<p>Riabilitazione oncologica ambulatoriale in Ticino:</p> <ul style="list-style-type: none"> - Bellinzona IOSI - Locarno - Lugano OIL - Mendrisio OBV - Clinica die riabilitazione di Novaggio EOC
Programmes in development as of March 2018		
<ul style="list-style-type: none"> - Ambulante Onkoreha St.Gallen der Kliniken Valens - Balgrist Zürich - Kantonsspital Olten - ONCOREHA VS Brig 	<ul style="list-style-type: none"> - ONCOREHA VS Sion - Centre d'oncologie - Centre d'oncologie des Eaux-vives 	

2.1.2 PREPARATION AND STRUCTURE OF QUESTIONNAIRES

For a first insight into outpatient multidisciplinary cancer rehabilitation in Switzerland, we conducted internet research for all cancer rehabilitation centres using the internet page about rehabilitation from the Swiss cancer league as the main source.

Based on the knowledge gained from the internet research and other documents, such as the Reha logbook of the Swiss cancer league¹⁸⁴, a questionnaire and the corresponding database was created.

The questionnaire was created in MS Excel with the following structure (table 2-2):

Table 2-2 Structure of the questionnaire

Main topic	Sub-topic	Questions/choices	Answer field	type answer variables
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Three types of questions were used in the questionnaire (table 2-3). The answer fields were restricted, thereby only allowing the use of the authorised answer type.

Table 2-3 Overview of questions, answers and variable type

Type of question	Expected answer	Variables
Closed	Numbers or “?”	discrete
Multiple-choice	“YES”, “NO” or “?”	categorical
Open	Further explanations	free text

The providers were additionally asked to attach patient satisfaction documents if available. These documents are not analysed in the framework of this study.

The questionnaire included 18 main topics with 80 subtopics. In total, 129 questions were asked, of which 34 were closed, 66 were multiple choice and 29 were open questions. The whole questionnaire can be seen in appendix 2.1.1.

The questionnaires were sent by e-mail to the programme providers.

2.1.3 DATA ENTRY AND CORRECTION

16 out of 17 questionnaires were returned and entered into the database. In case of an unclear answer, we tried to re-contact the relevant centre to get a better understanding of the answers. Unfortunately, we were not always successful. Therefore, the project team decided for some minor changes in the database following the procedure below.

In general:

- The changes in the database were marked with colour and comments were added to explain the change in detail and make sure the alteration can be traced.

Discrete variables

- When a range (e.g. 45-60) was given instead of one number, the mean was calculated.
- When the number was accidentally converted into a date, because of a wrong cell format (e.g. 12.11.), it was converted back to number format.
- Missing data in the average number of weeks of therapy were extrapolated based on other answers whenever possible.

Categorical Variables

- In clear cases, the missing variables were inserted (e.g. for the question “Where does the therapy take place?” with the possible answers being “at one location” or “several locations”, when the answer for “one location” was YES, the answer for “several locations” was entered logically as NO)
- Otherwise, the field was left empty.

2.1.4 DATA ANALYSIS

The analysis was done in Excel and the specific question types were analyzed the following way:

- For categorical variables, frequencies were determined.
- For continuous variables, the mean, median, minimum, maximum, first quartile (Q1), third quartile (Q3) and in fitting cases the sum was calculated.
- The open questions with free text were summarised and compared in a separate Excel database.

The results of the analyses of the categorical and continuous variables were used to compare programmes between language regions and status (running programmes vs. programmes in development).

With all the information drawn from the first analysis, a Swiss Average Programme was extrapolated and compared to the SWISS REHA criteria. The Swiss Average Programme was hypothesized using the following rule:

- If 60% of the answers to a question with categorical variables were YES the answer was considered as part of the Swiss Average programme; if no variable of the section was above 60% the answer with the highest percentage was chosen.

For continuous variables, the median was used.

2.2 RESULTS AND DISCUSSION

2.2.1 OVERVIEW OF THE OUTPATIENT CANCER REHABILITATION PROGRAMMES OF ALL ANALYSED CENTRES IN SWITZERLAND

2.2.1.1 AMBULANTE ONKOREHA ST. GALLEN DER KLINIKEN VALENS

Table 2-4 Overview of "Ambulante Onkoreha St. Gallen der Kliniken Valens"

Name	Ambulante Onkoreha St. Gallen der Kliniken Valens
Status of the programme in March 2018	In development
Location	St. Gallen (SG)

Leadership

Provider	Rehabilitation clinic
Partnerships & Cooperation	National, Cantonal & Regional Cancer League
Field of the medical lead	GIM (General Internal Medicine), PMR (Physical Medicine and Rehabilitation) and Rheumatology
Field of the coordinator	Sport science

More details about the programme

Form of the programme	Standard programme (defined programme with core modules + further modules if desired)
Target group	All cancer types
Length of the programme	12 weeks
Average number of hours (1h = 60 min) per week	6h
Number of obligatory modules that a patient must attend	1 module
Start of the rehabilitation	Before, during and after the completion of acute medical treatment

Communication between team members	Through electronic documents and rehab team report
Therapies	Physiotherapy, Exercise & Sports Therapy, Psychotherapy & Psycho-oncology, Ergotherapy and Speech Therapy
Financing	Personal contribution of the patient, health insurance basic and supplementary insurance



The ambulatory Onkoreha programme of the rehabilitation clinic "Kliniken Valens" was still in development. The standard programme lasts 12 weeks and the patient can attend various therapies such as speech therapy for an average of six hours per week. The rehabilitation team communicates through team reports and electronic documents.

2.2.1.2 KANTONSSPITAL ST. GALLEN

Table 2-5 Overview of "Kantonsspital St. Gallen"

Name	Kantonsspital St. Gallen
Status of the programme in March 2018	Running programme
Location	St. Gallen (SG)

Leadership

Provider	Cantonal hospital
Partnerships & Cooperation	Rehabilitation clinic
Field of the coordinator	Physiotherapy

More details about the programme

Form of the programme	Individual modular
Target group	All types of cancer
Average number of hours (1h = 60 min) per week	4h
Number of obligatory modules a patient must attend	0 modules
Start of the rehabilitation	Before, during and after the completion of acute medical treatment
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling, Ergotherapy, Complementary Medicine, Pain Therapy, Music Therapy, Speech Therapy, Pastoral Care and Social Dogs
Financing	Health insurance basic insurance individual billing, for medical training therapy (MTT) cost coverage is obtained from the health insurance



The individual modular rehabilitation programme of the Kantonsspital St. Gallen treats patients with all types of cancer for four hours a week. In addition to the usual modules, therapies such as complementary medicine, pain therapy, music therapy and speech therapy can also be attended. The programme also offers a social dog.

2.2.1.3 KANTONSSPITAL WINTERTHUR

Table 2-6 Overview of "Kantonsspital Winterthur"

Name	Kantonsspital Winterthur
Status of the programme in March 2018	Running programme
Location	Winterthur (ZH)

Leadership

Provider	Cantonal hospital
Partnerships & Cooperation	Cantonal cancer league
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of coordinator	Physiotherapy

More details about the programme

Form of the programme	Individual modular and standard programme
Target group	All types of cancer
Duration of the programme	12 weeks
Average number of hours (1h = 60 min) per week	3h (two days with two units per day)
Number of obligatory modules, a patient must attend	1 Module
Start of the rehabilitation	Before, during and after the completion of acute medical treatment
Communication between team members	Electronic documents, no direct rehabilitation meetings but every 2 weeks direct feedback and questions concerning rehabilitation patients during a meeting on medical oncology, otherwise exchange by phone and mail
Therapies	Physiotherapy, Exercise & sports therapy, Other offers: Pain therapy, speech therapy, pastoral care (there are many other therapies, but they are not directly integrated into the programme and must be assigned individually)
Financing	Health insurance basic insurance single invoice, cost coverage is obtained from the health insurance



The 12-week programme of the "Kantonsspital Winterthur" can be individually modular or a standard programme. For three hours a week, patients with all types of cancer visit the rehabilitation primarily for physiotherapy and movement and sports therapy. The specialists communicate with each other using electronical documents and in direct exchange.

2.2.1.4 KREBSLIGA ZÜRICH/ KLINIK SUSENBERG

Table 2-7 Overview of "Krebsliga Zürich/Klinik Susenberg"

Name	Krebsliga Zürich/ Klinik Susenberg
Status of the programme in March 2018	Running programme
Location	Zürich (ZH)

Leadership

Provider	Rehabilitation clinic, special clinic, cancer league
Partnerships & Cooperation	Rehabilitation Clinic, Cantonal Cancer League, Therapists, University(-hospital)
Field of the medical lead	Psychiatry, Psychotherapy, Neurology
Field of the coordinator	Rehabilitation Coordination Office by the Zurich Cancer League

More details about the programme

Form of the programme	Individual modular
Target group	All types of cancer
Duration of the programme	14 weeks
Average number of hours (1h = 60 min) per week	2h
Start of the rehabilitation	Before, during and after acute medical treatment
Communication between team members	in the future rehabilitation meetings and Reha logbook of the Swiss cancer league
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psycho-oncology & Psychotherapy, Design & Painting Therapy
Financing	Health insurance basic insurance and supplementary insurance single invoice and donation for social counselling



The programme is a joint project of the cancer league Zurich and the rehabilitation and special clinic Susenberg. It lasts on average for 14 weeks, during which patients visit an individual modular programme in two hours per week. In addition to the usual therapies (see above), the Susenberg Clinic also offers design and painting therapy. In the future, the programme will use rehabilitation meetings and the rehabilitation logbook for communication. The rehabilitation is financed by health insurance and donations for social counselling.

2.2.1.5 "SPORT BEI KREBS", BALGRIST MOVE>MED

Table 2-8 Overview of "Sport bei Krebs, Balgrist Move>Med"

Name	„Sport bei Krebs“, Balgrist Move>Med
Status of the programme in March 2018	In development
Location	Zürich (ZH)

Leadership

Provider	University Hospital Balgrist, Balgrist Move>Med Outpatient sports medical centre
Partnerships & Coordination	Rehabilitation clinics and oncology centres
Field of the medical lead	GIM (General Internal Medicine), PMR (Physical Medicine and Rehabilitation), Sports Medicine
Field of the coordinator	Sports therapist, cancer therapist

More details about the programme

Form of the programme	Individual one-to-one training supervised and independent
Target group	All cancer types
Duration of the programme	36 appointments
Average number of hours (1h = 60 min) per week	2-3h
Number of obligatory modules, a patient must attend	0
Start of the rehabilitation	Before, during and after acute medical treatment
Communication between team members	Internal exchange of information via patient documentation system KISIM, in future possibly every 2 weeks rehabilitation meetings
Therapies	Sports therapy and physiotherapy as needed

Financing	Health insurance basic insurance and supplementary insurance single invoice, cost coverage for medical training therapy (27-36x) and general physiotherapy (9x) obtained from the health insurance, alternatively personal contribution of the patient
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The programme "Sport bei Krebs" in Move>Med Balgrist is still in development. The module currently offered concentrates on movement as an important rehabilitation measure. Patients train supervised and independently in individual training. Electronical documents and a patient documentation system are used to communicate between the specialists. A rehabilitation meeting and group training sessions are planned.

2.2.1.6 SPITAL SCHWYZ

Table 2-9 Overview of "Spital Schwyz"

Name	Spital Schwyz
Status of the programme in March 2018	Running programme
Location	Schwyz (SZ)

Leadership

Provider	Cantonal hospital
Partnerships & Cooperation	Cantonal cancer league
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of the coordinator	Medical specialist, (oncology) care, physiotherapy

More details about the programme

Form of the programme	Standard programme (Physiotherapy and Exercise & Sports therapy score modules and additional modules according to the needs of the patient)
Target group	All cancer types
Duration of the programme	12 weeks
Average number of hours (1h = 60 min) per week	2h
Start of the rehabilitation	During and after acute medical treatment
Communication between the team members	Reha logbook
Therapies	Physiotherapy, exercise & sports therapy, nutrition therapy, social counselling, ergotherapy, pain therapy, speech therapy, pastoral care (other disciplines available in-house, but not involved in the programme)
Financing	Personal contribution of the patient and health insurance Basic insurance single invoice



Spital Schwyz offers a standard programme which focus on physiotherapy and exercise & sports therapy; further modules can be attended as required. The programme lasts for 12 weeks, in which patients take part in various therapies for two hours a week. The rehabilitation logbook is used for communication between the specialists. In addition to the health insurance company, the programme is financed by personal contributions of the patients.

2.2.1.7 KANTONSSPITAL OLten

Table 2-10 Overview of "Kantonsspital Olten"

Name	Kantonsspital Olten
Status of the programme in March 2018	In development
Location	Olten (SO)

Leadership

Provider	Cantonal Hospital Olten
Partnerships & Cooperation	Cantonal cancer league
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of the coordinator	A designated employee of the oncology department

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Duration of the programme	52 weeks
Average number of hours (1h = 60 min) per week	1h
Number of obligatory modules, a patient must attend	4 modules
Start of the rehabilitation	During and after acute medical treatment
Communication between team members	Reha Logbook and mail contact in case of complications
Therapies	Physiotherapy, exercise & sports therapy, nutrition therapy, psychotherapy & psycho-oncology, social counselling, ergotherapy, design & painting therapy, pain therapy, speech therapy, music therapy, pastoral care
Financing	Cost coverage from the health insurance obtained for exercise and sport therapy



Kantonsspital Olten is in the process of setting up a 52 weeks long programme. The individual modular programme consists of at least one hour per week. The patient has access to a wide range of services such as a cancer sports group, pain therapy, painting and music therapy, pastoral care and more. Participation in at least four modules is required. The specialist disciplines maintain contact with each other through the rehabilitation logbook.

2.2.1.8 KANTONSSPITAL NIDWALDEN

Table 2-11 Overview of "Kantonsspital Nidwalden"

Name	Kantonsspital Nidwalden
Status of the programme in March 2018	Running programme
Location	Stans (NW)

Leadership

Provider	Cantonal Hospital
Partnerships & Cooperation	Rehabilitation clinic, Cancer league Switzerland, Cantonal cancer league, Regional cancer league
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of the coordinator	Medical specialist, (Oncology-) care, Physiotherapy

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Duration of the programme	12 weeks
Average number of hours (1h = 60 min) per week	2h

Number of obligatory modules, a patient must attend	0 modules
Start of the rehabilitation	Before, during and after acute medical treatment
Communication between the team members	Electronic documents and rehab team-meeting every 30 days (individually possible at any time if required)
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling
Financing	Health insurance basic insurance single invoice and in addition cost coverage by the health insurance is obtained.



The individual modular programme of Kantonsspital Nidwalden lasts for 12 weeks and is open to patients with any type of cancer. Therapies such as physiotherapy, exercise & sports therapy, nutritional counselling, psychotherapy & Psycho-oncology and social counselling can be attended for an average of two hours a week. Every 30 days, the team has a rehabilitation meeting, which is also possible more frequently if required.

2.2.1.9 SPITAL INTERLAKEN (SPITÄLER FMI AG)

Table 2-12 Overview of "Spital Interlaken (Spitäler fmi AG)"

Name	Spital Interlaken (Spitäler fmi AG)
Status of the programme in March 2018	Running programme
Location	Interlaken-Unterseen (BE)

Leadership

Provider	Regional hospital
Partnerships & Cooperation	Rehabilitation clinic, Cantonal cancer league, University (-hospital)

Field of the medical lead	GIM (General Internal Medicine), Oncology, Cardiology
Field of the coordinator	Medical specialist, (Oncology-) care, Physiotherapy

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Duration of the programme	28 weeks
Number of obligatory modules, a patient must attend	1 module
Start of the rehabilitation	Before, during and after medical treatment
Communication between the team members	Reha logbook, electronic documents and if required rehabilitation team meetings otherwise exchange between the therapists and the coordinator.
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling, Complementary Medicine, Pastoral Care
Financing	The individual therapists/disciplines charge individually, whereby cost coverage by the health insurance will be obtained for the exercise therapy.



Interlaken Regional Hospital offers a 28-week individual modular programme. Patients can attend various therapies, including complementary medicine and pastoral care. The disciplines communicate with each other via the rehabilitation logbook and electronical documents. If required, there are also team meetings or other exchanges between the therapists and the coordinator.

2.2.1.10 SPITAL STS AG THUN

Table 2-13 Overview of "Spital STS AG Thun"

Name	Spital STS AG Thun
Status of the programme in March 2018	Running programme
Location	Thun (BE)

Leadership

Provider	Regional Hospital
Partnerships & Cooperation	Rehabilitation clinic, Cantonal cancer league, University (Hospital)
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of the coordinator	(Oncology) care

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Duration of the programme	28 weeks
Average number of hours (1h = 60 min) per week	2.5h
Number of obligatory modules, a patient must attend	1 module
Start of the rehabilitation	During and after acute medical treatment
Communication between team members	Reha logbook, Electronic documents and Rehab team meetings

Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psycho-oncology, Social Counselling, Complementary Medicine (Anthroposophy, Homeopathy, Neural Therapy, TCM), Pastoral Care, Yoga
Financing	Patient Support Fund, Health Insurance Obligatory and Supplementary single invoice and cost coverage by the health insurance for exercise & sports therapy are also submitted.



Regionalspital STS AG Thun offers an individual modular programme, which lasts for 28 weeks with 2.5 hours per week. Patients begin the programme during and after their acute medical treatment and can attend complementary medicine, pastoral care or yoga in addition to the common modules. In addition to the rehabilitation logbook and electronical documents, the team holds meetings to be informed about the patients' progress.

2.2.1.11 INSELSPITAL, UNIVERSITÄTSSPITAL BERN

Table 2-14 Overview of "Inselspital, Universitätsspital Bern"

Name	Inselspital, Universitätsspital Bern
Status of the programme in March 2018	Running programme
Location	Bern (BE)

Leadership

Provider	University Hospital
Partnerships & Cooperation	Cantonal cancer league, Regional hospital
Field of the medical lead	Oncology, Cardiology, Interdisciplinary centre for exercise & sports therapy
Field of the coordinator	Physiotherapy

More details about the programme

Form of the programme	Individual modular (2x weekly obligatory exercise & sports therapy)
Target group	All cancer types
Duration of the programme	12 weeks
Average number of hours (1h = 60 min) per week	6h
Number of obligatory modules, a patient must attend	1 module
Start of the rehabilitation	During and after acute medical treatment
Communication between the team members	Electronic documents and every 30-40 days a rehab team meeting, between contact via e-mail or telephone
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling, Pain Therapy (other disciplines available but not directly part of rehabilitation)
Financing	Basic health insurance single invoice



The 12-week programme of University Hospital Bern is individual modular, and consists of 6 hours per week with exercise and sports therapy twice a week. Other therapies are physiotherapy, nutrition therapy, psychotherapy & Psycho-oncology, social counselling and pain therapy. All these disciplines are in contact by e-mail and telephone during the programme and meet every 30-40 days in the rehab team meeting.

2.2.1.12 ONCOREHA VS BRIG

Table 2-15 Overview of "ONCOREHA VS, Brig"

Name	ONCOREHA VS, Brig
Status of the programme in March 2018	In development
Location	Brig (VS)

Leadership

Provider	A collaboration of different institutions: Valais Cancer League and Upper Valais Hospital Centre
Partnerships & Cooperation	External partners in individual cases
Field of the medical lead	Oncology
Field of the coordinator	Oncology care

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Start of the rehabilitation	During and after acute medical treatment
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling, Complementary Medicine
Financing	Patient Support Fund, Health Insurance Obligatory, and Supplementary single invoice



The programme offered by Oncoreha Brig, which is still in the development stage, is a collaboration between Valais Cancer League and Upper Valais Hospital Centre. It is an individual modular programme with therapies such as physiotherapy, movement and sports therapy, nutrition therapy, psychotherapy and psycho-oncology, social counselling and complementary medicine. It is financed by the health insurance and a patient support fund.

2.2.1.13 ONCOREHA VS, SION

Table 2-16 Overview of "ONCOREHA VS Sion"

Name	ONCOREHA VS Sion
Status of the programme in March 2018	In development
Location	Sion (VS)

Leadership

Provider	A collaboration of different institutions: Cancer League, Cantonal hospital & Palliative-vs
Partnership & Cooperation	Hospital and outpatient structures, Swiss Cancer League
Field of the medical lead	Oncology
Field of the coordinator	Social assistant

More details about the programme

Target group	All cancer types
Average number of hours (1h = 60 min) per week	Half a day per week
Number of obligatory modules, a patient must attend	0 modules
Communication between the team members	forums and meeting platforms for professionals and patients



The ONCOREHA VS programme is a collaboration between the Valais Cancer League and the Cantonal Hospital. All patients with cancer, regardless of the type of cancer, can benefit from the meeting platforms.

2.2.1.14 CENTRE D'ONCOLOGIE EAUX-VIVES

Table 2-17 Overview of "Centre d'oncologie des Eaux-vives"

Name	Centre d'oncologie des Eaux-vives
Status of the programme in March 2018	In development
Location	Genève (GE)

Leadership

Provider	Specialized clinic
Partnership & Cooperation	Swiss cancer league
Field of the medical lead	Oncology
Field of the coordinator	(Oncology) care

More details about the programme

Form of the programme	Individual modular
Target group	All cancer types
Duration of the programme	12 weeks
Average number of hours (1h = 60 min) per week	3h
Number of obligatory modules, a patient must attend	2 modules
Start of the rehabilitation	Before, during and after acute medical treatment
Communication between the team members	Electronic documents
Therapies	physiotherapy, nutrition therapy, medical hypnosis, onco-sexology, social counselling, complementary therapies (art therapy, reflexology, podology, Hata yoga, body image)
Financing	basic and supplementary health insurance single invoice, private funds



In spring 2018, the specialized clinic "Centre d'oncologie des Eaux-vives" set up an individual modular 12-week program. Patients can choose different therapies for about 3 hours a week, including art therapy (painting, music), reflexology or yoga depending on their needs. The programme is financed mainly by basic and supplementary insurance but also by private funds.

2.2.1.15 CENTRE DE SANTÉ LA CORBIÈRE

Table 2-18 Overview of "Centre de santé La Corbière"

Name	Centre de santé La Corbière
Status of the programme in March 2018	Running programme
Location	Estavayer-le-Lac (FR)

Leadership

Provider	Centre for Complementary Medicine
Partnership & Cooperation	Swiss cancer league, Cantonal cancer league
Field of the medical lead	GIM (General Internal Medicine), oncology, haematology
Field of the coordinator	Medical specialist, Physiotherapy

More details about the programme

Form of the programme	Standard programme (core modules: physiotherapy, nutrition therapy, and Psycho-oncology)
Target group	All types of cancer
Duration of the programme	9 weeks
Average number of hours (1h = 60 min) per week	8h
Number of obligatory modules, a patient must attend	7 modules
Start of the rehabilitation	After acute medical treatment
Communication between the team members	Team meetings every 21 days
Therapies	Physiotherapy, nutrition therapy & cooking classes, psychotherapy and psycho-oncology, social work, art therapy (painting), Complementary Medicine, yoga
Financing	Single invoice for basic health insurance, Need for a fixed-price service



Patients can start the standard programme at the complementary medicine centre "la corbière" directly after their treatment. This programme lasts for 9 weeks with 8 hours per week. It consists of core modules (physiotherapy, nutrition therapy, psycho-oncology, social counselling) and additional activities such as art therapy, yoga and complementary medicine. The team has a meeting every 21 days.

2.2.1.16 RÉADAPTATION ONCOLOGIQUE AMBULATOIRE, HÔPITAL DU JURA

Table 2-19 Overview of "Réadaptation oncologique ambulatoire, Hôpital du Jura"

Name	Réadaptation oncologique ambulatoire, Hôpital du Jura
Status of the programme in March 2018	Running programme
Location	Porrentruy (JU)

Leadership

Provider	Cantonal hospital
Partnerships & Cooperation	Swiss cancer league, University (hospital)
Field of the medical lead	PMR (Physical Medicine and Rehabilitation)
Field of the coordinator	Medical specialist

More details about the programme

Form of the programme	Standard programme
Target group	All cancer types except for C81-C96 Malignant neoplasms of lymphoid, hematopoietic and related tissue
Duration of the programme	3 weeks

Number of obligatory modules, a patient must attend	1 module
Start of the rehabilitation	Before, during and after the acute medical treatment
Communication between team members	Team meetings every 7 days
Therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling, Ergotherapy, Pain Therapy, Speech Therapy, Pastoral Care
Financing	Health insurance



The Cantonal Hospital “Hôpital du Jura” offers a standard programme lasting for 3 weeks. Everyone can participate except for patients with C81-C96 (malignant neoplasms of lymphatic, hematopoietic and related tissues). In addition to the usual therapies, patients can visit ergotherapy, pain therapy, speech therapy and pastoral care. For communication purposes, the disciplines have a team meeting every 7 days.

2.2.1.17 RIABILITAZIONE ONCOLOGICA AMBULATORIALE IN TICINO – OVERALL PROGRAMME

Table 2-20 Overview of "Riabilitazione oncologica ambulatoriale in Ticino - overall programme"

Name	Riabilitazione oncologica ambulatoriale in Ticino – overall programme
Status of the programme in March 2018	Running programme
Location	Bellinzona, Locarno, Lugano and Mendrisio

Leadership

Provider	Cancer league, Regional hospital
Partnerships & Cooperation	Rehabilitation clinic, Therapists, Regional hospital
Field of the medical lead	GIM (General Internal Medicine), Oncology
Field of the coordinator	(Oncology) care

More details about the programme

Form of the programme	Individual modular
Target group	All types of cancer
Duration of the programme	12 weeks (highly variable, depending on the person and when rehabilitation starts)
Average number of hours (1h = 60 min) per week	3h
Number of obligatory modules, a patient must attend	1 module
Start of the rehabilitation	Before, during and after the acute medical treatment
Communication between the team members	Reha logbook of the Swiss cancer league and team report (quarterly meeting)

Therapies	Physiotherapy, nutrition therapy, psychotherapy & psycho-oncology, social counselling, ergotherapy, complementary Medicine (acupuncture), pain therapy, sex therapy, speech therapy, spiritual support
Financing	Patient Support Fund, single invoice for basic and supplementary health insurance



Outpatient oncology rehabilitation in Ticino is an individual and modular programme available at 5 sites covering the whole of Ticino. It lasts for about 12 weeks with 3 hours per week during which different therapies are offered, such as ergotherapy, acupuncture, pain therapy, sex therapy, speech therapy or spiritual support. The time and number of therapies are very variable. In addition to the contribution from the health insurance funds, the rehabilitation can also be financed through the Patient Support Fund.

2.2.2 THE SWISS AVERAGE PROGRAMME

The Swiss Average Programme was derived from all data collected; it includes (for running programmes) the most frequently named constitutive elements of an outpatient multidisciplinary rehabilitation programme in Switzerland. The criteria according to which this Swiss Average Programme was inferred can be found in chapter 1.1.

Table 2-21 The Swiss Average Programme

Organisation

Provider	Cantonal hospital
Partnerships & Cooperation	Cantonal cancer league
Field of the medical lead	General Internal medicine (GIM), oncology
Coordinator	Coordinator available with education in physiotherapy
Coordination system	No standardized coordination system
Communication	through electronic documents and team meetings every 23 days

Target group & Indications

Target group	All types of cancer
Therapeutic diagnosis	Palliative and curative
Screening instrument	No generic screening instrument (e.g. Distress Thermometer) only discipline-specific tests available

Indications of a patient	<ul style="list-style-type: none"> • limited functionality/mobility in daily life (respiratory problems, neuropathies, lymphedema, incontinence, walking insecurity) • limited physical performance/activity in everyday life • special nutritional situation (functional disorders in the ENT / gastrointestinal tract, malnutrition, weight loss/weight gain, etc.) • Emotional problems present (anxiety, anger, sadness, depressive moods etc.) • Questions about the social, professional or financial situation present • limited ability to act in personal, domestic and/or professional environment • Quality of life restricted as a result of the disease or therapies • Dealing with the consequences of illness or therapy complicated • aches • fatigue • Questions / concerns about sexuality • speech or swallowing problems
Minimal requirements to enter a Swiss outpatient multidisciplinary programme	<ul style="list-style-type: none"> • Indications lead to a restriction of participation in everyday life & profession • The patient needs to set realistic objectives • The motivation of the patient and the environment is given • Medical & nursing support enough on an outpatient basis • Outpatient rehabilitation offer must be nearby • Therapy intensity in the outpatient setting is sufficient • Dissociation from the social environment is not desired • Restricted mobility is not considered a barrier
Rehabilitation goals	<ul style="list-style-type: none"> • Participating again actively in everyday life and social life • Returning to the job or training place • Regaining autonomy • Improving the quality of life • Relieving of symptoms (fatigue, pain, etc.) • Increasing in physical performance • Exchanging of information/learning new things

Further details about the average programme

Programme form	Individual modular
Location of the rehabilitation	In one location
Start of the rehabilitation	Before, during and after acute medical treatment
Difference in programme structures depending on the programme start (during, after acute treatment)	No difference

	median	Q1	Q3
Length of the programme (in weeks)	12	12	14
Intensity (in hours per week)	3	2	4.5
Obligatory modules, a patient must attend (in module)	1	1	1.25

Can family members take part in the rehabilitation	Yes
Available therapies	Physiotherapy, Exercise & Sports Therapy, Nutrition Therapy, Psychotherapy & Psycho-oncology, Social Counselling
Rehabilitation team	Physiotherapist, Nutrition therapist, psycho-oncologist, psychotherapist, social consultant, ergo therapist, oncology nurse, medical specialist
Application to the programme	Through the medical specialist or the general practitioner
Admission	By a medical specialist
Planning of the intervention	Individual planning by a medical specialist and the coordinator
End of the programme	By a medical specialist, the physician who referred the patient is sent a final report
Follow-up programme	Available and consists of a fitness or training subscription
Repetition of the programme	Repetition is to some degree possible

Further details about the available therapies

Physiotherapy	median	Q1	Q3
Duration in weeks	9	6	12
Number of prescriptions	1.5	1	7.25
Number of units per prescription	9	9	9
Duration of a unit in minutes	30	30	45
Therapy type	Single therapy		

Exercise & Sport therapy	median	Q1	Q3
Duration in weeks	12	12	12
Number of prescriptions	1.5	1	3.5
Number of units per prescription	12	9	27.75
Duration of a unit in minutes	52.5	46.25	60
Therapy type	Group therapy		

Nutrition therapy	median	Q1	Q3
Duration in weeks	7	4.625	13
Number of prescriptions	1.5	1	6
Number of units per prescription	6	6	7
Duration of a unit in minutes	51.25	45	60
Therapy type	Single therapy		

Psychotherapy & Psycho-oncology	median	Q1	Q3
Duration in weeks	9	8.5	12.5
Number of prescriptions	1.5	0.75	3
Number of units per prescription	4	2	5

Duration of a unit in minutes	67.5	60	86.25
Therapy type	Single therapy		

Social counselling	median	Q1	Q3
Duration in weeks	1	0.5	2
Number of prescriptions	1	1	1
Number of units per prescription	1.5	0.75	2
Duration of a unit in minutes	60	43.125	60
Therapy type	Single therapy and with family/partner		

Average dropouts

Percentage of patients that could not finish the programme	0 - 20 %
Reasons for not finishing the programme	Side effects of the cancer therapy, worsening of the health condition, death

Financing, Advertisement & Certifications

Financing	Obligatory health insurance single invoice
Is a cost credit application submitted to the health insurance company for certain modules?	Cost coverage obtained for exercise & sport therapy
Advertisement	Flyer, brochure, and website
Are the SWISS REHA criteria fulfilled?	Criteria not fulfilled
Other certifications	No other certifications

2.2.2.1 COMPARISON WITH THE SWISS REHA CRITERIA

SWISS REHA is an association of the leading rehabilitation clinics in Switzerland. In 2016, SWISS REHA established quality and performance criteria for outpatient rehabilitation. These criteria provide professional, organisational and qualitative requirements with specified therapies that should be included in the programmes as well as the intensity of the programme. Five centres offering outpatient cancer rehabilitation stated in the questionnaire that they already fulfil these criteria¹⁸⁵. In this chapter, the current situation (Swiss Average Programme) is compared with the SWISS REHA criteria.

Table 2-22 Comparison with the SWISS REHA criteria

	Swiss Average Programme	Programme according to SWISS REHA criteria
Field of the medical lead	General Internal Medicine (GIM), Oncology	General Internal Medicine (GIM) or Oncology with a minimum of two years of rehabilitation experience or a Physical Medicine and Rehabilitation (PMR) specialist.
Coordinator	Coordinator available with education in physiotherapy	A Coordinating function is mandatory
Coordination system	No standardized communication system	Documented coordination and regulated flow of information, team meetings
Screening Instrument/ Assessments	No generic screening instrument (e.g. Distress Thermometer); only discipline-specific assessments. Most frequently used assessments (according to free text analysis): <ul style="list-style-type: none"> - MFI-20 - HADS - Fatigue (BFI) - Timed get up and Go - 1-minute sit to stand - 6-minute walking test etc. 	Discipline-specific assessments: programme must use at least 2 of the below-mentioned assessments: <ul style="list-style-type: none"> - ESAS score (WHODAS II) - ECOG/Karnofsky or adapted ECOG - 6-minute walking test - Timed get up and go test - EFLI etc.

Minimal requirement	<ul style="list-style-type: none"> - Indications lead to a restriction of participation in everyday life & profession - The patient needs to set realistic objectives - The motivation of the patient and the environment is given - Medical & nursing support enough on an outpatient basis - Outpatient rehabilitation offer must be nearby - Therapy intensity for the outpatient is sufficient - Dissociation from the social environment is not desired 	The functional restriction is so severe that a monodisciplinary approach is not enough.
Rehabilitation goals	<ul style="list-style-type: none"> - Participating actively in everyday life and social life again - Returning to the job or training place - Regaining autonomy - Improving the quality of life - Relieving of symptoms (fatigue, pain, etc.) - Increasing in physical performance - Exchanging of information/learning new things 	<ul style="list-style-type: none"> - Improvement of activities in everyday life, in the professional world and participation
Intensity	3h per week (median)	10 units per week
Obligatory modules, a patient must attend	1-2 modules	4 modules

Communication	Through electronic documents and team meetings every 23 days	Team meetings once a month
Therapies & Team	<ul style="list-style-type: none"> - Physiotherapy - Exercise & Sports Therapy - Nutrition Therapy - Psychotherapy & Psycho-oncology - Social Counselling <p>The team includes additionally a medical specialist and an oncology nurse.</p>	<p>at least 4 of the below-mentioned disciplines:</p> <ul style="list-style-type: none"> - Physiotherapy and/or ergotherapy mandatory - Contractually regulated access to ergonomics, work integration, orthopaedic technology, psychology, speech therapy, nutritional counselling, social counselling, rehabilitation care <p>The disciplines form an integral part of the rehabilitation team, which is under medical supervision</p>
Financing	Obligatory health insurance single invoice	Financing according to Health Insurance Law: according to tariff



The Swiss Average Programme already fulfils most of the SWISS REHA criteria. Especially the organisational and professional requirements seem to be fulfilled, with one exception: Programme leaders with a training in General Internal Medicine (GIM) or Oncology should have a minimum of two years of rehabilitation experience or be a Physical Medicine and Rehabilitation (PMR) specialist. Differences can be found with respect to requirements: The SWISS REHA criteria show a much higher intensity than the Average Programme (SWISS REHA: 10 units/week, Average: 3h/week). According to SWISS REHA criteria, patients have to attend 4 modules, whereas in the Average Programme patients only need to attend 1-2 modules.

2.2.2 REGIONAL SPECIFICITIES

The programmes in the three language regions showed some major differences. In this part, we have a look at this variability.

For simplification, the following abbreviations will be used:

- German-speaking part of Switzerland = CH-DE
- French-speaking part of Switzerland = CH-FR
- Italian-speaking part of Switzerland (= Ticino) = CH-IT

Only those criteria for which a major difference between language regions has been noted will be further analysed. Major differences were established using the same approach as the one used to define the Swiss Average Programme (1.1 Materials and Methods, last paragraph) and the language regions are compared by the percentage of positive answers.

The table below shows the number of programmes per language region as well as how many of these were still in development in March 2018.

Table 2-23 Programmes by language regions and status in March 2018 (the numbers in the brackets indicate number of positive answers/ number of responses)

	# programmes	Programmes in development
CH-DE	12	33% (4/12)
CH-FR	4	25% (1/4)
CH-IT	1	0% (0/1)

Organisation

The CH-DE and CH-FR rehabilitation centres featured different partnerships and cooperation (table 2-24). Most of the CH-DE programmes were partners with the cantonal cancer leagues (75%), whereas instead all CH-FR programmes were partners of the Swiss Cancer League (100%) and only half of them were partners with the cantonal cancer league.

Table 2-24 Regional differences in partnerships and cooperation (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Rehabilitation hospital	55% (6/12)	0% (0/4)	100% (1/1)
Swiss cancer league	25% (3/12)	100% (4/4)	0% (0/1)

Cantonal cancer league	75% (9/12)	50% (2/4)	100% (1/1)
Regional cancer league	17% (2/12)	0% (0/4)	0% (0/1)
Therapists	8% (1/12)	50% (2/4)	100% (1/1)
Specialised clinic	0% (0/12)	0% (0/4)	0% (0/1)
University (hospital)	25% (3/12)	25% (1/4)	0% (0/1)
Regional hospital	8% (1/12)	25% (1/4)	100% (1/1)

In 75% of the cases, programmes in CH-FR had an oncologist as programme leader (table 2-25). In CH-DE, the oncologist came only second (67%), as physicians with training in General Internal Medicine (75%) led most programmes. Note that physicians may have more than one specialisation, i.e., percentages do not add up to 100%.

Table 2-25 Regional differences in the medical lead (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
General Internal Medicine	75% (9/12)	25% (1/4)	100% (1/1)
Oncology	67% (8/12)	75% (3/4)	100% (1/1)
Physical Medicine and Rehabilitation	17% (2/12)	25% (1/4)	0% (0/1)
Others	36% (4/11)	0% (0/4)	100% (1/1)

Programmes in all language regions had a coordinator (100%). A physiotherapist was the coordinator of 60% of the programmes in CH-DE and 50% of the programmes in CH-FR. In CH-IT, the coordinator had an education in nursing (100%). (table 2-26)

Table 2-26 Regional differences in the field of the coordinator (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Medical specialist	30% (3/10)	50% (2/4)	0% (0/1)
(Oncology) nurse	40% (4/10)	25% (1/4)	100% (1/1)
Physiotherapist	60% (6/10)	50% (2/4)	0% (0/1)
Other	33% (4/12)	0% (0/4)	0% (0/1)

Target group and indications

The CH-DE and CH-IT centres both accepted patients with palliative (CH-DE: 91%, CH-IT: 100%) or curative (CH-DE 100%, CH-IT: 100%) prognosis (table 2-27). CH-FR centres only accepted patients with a curative prognosis (100%).

Table 2-27 Regional differences in the prognosis of the patient (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Palliative	91% (10/11)	50% (2/4)	100% (1/1)
Curative	100% (11/11)	100% (4/4)	100% (1/1)

The most used screening instrument in CH-DE was the distress thermometer (42%). CH-FR used mostly discipline-specific tests (67%).

CH-FR had three more indications than CH-DE. The additional indications were “questions/concerns about sexuality” (100%), “difficulty speaking or swallowing” (67%) and “special care situation (port, stoma, tracheostomy etc.)” (67%). CH-IT also had the first two mentioned indications.

CH-FR also had an additional minimal requirement that CH-DE and CH-IT did not have: patients should not have restricted mobility (67%).

Further details about the programme

The rehabilitation programmes examined in CH-DE were mostly in one place (73%), whereas in CH-FR programmes could be either in one (50%) or several locations (50%). The rehabilitation in CH-IT took place at several locations (100%).

CH-DE and CH-IT mostly had individual modular programmes (CH-DE: 75%, CH-IT: 100%), whereas CH-FR displayed mostly standard programmes (50%).

CH-DE and CH-IT had longer programmes with a lower intensity (CH-DE: 12 weeks with 2.5h/week*, CH-IT: 12 weeks with 3h/week*; table 2-28). CH-FR programmes, on the contrary, had a shorter duration with a higher intensity (CH-FR: 9 weeks with 5.5h/week*). The number of obligatory modules a patient must attend was also higher in CH-FR compared to CH-DE and CH-IT (CH-FR: 2*, CH-DE: 1*, CH-IT: 1*). *(Median value)

Table 2-28 Regional differences in length & intensity (the numbers in the brackets indicate number of responses)

	Median CH-DE	Median CH-FR	Median CH-IT
Duration of the programme in weeks	12 (10)	9 (3)	12 (1)
Intensity (hours per week)	2.5 (10)	5.5 (2)	3 (1)

Number of obligatory modules a patient must attend	1 (9)	2 (3)	1 (1)
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Patients in all regions could start the programme during or after their acute medical treatment (table 2-29). In CH-FR and CH-IT the average programme could also start after diagnosis and before medical treatment (CH-FR: 67%, CH-IT: 100%). All CH-DE programmes (100%) started during acute medical treatment. All CH-FR programmes started after the acute medical treatment and the CH-IT programme could be started in all three phases.

Table 2-29 Regional differences in the start of the programme (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
After diagnosis & before medical treatment	58% (7/12)	67% (2/3)	100% (1/1)
During acute medical treatment	100% (12/12)	67% (2/3)	100% (1/1)
After acute medical treatment	92% (11/12)	100% (3/3)	100% (1/1)

The language regions used different mediums to communicate (table 2-30). The CH-DE centres used mostly electronic documents (64%), whereas CH-FR centres used mostly the rehabilitation team meeting (67%). The CH-IT used the rehabilitation team meeting (100%) and the reha logbook of the Swiss cancer league (100%). The team meetings in CH-FR took place twice as often as in CH-DE (CH-FR: every 14d, CH-DE: every 32.5d).

Table 2-30 Regional differences in communication (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Rehab log book	36% (4/11)	0% (0/3)	100% (1/1)
Electronical documents	64% (7/11)	33% (1/3)	0% (0/1)
Rehab team meetings	45% (5/11)	67% (2/3)	100% (1/1)
Others	45% (5/11)	0% (0/3)	0% (0/1)

CH-DE and CH-IT provided a follow-up programme (CH-DE: 80%, CH-IT: 100%).

Therapies

CH-FR had three additional therapies when comparing it to CH-DE: design & paint therapy, complementary therapy, and others (table 2-31). Both offered the five therapies (physiotherapy, exercise & sports therapy, nutrition therapy, psychotherapy & psycho-oncology and social counselling) which were part of the Swiss Average Programme. They will be analysed later with ergotherapy in more detail. CH-IT had many more therapies but has ergotherapy instead of exercise & sports therapy.

Table 2-31 Regional differences in therapies (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Physiotherapy	100% (12/12)	67% (2/3)	100% (1/1)
Exercise & sports therapy	100% (12/12)	67% (2/3)	0% (0/1)
Nutrition therapy	75% (9/12)	100% (3/3)	100% (1/1)
Psychotherapy & Psychooncology	75% (9/12)	67% (2/3)	100% (1/1)
Social counselling	67% (8/12)	100% (3/3)	100% (1/1)
Ergotherapy	33% (3/12)	33% (1/3)	100% (1/1)
Design & paint therapy	17% (2/12)	67% (2/3)	0% (1/1)
Complementary medicine	25% (3/12)	67% (2/3)	100% (1/1)
Pain therapy	42% (5/12)	33% (1/3)	100% (1/1)
Sexual therapy	0% (0/12)	33% (1/3)	100% (1/1)
Music therapy	8% (1/12)	33% (1/3)	0% (0/1)
Speech therapy	42% (5/12)	33% (1/3)	100% (1/1)
Spiritual counselling	50% (6/12)	33% (1/3)	100% (1/1)
Others	8% (1/12)	67% (2/3)	0% (0/1)

The average team composition was very different in each region (table 2-32). CH-DE teams consisted of therapists corresponding to the average CH-DE therapies with an additional ergotherapist (67%), an oncology nurse (70%) and a medical specialist (100%). The average CH-FR team did not correspond to their most mentioned therapies, such that CH-FR did not include an exercise & sports therapist and a psychiatrist or psycho-oncologist. They also did not have an oncology nurse or a medical specialist. The CH-IT team corresponded again to their therapies with an additional oncology nurse and a medical specialist.

Table 2-32 Regional differences in the team (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Physiotherapist	100% (11/11)	100% (3/3)	100% (1/1)
Exercise & sports therapist	60% (6/10)	50% (1/2)	0% (0/1)
Nutritional therapist	89% (8/9)	100% (3/3)	100% (1/1)
Psycho-oncologist	73% (8/11)	0% (0/3)	100% (1/1)
Psychiatrist	82% (9/11)	33% (1/3)	100% (1/1)
Social counsellor	90% (9/10)	67% (2/3)	100% (1/1)
Ergotherapist	67% (6/9)	33% (1/3)	100% (1/1)
Design & paint therapist	18% (2/11)	67% (2/3)	0% (0/1)
Specialist in complementary medicine	36% (4/11)	67% (2/3)	100% (1/1)
Pain therapist	45% (5/11)	0% (0/3)	100% (1/1)
Sexual therapist	9% (1/11)	33% (1/3)	100% (1/1)
Music therapist	0% (0/11)	33% (1/3)	0% (1/1)
Speech therapist	36% (4/11)	33% (1/3)	100% (1/1)
Pastoral worker	55% (6/11)	0% (0/3)	100% (1/1)
Oncology nurse	70% (7/10)	33% (1/3)	100% (1/1)
Medical specialist	100% (10/10)	33% (1/3)	100% (1/1)

The biggest differences between the language regions concerning the form of therapy were found in Psychotherapy/Psychooncology (table 2-33). In psychotherapy, centres in both CH-DE and CH-IT programmes provided a single/individual therapy (CH-DE: 80%, CH-IT: 100%), whereas CH-FR centres provided group therapy (CH-FR: 100%).

Table 2-33 Regional differences in form of therapy (the numbers in the brackets indicate number of positive answers/ number of responses)

		CH-DE	CH-FR	CH-IT
Physiotherapy	Group therapy	60% (6/10)	67% (2/3)	0% (0/1)
	Individual therapy	100% (10/10)	67% (2/3)	100% (1/1)
	Both	60% (6/10)	67% (2/3)	0% (0/1)
	Group therapy	80% (8/10)	100% (1/1)	0% (0/1)

Exercise- & sports therapy	Individual therapy	33% (3/9)	100% (1/1)	0% (0/1)
	Both	44% (4/9)	100% (1/1)	0% (0/1)
Nutrition therapy	Group therapy	0% (0/8)	50% (1/2)	0% (0/1)
	Individual therapy	88% (7/8)	100% (2/2)	100% (1/1)
	Both	0% (0/8)	50% (1/2)	0% (0/1)
Psychotherapy & Psycho-oncology	Group therapy	33% (3/9)	100% (1/1)	0% (0/1)
	Individual therapy	80% (8/10)	0% (0/1)	100% (1/1)
	Both	33% (3/9)	0% (0/1)	0% (0/1)
Social counselling	With family/partner	71% (5/7)	0% (0/1)	100% (1/1)
	Individual therapy	86% (6/7)	0% (0/1)	100% (1/1)
	Both	43% (3/7)	0% (0/1)	100% (1/1)
Ergotherapy	Group therapy	17% (1/6)	- (0/0)	0% (0/1)
	Individual therapy	67% (4/6)	- (0/0)	100% (1/1)
	Both	17% (1/6)	- (0/0)	0% (0/1)

The duration of the therapy in weeks differed by language region, such that CH-DE had the shortest and CH-FR and CH-IT had the longest duration (table 2-34). When comparing the different therapies to each other we see that “physical therapies” like physiotherapy were usually longer and “mental-Help” therapies were shorter.

The number of prescriptions differed by region with CH-DE having the lowest number of prescriptions. There is, on average, one prescription in CH-DE, but the numbers differed in CH-FR and CH-IT. The number of units per prescription was on average lower for “mental-health” therapies than for “physical therapies”.

The duration of a unit was generally shorter in CH-DE units than in CH-FR or CH-IT. “Physical therapies” were around 30 - 45 min and “mental health” therapies around 90 – 120 min.

Table 2-34 Regional differences in therapies in numbers (the number in the brackets indicates the number of responses)

		Physio-therapy	Exercise- & sports therapy	Nutrition therapy	Psycho (oncology) - therapy	Social counselling	Ergotherapy
Duration in weeks	CH-DE	9 (10)	12 (10)	5.75 (6)	8 (7)	0.5 (6)	0 (4)
	CH-FR	10 (3)	9 (1)	8 (3)	9 (1)	1 (1)	- (0)

	CH-IT	16 (1)	- (0)	16 (1)	16 (1)	12 (1)	12 (1)
Number of prescriptions	CH-DE	1 (10)	1.25 (9)	1 (7)	1 (7)	1 (6)	0 (4)
	CH-FR	9 (3)	18 (1)	7 (2)	6 (1)	1 (1)	- (0)
	CH-IT	27 (1)	- (0)	6 (1)	- (0)	- (0)	3 (1)
Number of units per prescription	CH-DE	9 (10)	18 (7)	6 (6)	2 (7)	2 (6)	0 (4)
	CH-FR	4.5 (2)	9 (1)	7 (2)	6 (1)	1 (1)	- (0)
	CH-IT	9 (1)	- (0)	6 (1)	- (0)	- (0)	- (0)
Duration of a unit (in minutes)	CH-DE	30 (10)	52.5 (9)	52.5 (7)	60 (7)	60 (7)	0 (5)
	CH-FR	45 (3)	90 (1)	60 (2)	120 (1)	120 (1)	- (0)
	CH-IT	45 (1)	- (0)	45 (1)	- (0)	- (0)	45 (1)

Dropouts

In CH-DE 63% of the participants estimated that 0 – 20% of the patients did not finish the programme. In CH-F there were 100% estimating a dropout rate of 0-20%. In CH-IT, 100% chose the answer of 60 - 80% dropouts. The main reason for this was worsening of health or death in any language reason (CH-DE: 57%, CH-FR: 100%, CH-IT: 100%; table 2-35). CH-DE and CH-IT additionally mentioned the side effects of the disease (or its treatment) (CH-DE: 100%, CH-IT: 100%) as a major reason for the dropouts.

Table 2-35 Regional differences in reasons for dropouts (the numbers in the brackets indicate number of positive answers/ number of responses)

	CH-DE	CH-FR	CH-IT
Side effects of cancer therapy	100% (7/7)	0% (0/2)	100% (1/1)
Costs	14% (1/7)	0% (0/2)	0% (0/1)
Discontent with the programme	14% (1/7)	0% (0/2)	0% (0/1)
Worsening of health or death	57% (3/7)	100% (2/2)	100% (1/1)
Other	43% (3/7)	50% (1/2)	100% (1/1)

Financing, advertisements and certifications

All language regions had a similar financing system. They all used the basic health insurance single invoice (CH-DE (10), CH-FR (2), CH-IT (1): 100%). However, only CH-DE and CH-IT obtained a cost coverage request from the health insurance for specific therapies (CH-DE (10): 70%, CH-FR (2): 0 %, CH-IT (1): 100%). All language regions advertised their programme by flyers/leaflets or a website. CH-FR additionally put advertisements in magazines (75%; table 2-36).

Table 2-36 Regional differences in advertisements (the numbers in the brackets indicate number of positive answers/number of responses)

	CH-DE	CH-FR	CH-IT
Flyer, leaflet	83% (10/12)	100% (4/4)	100% (1/1)
Advertisements in magazines	9% (1/11)	75% (3/4)	0% (0/1)
Website	83% (10/12)	75% (3/4)	100% (1/1)
Events	27% (3/11)	50% (2/4)	0% (0/1)
Others	25% (3/12)	25% (1/4)	100% (1/1)

During the time of this study no language region completely fulfilled the SWISS REHA criteria or had any other certificates (table 2-37). But already one third of the programmes in CH-DE and 50% in CH-FR fulfilled the criteria (please note that in CH-FR only two programmes answered this question).

Table 2-37 Regional differences in certifications (the numbers in the brackets indicate number of positive answers/number of responses)

	CH-DE	CH-FR	CH-IT
SWISS REHA criteria fulfilled	36% (4/11)	50% (1/2)	0% (0/1)
Other certificates	10% (1/10)	0% (0/2)	0% (0/1)

2.3 IMPORTANT TO KNOW

For the assessment of the situation in Switzerland of outpatient cancer rehabilitation, 17 programmes were analysed. 12 were in the German-speaking part of Switzerland, 4 in the French-speaking part and one in the Italian speaking part (with five different locations).

To summarise this study's results, we created the Swiss Average Programme with respect to organisation, target group & indications and details about the programme itself. The five main therapies (physiotherapy, exercise & sports therapy, nutrition therapy, psychotherapy & psycho-oncology, social counselling) were analysed in more detail. Physical therapies (e.g. physiotherapy) were usually longer than psychotherapy and/or social counselling. Likewise, there was a lower number of units per prescription for psychotherapy and/or social counselling than "physical therapies". A unit of "physical therapy" lasted around 30 to 45 min and a unit in psychotherapy and/or social counselling lasted around 90 to 120 min.

SWISS REHA criteria, quality and performance criteria for outpatient rehabilitation, were compared to the Swiss Average Programme. Based on our questionnaire assessment, five programmes already fulfilled these criteria. The Swiss Average Programme mostly fulfilled these criteria, especially in the organisational and professional aspects. The criteria demand a higher intensity with 10 units per week whereas the Swiss Average Programme only had 3h/week. Likewise, the number of obligatory modules should be higher according to the criteria than it was in the Swiss Average Programme.

Lastly, we observed that in the general structure of the programmes the German-speaking part and the Italian speaking part were more alike compared with the French-speaking part. Both provided mostly individual modular programmes for palliative and curative patients and had longer programmes with a lower intensity. The French-speaking part, however, most provided a standard programme for curative patients only and had shorter programmes with a higher intensity. They also had a higher number of obligatory modules a patient must attend than the German or Italian speaking part. Comparing the French-speaking part to the German-speaking part, we also saw that the French part had more indications for the patient and states as well that unrestricted mobility is a minimal requirement. The five main therapies were again compared in this part and it was shown that the duration of therapy in weeks were longer in the French and Italian speaking part and shorter in the German-speaking part. The number of prescriptions were also higher in the French and Italian speaking part and lower in the German-speaking part. Following the same pattern, the duration of a unit was longer in the French and Italian speaking part and shorter in the German-speaking part.

3 ASSESSMENT OF THE DESIRED SITUATION IN SWITZERLAND

3.1 INTRODUCTION

With part 1 of the Swiss study, the situation of outpatient cancer rehabilitation as of 2018 was assessed. Based on the results of the first survey, two further research questions were addressed that focus on the implementation of the SWISS REHA criteria in the programmes and how should the programmes ideally look like. Specifically, the questions were:

1. What is the reality in the outpatient cancer rehabilitation centres concerning the SWISS REHA criteria¹⁸⁶?
2. What is the basis for the desired outpatient cancer rehabilitation programme from the provider's point of view?

The underlying hypothesis was that the SWISS REHA criteria¹⁸⁶ are not fully implemented and/or are interpreted differently in different centres.

3.2 MATERIALS AND METHODS

A mixed-method approach was used. The survey was conducted in two parts - one qualitative and one quantitative. The qualitative part consisted of a guided discussion with experts and the quantitative part of an online survey. The quantitative part comprises the development and evaluation of an online questionnaire. It served to record the opinions (targeted at 50-70 stakeholders) of the existing outpatient cancer rehabilitation centres in Switzerland on the desired status of outpatient rehabilitation, including a statement and, if necessary, recommendations for adjustments to the SWISS REHA criteria¹⁸⁶.

The results of the literature search, the inventory of existing outpatient cancer rehabilitation programmes and the guided discussion were planned to be used in the preparation of the online survey (Part 3b).

3.2.1 PART 3A - SWISS STOCKTAKING: GUIDED DISCUSSION WITH ACTEURS IN OUTPATIENT CANCER REHABILITATION

The participants were the management (strategic and operational management) and other acteurs of the outpatient cancer rehabilitation centres (1 to 2 persons per centre) were expected. The discussion forum aimed to collect the relevant data and questions for the creation of the online questionnaire. Based on the recommendations of the Study Sounding Board, the Swiss cancer league and UZH project teams, four blocks of questions were identified and developed in preparation for the guided discussion.

The discussion guide for the guided discussion is shown in German in appendix 2.2.1 of this report. It was also translated from German into French.

A “World Café” methodology was applied to facilitate the guided discussion. “World Café” is a structured conversational process for knowledge sharing in which groups of people discuss a topic at several tables, with individuals switching tables periodically and getting introduced to the previous discussion at their new table by a table host.

The guided discussion took place at the cancer league Switzerland on the 12th of November 2018. During the guided discussion at the workshop, the table hosts took notes of the key points that emerged from the discussion and were then written up into a protocol.

3.2.2 PART 3B - SWISS STOCKTAKING: ONLINE SURVEY OF ALL ACTEURS IN OUTPATIENT CANCER REHABILITATION

To allow a differentiated view on the current outpatient cancer rehabilitation programmes, all the main acteurs of the programmes were addressed through an online survey. Since only one or two selected leaders and members of a rehabilitation centre team participated in the workshop, a quantitative analysis has been carried out using an online survey.

The information and experience gained from the international literature review, the outpatient cancer rehabilitation facts based survey and the guided discussion served as a basis for the creation of a web-based questionnaire aimed at collecting the opinions and attitudes of professionals working in outpatient cancer rehabilitation programmes in Switzerland with focus on the ideal programme design of the future and reflection on the current SWISS REHA criteria¹⁸⁶.

To develop the questionnaire and the criteria to be investigated, the available results at that time of the international literature review, the inventory of existing programmes and their set up, the guided discussion results and the SWISS REHA criteria¹⁸⁶ were used. The aim was to have a survey that should not take more than a maximum of 20 to 25 minutes to complete. During this process it was agreed to split the questionnaire into the following parts:

- Management and organisation: These include questions around who should lead and coordinate the programme, information flow, and patient management, the expertise required of those involved.
- Target patient groups for rehabilitation and screening requirements for admission: Includes questions on the indications for rehabilitation, treatment goals and choice of rehabilitation instruments to evaluate rehabilitation needs.
- Programme design: This section investigated rehabilitation programme design considerations for standardized and individual programmes depending on whether the programme begins during or after completion of the acute oncological treatment, which modules should be on offer and how much rehabilitation is feasible for patients during or after their acute treatment.
- Rehabilitation processes: This included viewpoints on referrals, admission processes and beneficiary factors for rehabilitation programmes.
- Financing and certification: How should programmes best be financed and reimbursed and what would be the advantages of certification for the centres.

Most of the questions were closed with both single choice and multiple-choice answers so that a descriptive statistical analysis could be carried out. As necessary, some open questions were also included in the questionnaire. All questions were mandatory apart from four free text questions.

All 18 ambulatory outpatient cancer rehabilitation centres in Switzerland were invited to participate (status March 2019). The Swiss cancer league gathered a list of 145 Email addresses for participation. An example of the invitation letter is included in appendix 2.2.2.

A copy of the German language questionnaire (word format) is included in appendix 2.2.3.

To ensure that the survey was of high quality (high understanding level with low ambiguity) and high motivation to finish the whole survey, the survey was extensively tested. In the first phase, a word document questionnaire was reviewed by members of the KLS/ UHZ project team. Subsequently, it was sent to a physiotherapist and an epidemiologist from the IEBP at the UZH for testing and validation. There were asked to review the questionnaire paying attention to the following points:

- Time to fill-out the survey
- Comprehensibility and wording of the questions
- The logic of the question order
- Do the given answers make sense?
- Additional comments

Each of the reviewers provided detailed written feedback which then led to further survey modifications and a final questionnaire in German. Finally, a revised version of the survey was tested with a second physiotherapist.

The German version was then translated into French and Italian by the KLS and the translated questionnaires were validated.

The participants of the online survey included oncologists, internists, physiotherapists, exercise/ sports therapists, nutritionists, psycho-oncologists, social counsellors and cancer rehabilitation coordinators. The intended sample size was between and 50 – 70 OR specialists.

As a survey instrument, we used "Survey Monkey®". Survey Monkey® was chosen because it is an online survey that has some positive features that make it useful for this type of survey, such as easy access, several formats for asking questions, low risk of input and data coding errors, testing modus feature and fast distribution and time-saving. Survey Monkey® also allowed us to track response rates and provide a link in the e-mail invitation. Researchers from the KLS/ UHZ team had also had previous positive experiences with its use for this type of survey.

Before the Survey Monkey® questionnaire was finalized it was sent and tested with the KLS/ UHZ study team.

The survey took place from the 1st of April to the 28th of April 2019. The results were coded in SAS and subsequently analysed in Excel.

Based on the results of the first fact-based survey, the guided discussion and the different perspectives of the OR centres and acteurs, it was decided to analyse the results of the online survey with three language region variables (CH-DE, CH-FR, CH-IT) and by three professional groups. These included the two largest participating groups consisting of physiotherapists and oncologists as well as a third mixed group of all the other participating specialists.

3.2.3 STATISTICAL METHODS

Descriptive statistical analysis has been performed on the data from the online survey. As the questions in the questionnaire are frequently multiple-choice and the variables to analyse are categorial, the chi-squared test has been chosen because it can be used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

3.3 RESULTS

3.3.1 SWISS STOCKTAKING: GUIDED DISCUSSION WITH ACTEURS FROM THE OUTPATIENT CANCER REHABILITATION CENTRES.

3.3.1.1 WHAT DOES THE IDEAL PROGRAMME LOOK LIKE FROM THE PROVIDER'S POINT OF VIEW?

Geographical location should be close by, to reduce travel distance for patients in need of outpatient rehabilitation. Cancer rehabilitation should be an integrated and widely accepted part of the overall cancer treatment. It should be offered as needed, both during and after the cancer treatment. A coordinator is required to ensure that patients optimally use the available modules on offer.

Cancer rehabilitation must be made better known to the public and professionals, who would also themselves promote the benefits and access to rehabilitation. The participants considered that screening for symptoms was necessary to evaluate need. Systematic screening for cancer rehabilitation needs should be undertaken before therapy and at the end of therapy. The oncologists were identified as key for ensuring access and broad participation. Currently, no systematic screening is performed by oncologists. Symptoms that should be screened for include fatigue, pain, psychological and social problems.

The content of cancer rehabilitation programmes should be planned according to the deficits and symptoms of the patient. Core/ mandatory modules could include sports therapy, physiotherapy, social counselling, nutrition, psycho-oncology. Screening for further modules should take place with voluntary participation as if too many modules are "mandatory", patients may refuse or be refused entry.

According to discussion participants, an individual modular programme would be ideal for some patients, for others a standardized programme (with 3-4 core modules) would be preferred. A standardized programme seemed to be the preferred option for participants in CH-FR. The number of units per week should be set individually for each patient and should lie between 4 and 8 units with a duration of 30 minutes. The duration of the programme should be 12 weeks with the possibility of an extension.

Assured financing was reported as a central requirement for establishing ambulatory rehabilitation. Various options for payment were envisaged. Exercise therapy could be included in the health insurance law (KVG) with a uniform tariff. Some participants were in favour of a flat-rate payment for exercise therapy and fee for service arrangements for the other modules. Other participants, particularly from CH-FR, were more in favour of a lump sum to cover a core programme of modules. (4 modules).

Finally, participants stressed that patient education and motivation is key to ensure optimal participation in the programme.

3.3.1.2 WHAT IS THE REALITY IN THE CENTRES CONCERNING THE SWISS-REHA CRITERIA?

Participants confirmed that the SWISS - REHA criteria¹⁸⁶ are well known in the cancer rehabilitation centres. They believe strongly however that criteria need be adapted if they are to be routinely applied but they are nevertheless important for assuring quality. Criteria are also necessary for the sick-funds so that they know for what they have paid for and what the benefits have been.

The SWISS REHA Criteria¹⁸⁶ are considered more suitable for inpatient programmes than for outpatient programmes. For the centres, it is very difficult to fulfil all the criteria. Two-year rehabilitation experience is challenging because there is a high level of rotation amongst the GIM (general internal medicine) specialists and oncologists. Ten units per week of rehabilitation are considered very challenging for patients to complete, particularly during the acute oncological treatment phase. Several participants at the discussion were of the view that only sports therapy and physiotherapy should be part of a fixed programme and other modules should be offered depending on the patient requirements.

The outpatient cancer rehabilitation criteria are viewed as being unclearly defined. The criteria from SWISS REHA¹⁸⁶ are not formulated clearly, difficult for the participants to understand and are interpreted differently. It is not clear how many treatment units are necessary and if every patient must follow at least four different disciplines or how long a unit should last e.g. 30 minutes, 45 minutes or 60 minutes. "At least 4 different measures are offered, but if a patient only wants/needs 1 measure, is that also okay; each patient must take part in at least 4 modules?"

Depending on whether the programme is an individual modular programme or a standardized programme, it will influence the criteria which should be used to define the programme. There must also be differences in the set criteria depending on whether the programme begins during the acute treatment or after the end of the acute treatment. These points are not covered in the SWSS-REHA criteria¹⁸⁶.

Rehabilitation patients are often not in good enough health to be able to fulfil the requirements for the defined number of rehabilitation modules and can sometimes undertake a maximum of two per week. Also, in a broad interdisciplinary setting, too many HCPs would be involved. Physiotherapy and exercise therapy are two different disciplines. There are too many criteria for the outpatient setting. The information flow is not regulated and is only managed in a bilateral setting. The payment method for interdisciplinary coordination meetings is not covered.

Certification is important for quality control. Certification would generate more costs; costs that cannot be borne. It is unclear whether certification is important for the patient. However, certification would likely increase the likelihood of payment from the sick funds. Also, it is not clear who will pay for the certification. Possibly the certification costs could be covered in the forfeit or flat-rate payment. Assessments should be standardized at least within the hospital or rehabilitation centre.

3.3.1.3 HOW WOULD YOU RATE YOUR PROGRAMME? HOW SATISFIED ARE YOU WITH IT? WHAT DO YOU THINK OTHERS SAY ABOUT YOUR PROGRAMME?

Cancer rehabilitation is not considered to have the necessary status in the treatment pathway and does not (yet) belong to the "standard of care" in oncology. It has not yet established itself, as with the myocardial infarction, where it is more standardized.

This deficiency applies to oncologists, radiologists, surgeons and general practitioners. "Yes, I am satisfied with the programme, good that there are programmes. However, it is not clear whether one should speak of a true programme. It is difficult to compare between the programmes".

In CH-DE, physiotherapy is often the main offer, with other modules on demand. There are typically 4 - 6 offers selectable. However, only a minority of the patients demand the full offer. In some centres only one discipline has to be taken, then the patient is already included in the programme, so there is no true cancer rehabilitation in the sense of a multi-disciplinary programme.

Some centres like Balgrist do not have a cancer rehabilitation team and cannot offer a multidisciplinary programme with a minimum of 4 disciplines. Only monodisciplinary e.g. sport and exercise. All other modules must be done out of the house, somewhere else. But the coordinators don't have time to organise the programme.

In some cases, there are difficulties with coordination and structure of the programme, with for instance no clear "beginning", and no clear "end" of rehabilitation. Workshop participants agree that something more structure is needed. In Olten there is no pre-defined programme, no fixed groups and patients undertake the programme individually depending on their needs. In Basel, cancer rehabilitation is not considered as a true programme, as there are no pre-defined objectives and no referrals. "Patients refer themselves. Every patient has an individual programme, that needs a lot of effort, something more structured would be necessary for cancer rehabilitation, the rest of the patients can take advantage of individual offers."

In CH-FR, the programmes are more standardized and structured with groups as is the case in Fribourg. In the programme everyone starts at the same time, there is a beginning and an end of outpatient cancer rehabilitation. The programme typically lasts 2 months. In the morning there is for all participants sport and another intervention. Evaluation of the intervention takes place before and after outpatient cancer rehabilitation. Six months follow up showed a positive impact on the patients.

In CH-IT a strong network with the physiotherapists and oncological physiotherapists has been built up over the last 10 years.

The oncologist must have the awareness that outpatient cancer rehabilitation is important and stand up for it. "Not to move" when you have cancer is still anchored in many heads. They are not well informed; the oncologists forget to suggest rehabilitation or do not motivate their patients sufficiently. The oncologist must be behind this. Outpatient cancer rehabilitation has not yet been established with many oncologists. It is not considered a mistake not to perform outpatient cancer rehabilitation. As one participating oncologist stated, when she stands up for outpatient cancer rehabilitation at oncology centres, she is not taken seriously, and outpatient cancer rehabilitation is not established.

Some oncologists are engaged and refer patients. Other speciality doctors of the oncology centres rarely refer patients although they are informed, and flyers are available. Outpatient cancer rehabilitation is less explicit than chemotherapy, for example. Outpatient cancer rehabilitation is unspectacular and not about "saving a life". The gynaecologists (breast carcinoma) in the practice and the hospital should also be informed and hand out the flyers. Better networks could help to better reach the target audience, awareness is not good, there is insufficient knowledge that outpatient cancer rehabilitation exists. A screening instrument is needed to reach more suitable patients.

The outpatient cancer rehabilitation team needs to develop and maintain and take good care of its referral network. Oncologists do not always have enough time to recruit patients for outpatient cancer rehabilitation. Other specialists could take over this task. For example, nurses or general practitioners register patients with rehabilitation coordinators. Coordination is also important with family doctors after discharge if they take over the aftercare. Patients come after the operation or treatment for aftercare to a family doctor, that requires absolutely information.

"More PR work needs to be done, lectures for specialists, family doctors and nurses. Also, improvement of advertising and flyers to draw the attention of oncologists again and again, even though rehab is right next to oncologists". "Even in Thun, where the programme started in 2010, advertising has to be done again and again. Nursing care should take over more, they see the patients for a long time with the therapy. But the care function could play an important role in recruitment because it is closer to the patient."

The importance of outpatient cancer rehabilitation should be increased with further education diplomas for HCPs. Systematic screening for needs and not only gut feeling is what is required. It must also be specified more precisely which modules belong to the programme, e.g. exercise, psycho-oncology, nutrition. Negatively perceived is also the financial question and which tariffs should be applied.

A tumour-board is not suitable for the recruitment of cancer rehabilitation patients and the presence of the coordinator. Triage and therapy decisions are made here (chemo, ops, radiotherapy) whilst depression or fatigue is not an issue for review.

There is an offer and patients who actively request outpatient cancer rehabilitation will receive it, but not all patients who need it will get it. The capacity in the centres is much higher. Therefore, many patients who could benefit from cancer rehabilitation do not get offered it although places are available. "Many patients with needs are not referred to the outpatient cancer rehabilitation centres. Outpatient cancer rehabilitation is still too much in its infancy: Until recently patients weren't healthy after finishing the acute treatment for as long as cancer survivors are today".

The patient does not see the effect/benefit and does not see that it is as important as the therapy. There is limited information that this is an investment in their health.

There are many absences of the patients due to illness, or multiple examinations and requirement for other therapeutic interventions that take place at the same time as outpatient cancer rehabilitation is scheduled. Patients are often tired and have a family that also needs time. "Therefore, often one module per person per week is for many realistic".

According to some participants, it would be desirable for each patient to have the opportunity to examine the outpatient cancer rehabilitation need in a structured individual discussion and establish an appropriate program.

Overall patients that pass through a programme are very satisfied and are themselves the best ambassadors for promoting the programme to physicians and other patients. And when the oncologists hear satisfied patients then they make more patient referrals for outpatient cancer rehabilitation. "Feedback from patients is very good. The only difficult thing is to bring them in and show that the effort is worth it before they start. If the oncologists don't support it, the effort to get the patients in is enormous."

The management of side effects is a specialized nursing service that goes away from the physician. These carers have more time, closer contact, there is more trust with the patients.

3.3.1.4 WHAT ARE BENEFICIAL / RESTRICTING FACTORS FOR THE IMPLEMENTATION OF AN OUTPATIENT CANCER REHABILITATION PROGRAMME?

At table four of the guided discussion, inhibiting and promoting factors for outpatient cancer rehabilitation were identified.

3.3.1.4.1 INHIBITING FACTORS:

- Service providers such as general practitioners lack the time to draw attention to outpatient cancer rehabilitation.
- The financing is not standardized, but always individually negotiated. In particular, the coordination time (personnel costs, which are often incurred during physiotherapy) is not compensated.
- Communication and coordination are a challenge because patients often rotate at different care sites with corresponding heterogeneity and fractionation of care.
- Overloading of the patient at the time of diagnosis/therapy. The patient is not able to cope with outpatient cancer rehabilitation therapy at the same time.
- The distance to the outpatient cancer rehabilitation site is too far to travel to participate optimally.
- Outpatient cancer rehabilitation is too little known and too little anchored in the care process (compared to e.g. cardiac rehabilitation).
- Conceptual uncertainty around what outpatient cancer rehabilitation is and what are the differences with exercise support or secondary prevention.
- SWISS REHA Rehabilitation criteria¹⁸⁶ are per se restraining and not realistic or feasible, e.g. in connection with everyday stress e.g. family care. From the patient's point of view, some rehabilitation criteria contradict the actual goal of returning to work and participating in social activities ("getting fit for everyday life again").
- The optimal time is extremely difficult to identify and needs to be individually adjustable according to patient needs.
- There are different levels of motivation and priorities concerning outpatient cancer rehabilitation amongst staff working in oncological care.

3.3.1.4.2 SUPPORTIVE FACTORS

- Communication around outpatient cancer rehabilitation: PR campaigns, health information, word-of-mouth promotion, networking.
- Health information at all levels through Swiss Cancer League (public relations work, awareness and sensitization), e.g. through flyers and maps, to inform those afflicted as well as target-group-specific communication, e.g. with specialists.
- Messaging around the relevance of outpatient rehabilitation to improve daily life. Added-value of outpatient rehabilitation for cancer patients compared to inpatient rehabilitation.
- Anchor the outpatient cancer rehabilitation programme with the heads of the oncology team, from nursing to physiotherapy.
- Maximal individuality of the offers (except for exercise/sports therapy which could be obligatory 2x/week).
- Be able to identify clear objectives and added value of outpatient cancer rehabilitation (e.g. positive influence on fatigue symptoms).
- Have "outpatient cancer rehabilitation champions" who have motivated themselves and encourage and promote outpatient cancer rehabilitation (e.g. chief physician).

- Use simple, standardized assessments, the same everywhere, to ensure comparability.
- Have outpatient cancer rehabilitation included at all stages of the treatment pathway, making it a standard part of the treatment pathway.
- Address general practitioners as referring physicians, because they are more likely to identify long-term consequences.
- Clarify competences, e.g. the clear division of tasks, such as with the rehabilitation coordinator.
- Flat-rate payment offer for cancer patients to be able to make an outpatient cancer rehabilitation at a time x (do not define a time, as a credit or voucher, also in the sense of personal responsibility to be redeemed later).
- Screening and checking rehabilitation needs at a specific interval.

3.3.2 SWISS STOCKTAKING: ONLINE SURVEY OF ALL ACTEURS IN OUTPATIENT CANCER REHABILITATION

3.3.2.1 PROFILES OF SURVEY RESPONDERS AND NON-RESPONDERS

Overall 71 responses were received by the 30th April 2019. This includes 43 responses from CH-DE, 13 from CH-FR and 15 from CH-IT.

This gave an overall response rate of just under half at 49.0% (71/145) of the contacted participants. In the three language regions, there were differences in the response rates ranging from 55.8% in the CH-DE to 36.1% in the CH-FR. For the different specialities, the response rates ranged from 92.9% for the oncologists, 65.7% for the physiotherapists to 36.4% for the “other” group. In two sub-groups (see table 3-1), response rates of over 100% were achieved. This is because some respondents “reclassified” their speciality e.g. away from internal medicine specialist to an oncologist, as permitted by the survey.

Table 3-1 Response rates for the different specialities and language regions.

	CH-DE	CH-FR	CH-IT	National Total
Physiotherapist	91.7% (11/12)	30.0% (3/10)	69.2% (9/13)	65.7% (23/35)
Oncologist	70.0% (7/10)	133.3% (4/3)	200% (2/1)	92.9% (13/14)
Other	45.5% (25/55)	26.0% (6/23)	22.2% (4/18)	36.4% (35/96)
All Specialities	55.8% (43/77)	36.1% (13/36)	46.8% (15/32)	49.0% (71/145)

A more detailed breakdown of the response rates by speciality is shown in appendix 2.2.4.

Amongst the responders to the survey, the largest professional group were the physiotherapists (23) followed by the oncologists with 13 responders. The remaining specialities were combined for analysis

purposes into an “other” group consisting of 35 participants. Amongst the “other” group the biggest specialist groups were seven therapists in sport and movement, six social consultants, five nutritionists and four in the group labelled as coordinators, managers and administration (see table 3-2).

Table 3-2 Specialty of survey responders

Speciality	CH-DE	CH-FR	CH-IT	Grand Total
Occupational therapy	1	-	1	2
Nutrition consultation	4	1	-	5
Complementary medicine	-	-	-	-
Management/Coordination/ Administration	3	1	-	4
Oncology	7	4	2	13
Care/ nursing	1	1	-	2
Physiotherapy	11	3	9	23
Psychotherapy/Psychology/ Psychooncology	3	-	-	3
Pain therapy	-	-	-	-
Pastoral care	1	-	-	1
Social counselling	4	-	2	6
Exercise & Sports therapy	6	1	-	7
Stomatotherapy	-	-	-	-
Other*	2	2	1	5
Grand Total	43	13	15	71

* Other = hair prosthetist, internal medicine, physician in charge FMH, discharge coordination, a haematologist.

The centres with the most responders were the canton Tessin where all rehabilitation teams from the canton are affiliated, and the hospitals Schwyz, “Inselspital” Bern, Thun and HUG. At least one respondent replied from each outpatient cancer rehabilitation centre except for KS Winterthur and Sion.

Table 3-3 Centre of survey responder

Centre	Oncologist	Physio-therapist	Other	Grand Total
Brig	-	1	1	2
Centre d'oncologie Eaux- Vives (Genf)	-	-	3	3
Insel Spital	-	1	5	6
KS Nidwalden	1	1	2	4
KS Olten	1	1	-	2
KS St. Gallen	-	1	2	3
KS Winterthur	-	-	-	-
Kliniken Valens	-	1	1	2
KLZH/Klinik Susenberg ZH	-	-	4	4
La Corbière (La Pierre Blanche)	1	-	1	2
Porrentruy	-	1	-	1
Sion	-	-	-	-
Interlaken	-	1	2	3
Thun	1	1	3	5
Schwyz	3	1	3	7
Tessin	2	9	4	15
Other*	4	4	4	12
Grand Total	13	23	35	71

*Other = HUG (5 x), Carouge, Studio Total Look L'Institut Capillaire, Kliniken Valens/ Ambulatorium Chur, Balgrist MovMed, Klinik Gais AG, Bürgerspital Solothurn, Kantonsspital St. Gallen

3.3.2 MANAGEMENT AND ORGANISATION

For 91.4% of the participants, a medical doctor should lead the cancer rehabilitation. Furthermore, 57.7% of the respondents stated that this should be the oncologist. Whilst this response was highest amongst oncologists themselves (72.2%), it was the preferred choice for all specialities and language regions (tables 3-4 and 3-5). As an alternative for just under a quarter of the participants, this could be a PMR (physician for physical and medical rehabilitation) specialist or for just over 10% this could also be an internal medicine (AIM) specialist.

Table 3-4 Who should be the medical director of outpatient cancer rehabilitation? (Multiple selections possible). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Oncologist	72.2%	61.8%	50.0%	57.7%
AIM	11.1%	5.9%	13.5%	10.6%
PMR	16.7%	29.4%	21.2%	23.1%
Other specialist*	0.0%	2.9%	7.7%	4.8%
Don't know.	0.0%	0.0%	7.7%	3.8%
Grand Total	100.0%	100.0%	100.0%	100.0%

Table 3-5 Who should be the medical director of outpatient cancer rehabilitation? (Multiple selections possible). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
Oncologist	62.1%	55.0%	50.0%	57.7%
AIM	10.3%	10.0%	11.5%	10.6%
PMR	17.2%	25.0%	34.6%	23.1%
Other specialist*	6.9%	0.0%	3.8%	4.8%
don't know.	3.4%	10.0%	0.0%	3.8%
Grand Total	100.0%	100.0%	100.0%	100.0%

*family doctor, nurse, occupational therapist, physiotherapist, radiation oncologist, haematologist psychooncologist (specialist for psychiatry and psychotherapy), rehabilitation physicians, any qualified specialist, psychosomatics.

The free text answer box provided some insights on why the oncologist is viewed as the preferred director of the rehabilitation. Oncologists understand the different rehabilitation problems of oncological patients very well and then pass them on to the appropriate rehabilitation specialists. Central is the competence in supportive oncology, i.e. dealing with side effects of cancer therapies. Alternatively, rehabilitation experience could also be covered by specialists in oncological palliative medicine (dual qualification specialized palliative care and medical oncology) or equivalent dual competences, possibly also geriatric oncology.

Regarding the amount of experience required to lead the ambulatory oncology rehabilitation, the response “do not know” (36.6%) was the most frequently given answer for all specialities (table 3-6 and 3-7) and language regions. This was particularly the case for the “other” group were almost half responded, “do not know”. Asked to justify their (non)-response, these participants indicated that they did not have the necessary knowledge to make an estimate. One quarter (25.4%) of the participants consider that 2 years or more of experience is necessary. In contrast, almost one quarter (23.1%) of oncologists consider no experience is required to lead outpatient cancer rehabilitation. Combining responses one, two and three indicate that 60.9% of physiotherapists and 48.5% of oncologists consider at least one year of experience is necessary. According to the free-text answers, these respondents justify their response that after 1 year or more of experience, a certain understanding of cancer rehabilitation has been achieved and adequate knowledge acquired to be able to lead the service. As evidenced by the negative chi-squared test, there was no evidence of heterogeneity between the sub-groups.

Table 3-6 How much rehabilitation experience is needed to take over the medical management, if not PMR (physical and medical rehabilitation physician)? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
None	23.1%	4.3%	14.3%	12.7%
Up to 1 year	15.4%	4.3%	5.7%	7.0%
Between 1 and 2 years	15.4%	34.8%	8.6%	18.3%
2 years or more	23.1%	26.1%	25.7%	25.4%
I don't know.	23.1%	30.4%	45.7%	36.6%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.81

Analysis by language region indicates a trend to the view of more experience being needed in the CH-IT region but this result did not show significance according to the chi-squared test.

Table 3-7 How much rehabilitation experience is needed to take over the medical management, if not PMR (Physical and Medical Rehabilitation Doctor)? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
None	16.3%	15.4%	0.0%	12.7%
Up to 1 year	4.7%	7.7%	13.3%	7.0%
Between 1 and 2 years	11.6%	15.4%	40.0%	18.3%
2 years or more	20.9%	30.8%	33.3%	25.4%
I don't know.	46.5%	30.8%	13.3%	36.6%
Grand Total	100.0%	100.0%	100.0%	100.0%

In contrast to the leadership of the rehabilitation, the co-ordination is best made by the rehabilitation team (43.7% of participants) followed by the nurse. This view was consistent across the different specialities. In CH-FR, the choice of a nurse (30.8%) was as frequent as the choice of the rehabilitation team.

Table 3-8 In your opinion, who is best suited to coordinate outpatient cancer rehabilitation? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Physician	23.1%	8.7%	8.6%	11.3%
Physiotherapist	7.7%	13.0%	5.7%	8.5%
Nurse	23.1%	21.7%	20.0%	21.1%
Rehabilitation team	30.8%	43.5%	48.6%	43.7%
Other	15.4%	13.0%	14.3%	14.1%
I don't know	0.0%	0.0%	2.9%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P=1.00

Table 3-9 In your opinion, who is best suited to coordinate outpatient cancer rehabilitation? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
Physician	9.3%	23.1%	6.7%	11.3%
Physiotherapist	9.3%	15.4%	0.0%	8.5%
Nurse	14.0%	30.8%	33.3%	21.1%
Rehabilitation team	41.9%	30.8%	60.0%	43.7%
Other	23.3%	0.0%	0.0%	14.1%
I don't know	2.3%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

The justification from the free text for a rehabilitation team acting as a coordinator is that interprofessional cooperation is very important. Interdisciplinary exchange is required to recognize rehabilitation potential and to apply it in the right place. This requires that all professional opinions come together. The argument on the other hand for the nurse is that they are in regular contact with the patient and have a global vision and understanding of multidisciplinary management and are thus qualified to take on this responsibility.

For the 14 % of respondents proposing an alternative answer, the rehabilitation coordinator should in many cases be a responsible person from the multi-professional rehabilitation team e.g. experienced physiotherapist etc. with clear responsibility in triage and decision-making processes.

The information flow for the outpatient cancer rehabilitation team coordination should be supported ideally through an electronic patient dossier (43.7%) and/or the reha logbook of the Swiss cancer league (18.9%) and/or e-mail (18.0%). (table 3-10).

Table 3-10 How should the flow of information between specialists be supported? (Multiple selections possible). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Reha logbook of the Swiss cancer league	13.0%	16.3%	23.2%	18.9%
Via e-mail	26.1%	20.9%	12.5%	18.0%
Formalised report	8.7%	9.3%	8.9%	9.0%
Electronic patient dossier	39.1%	39.5%	41.1%	40.2%
Other	13.0%	11.6%	12.5%	12.3%
I don't know.	0.0%	2.3%	1.8%	1.6%
Grand Total	100.0%	100.0%	100.0%	100.0%

Over 12% of participants selected an additional answer. These participants most often selected the need to hold regular interdisciplinary meetings i.e. a decision board, such as a cancer rehabilitation board where all specialists would be present, where indications and rehabilitation objectives and plans would be defined, implemented and monitored. They also pointed out that the electronic patient dossier is not yet available but is awaited and will be valuable for the coordination of patients in a multi-disciplinary outpatient cancer rehabilitation programme.

The electronic patient dossier was also the preferred choice to support information flow amongst all language regions. Table 3-11 also shows that in the CH-IT, 30.4% of participants support the reha logbook of the Swiss cancer league.

Table 3-11 How should the flow of information between specialists be supported? (Multiple selections possible). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
Reha logbook of the Swiss cancer league	16.0%	16.6%	30.4%	18.9%
Via e-mail	17.3%	12.5%	26.1%	18.3%
Formalised report	10.7%	8.3%	4.4%	9.0%
Electronic patient dossier	40.0%	45.8%	34.8%	40.2%
Other	14.7%	16.7%	0.0%	12.3%
I don't know.	1.3%	0.0%	4.4%	1.6%
Grand Total	100.0%	100.0%	100.0%	100.0%

To the question, how often should a rehabilitation team discussion take place, the most frequently given response was once a month (45.1%) and this was also the most frequent answer amongst all speciality groups (table 3-12) and language regions. Nevertheless, almost one-quarter of respondents consider that team meetings are not necessary. In those centres where until now, patients only undergo physiotherapy and an exercise program, discussions between the departments regarding the patients were not deemed necessary or too time-consuming. In summary, it emerges that the number of coordination meetings depends on the level of the programme sophistication and that this increases with increasing interdisciplinarity of the rehabilitation. Also, in smaller centres, informal communication and meetings were an important part of the communication flow and impact the required frequency for formal rehabilitation meetings.

Table 3-12 How often should a cancer rehabilitation team meeting take place? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Once a week	15.4%	17.4%	11.4%	14.1%
Once a month	53.8%	43.5%	42.9%	45.1%
Once per programme	7.7%	8.7%	22.9%	15.5%
Meeting not necessary	23.1%	26.1%	22.9%	23.9%
Other	0.0%	4.3%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.81

There were no significant differences between the language regions (data not shown).

3.3.2.3 TARGET GROUP AND SCREENING INSTRUMENTS

There are many rehabilitation indications or deficits requiring inclusion into a rehabilitation program. (table 3-13). The four most frequently stated concern physical performance/activity restricted in everyday life (18.1%), quality of life restricted as a result of the disease or therapies (14.9%), functionality/mobility restricted in daily life (13.5%), fatigue affects everyday life (12.8%). There was a similarity of preferences across the different speciality groups.

Table 3-13 In your opinion, patients with which indications (deficits/problems) need rehabilitation? In your opinion, please indicate the 4 most important indications for admission to interdisciplinary outpatient cancer rehabilitation (prerequisite)? According to

	Oncologist	Physio-therapist	Other	Grand Total
Functionality/mobility restricted in daily life	10.2%	13.0%	15.0%	13.5%
Physical performance/activity restricted in everyday life	14.3%	17.4%	20.0%	18.1%
Special nutritional situation available	8.2%	4.3%	4.3%	5.0%
Emotional problems and limited quality of life	10.2%	7.6%	7.1%	7.8%
Social, professional or financial situation restricted	4.1%	7.6%	6.4%	6.4%
limited ability to act in personal, domestic and/or professional environment	10.2%	5.4%	9.3%	8.2%
Quality of life restricted as a result of the disease or therapies	14.3%	16.3%	14.3%	14.9%
Emotional/spiritual imbalance disorder	0.0%	1.1%	0.0%	0.4%
A special care situation exists	0.0%	0.0%	1.4%	0.7%
Dealing with the consequences of illness or therapy made more difficult	8.2%	6.5%	6.4%	6.8%
Pronounced pain present	0.0%	2.2%	1.4%	1.4%
Fatigue affects everyday life	14.3%	16.3%	10.0%	12.8%
Questions / concerns about sexuality available	2.0%	0.0%	0.0%	0.4%
Speech or swallowing problems present	2.0%	1.1%	3.6%	2.5%
Other indication	2.0%	1.1%	0.7%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%

There were no conspicuous or eye-catching differences amongst the 3 language regions. (data not shown).

A majority state that the overall objectives of the ambulatory rehabilitation should be fixed in a multi-professional team (53.3%) (table 3-14). This viewpoint is most strongly held by the oncologists where over three quarters (76.9%) responded in this way. Physicians in oncology or another appropriately qualified medical speciality are the preferred choice for just under a quarter (22.5%) of participants. However, this result is driven by the results from the group “other” (28.6%) and the physiotherapists (21.7%). In contrast, only 7.7% of oncologists consider that they alone should fix the rehabilitation goals with cancer rehabilitation patients.

Table 3-14 Who should define the overall rehabilitation goals with the patient? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Physician in oncology, AIM, PMR	7.7%	21.7%	28.6%	22.5%
Physiotherapist	0.0%	17.4%	2.9%	7.0%
Oncology nurse	0.0%	8.7%	14.3%	9.9%
Multi-professional team	76.9%	52.2%	45.7%	53.5%
Other	15.4%	0.0%	8.6%	7.0%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.26

Analysis of this question by language region identified some regional differences. Somewhat strikingly one-third of respondents from CH-DE specified the physician as the speciality to define the patient outpatient cancer rehabilitation goals. The most popular response in CH-DE was a multi-professional team. In CH-F, besides the multi-professional rehabilitation team, physiotherapist were mentioned most frequently. In CH-I three quarter defined a multi-professional team. Analysis of the text responses indicates that the multi-professional rehabilitation team is required to diagnose multimodal functional deficits and that the role of the oncologist is required to be able to assess the rehabilitation prognosis as well as the ability/ suitability for programme participation for the patient.

Table 3-15 Who should define the overall rehabilitation goals with the patient? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
Physician in oncology, AIM, PMR	32.56%	7.69%	6.67%	22.54%
Physiotherapist	4.65%	23.08%	0.00%	7.04%
Oncology nurse	6.98%	15.38%	13.33%	9.86%
Multi-professional team	48.84%	46.15%	73.33%	53.52%
Other	6.98%	7.69%	6.67%	7.04%
Grand Total	100.00%	100.00%	100.00%	100.00%

Concerning generic screening instruments to measure the need for rehabilitation, there was no dominant instrument and the preferences were split between EFL and/or ESAS- Score and/or WHODAS II and/or ECOG/ Karnofsky or adapted ECOG, and/or distress thermometer indicating that either a variety of generic screening instruments are useful or no instrument has imposed itself universally (table 3-16). It should be borne in mind that a multiple selection response was possible with this question. From the free text analysis, it was reported that none of the current instruments such as ESAS, WHODAS II, ECOG, EFL, DT are suitable for diagnosing multimodal functional deficits that indicate an indication for inpatient or outpatient oncological rehabilitation. Overall one-quarter of participants were not able to specify a generic screening test. This number was highest in the others group (42.3%) and lowest amongst the oncologists (3.23%).

Table 3-16 Which generic instruments do you consider useful for assessing rehabilitation needs? (Multiple selections possible). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
ESAS score, if necessary WHODAS II	19.4%	21.1%	13.5%	17.4%
ECOG/Karnofsky or adapted ECOG	29.0%	13.2%	3.8%	13.2%
Evaluation of Functional Performance (EFL)	19.4%	23.7%	23.1%	22.3%
distress thermometer	19.4%	13.2%	9.6%	13.2%
Further assessments	9.7%	7.9%	7.7%	8.3%
I don't know.	3.2%	21.1%	42.3%	25.6%
Grand Total	100.0%	100.0%	100.0%	100.0%

The view on the value of speciality-specific instruments across all specialist groups was three quarters in favour (77.5%) (table 3-17). This view was unanimous for physiotherapists (100%) and lowest for

others 62.9%. However, it should be noted that in the other group one quarter (25.7%) responded “do not know” concerning the choice of which speciality instruments are considered useful.

Table 3-17 Do you consider specialist instruments for measuring progress and goal achievement in your field to be useful? e.g. 6-minute walking test, timed get up and go, HADS, NRS, etc.? According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Yes	76.9%	100.0%	62.9%	77.5%
No	15.4%	0.0%	11.4%	8.5%
I don't know.	7.7%	0.0%	25.7%	14.1%
Grand Total	100.0%	100.0%	100.0%	100.0%

Regarding the specific tests that are considered the most useful, analysis of the free text showed that the 6-minute walking test was mentioned 15 times, NRS six times and timed get up and go was mentioned four times.

3.3.2.4 THE PROGRAMME DESIGN

Regarding the programme design, when rehabilitation begins during the acute phase of the oncology treatment, a fully standardized programme polled very low 5.6% across all speciality groups and language regions. The preference was split between a fully individualized modular programme (50.7%) or a combination of partly standardized (core modules) and partly individualized according to specific needs (42.3%) (table 3-18). Amongst the different speciality groups, there was a trend in favour of a combined standardized and modular programme with the physiotherapists 60.9%.

Table 3-18 How should the programme be structured if rehabilitation begins during acute cancer treatment? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
An individual modular program	61.5%	39.1%	54.3%	50.7%
A standardized programme	0.0%	0.0%	8.6%	4.2%
A standardized programme with core modules + further modules according to individual requirements	38.5%	60.9%	31.4%	42.3%
I don't know.	0.0%	0.0%	5.7%	2.8%
Grand Total	100.00%	100.00%	100.00%	100.00%

P = 0.37

These results differed by the language region of the participants (table 3-19). Conspicuously, in the Latin speaking regions whilst over half of the respondents were in favour of a combined programme, in the CH-DE only one third were of this opinion.

Table 3-19 How should the programme be structured if rehabilitation begins during acute cancer treatment? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
An individual modular program	55.8%	38.5%	46.7%	50.7%
A standardized programme	4.7%	7.7%	0.0%	4.2%
A standardized programme with core modules + further modules according to individual requirements	34.9%	53.8%	53.3%	42.3%
I don't know.	4.7%	0.0%	0.0%	2.8%
Grand Total	100.00%	100.00%	100.00%	100.00%

P = 0.81

Furthermore, when the same question was set in the context of cancer rehabilitation after completion of the acute phase consistent results were achieved with just under half of the respondents choosing a fully individualized programme and half choosing a combination programme of partially standardized and partly individualized modules. (tables 3-20 and 3-21). In contrast to the other specialities, the majority of physiotherapists again preferred the combined standardized and modular programme when rehabilitation begins after the end of the acute phase.

Table 3-20 How should the programme be structured if rehabilitation begins after completion of acute cancer treatment? (selection). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
An individual modular program	46.2%	26.1%	54.3%	43.7%
A standardized programme	0.0%	8.7%	5.7%	5.6%
A standardized programme with core modules + further modules according to individual requirements	46.2%	65.2%	37.1%	47.9%
Other	7.7%	0.0%	0.0%	1.4%
I don't know.	0.0%	0.0%	2.9%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.31

Any regional differences that seemed apparent in the acute phase were no longer evident in the post-acute phase, with similar preferences for the individual and combined programme options amongst all language regions.

Table 3-21 How should the programme be structured if rehabilitation begins after completion of acute cancer treatment? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
An individual modular program	41.9%	38.5%	53.3%	43.7%
A standardized programme	4.7%	7.7%	6.7%	5.6%
A standardized programme with core modules + further modules according to individual requirements	51.2%	46.2%	40.0%	47.9%
Other	0.0%	7.7%	0.0%	1.4%
I don't know.	2.3%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

The mandatory modules which are considered by the majority of participants to always belong to a standardized programme were physiotherapy 66% and exercise & sports therapy 76%. For these two disciplines, there were no apparent speciality or regional differences. In the cases of nutritional counselling 53% and psychotherapy/ psycho-oncology 44%, approximately half of the respondents consider that these modules could also form part of a standardized programme. For nutritional counselling, the oncologists, in contrast to the other 2 speciality groups, are strongly in favour of assigning this module to a standard programme. Furthermore, in the Latin speaking regions, there is a preference for making available the nutrition model as part of a standardized programme. (CH-DE 37.2%, CH-FR 92.3%, CH-IT 66.7%). Similar speciality and regional trends are also apparent for the psychotherapy/ psycho-oncology module. Overall the Latin speaking regions were in favour of including four modules (physiotherapy, exercise and sports therapy, nutritional counselling, psychotherapy) as part of a standardized programme. In the CH-DE it was just the first two of these modules.

The remaining modules were considered by the majority to be elective and based on individual need. These included, social counselling & support 68%, complementary medicine 80%, occupational therapy 80%, sexual counselling 87%, creative therapy (painting and music therapy) 77%, speech and swallowing therapy 91%, pastoral care 80%. There were no apparent deviations in any of the answers to these questions from the respondents according to their speciality or language region.

Few additional modules were identified by the participants that could be added to the rehabilitation programme. Pain therapy, yoga and body-mind therapy were each identified by two participants. These additional molecules would form part of an individual programme.

The quantity of ambulatory rehabilitation that a patient can cope with during the oncological treatment was quantified in the questionnaire during and after the acute phases of treatment. The amount of rehabilitation that can be completed per week is indeed considered by the respondents to be dependent on the phase of the oncological treatment. For patients who have ongoing acute treatment the median number of modules was two per week corresponding to a median duration of rehabilitation of 120 minutes per week. For physiotherapists, three modules per week are considered feasible. This number of modules of outpatient cancer rehabilitation was consistent across the language regions. In terms of the total number of minutes of rehabilitation per week, whilst the “other” group and physiotherapists had a median of 120 minutes, oncologists had a median of 90 minutes. (tables 3-22 and 3-23)

Table 3-22 How many modules (different disciplines) per week are feasible in total for patients during acute cancer treatment? (Number of modules/week). According to medical speciality.

# Modules/ week	Oncologist	Physio-therapist	Other	Grand Total
1	23.1%	0.0%	17.1%	12.7%
2	61.5%	43.5%	40.0%	45.1%
3	7.7%	26.1%	17.1%	18.3%
4	0.0%	21.7%	11.4%	12.7%
5	0.0%	8.7%	8.6%	7.0%
6	0.0%	0.0%	5.7%	2.8%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.56

Table 3-23 How many minutes per week of cancer rehabilitation in total are feasible for patients during acute cancer treatment? (Number of minutes per week). According to medical speciality.

# Minutes/ week	Oncologist	Physio-therapist	Other	Grand Total
10	0.0%	0.0%	2.9%	1.4%
30	0.0%	0.0%	5.7%	2.8%
40	7.7%	4.3%	2.9%	4.2%
60	30.8%	4.3%	17.1%	15.5%
70	0.0%	0.0%	2.9%	1.4%
80	0.0%	4.3%	2.9%	2.8%
90	23.1%	21.7%	8.6%	15.5%
100	0.0%	4.3%	5.7%	4.2%
120	15.4%	30.4%	22.9%	23.9%
150	15.4%	8.7%	0.0%	5.6%
160	0.0%	0.0%	2.9%	1.4%
180	0.0%	13.0%	5.7%	7.0%
200	0.0%	4.3%	0.0%	1.4%
240	0.0%	0.0%	8.6%	4.2%
270	0.0%	0.0%	5.7%	2.8%
300	0.0%	4.3%	5.7%	4.2%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.91

Following the completion of the acute treatment the median number of rehabilitation modules which can be completed increased from two to four modules per week with a total duration of the outpatient cancer rehabilitation which increased overall from 120 to 180 minutes. The median of 4, was consistent across

all specialities and language regions except for the oncologists where the median was 3. The median total duration of outpatient cancer rehabilitation after completion of the acute treatment also increased but only to 150 minutes in the physiotherapists' group. Across all language regions, it was consistent at 180 minutes. (tables 3-24 and 3-25).

Table 3-24 How many modules (different departments) per week are feasible for patients after completion of acute cancer treatment? (Number of modules/week). According to medical speciality.

# Modules/ week	Oncologist	Physio-therapist	Other	Grand Total
1	7.7%	0.0%	2.9%	2.8%
2	30.8%	8.7%	11.4%	14.1%
3	15.4%	39.1%	25.7%	28.2%
4	38.5%	13.0%	37.1%	29.6%
5	0.0%	21.7%	8.6%	11.3%
6	0.0%	17.4%	5.7%	8.5%
7	0.0%	0.0%	5.7%	2.8%
8	0.0%	0.0%	2.9%	1.4%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.25

Table 3-25 How many minutes per week in total are feasible for patients after completion of acute cancer treatment? (Number of minutes per week). According to medical speciality.

# Minutes/ week	Oncologist	Physio-therapist	Other	Grand Total
10	0.0%	0.0%	2.9%	1.4%
50	7.7%	0.0%	2.9%	2.8%
60	7.7%	0.0%	2.9%	2.8%
90	15.4%	8.7%	2.9%	7.0%
120	7.7%	17.4%	17.1%	15.5%
130	0.0%	0.0%	2.9%	1.4%
140	0.0%	4.3%	0.0%	1.4%
150	7.7%	13.0%	5.7%	8.5%
160	0.0%	0.0%	5.7%	2.8%
180	15.4%	21.7%	17.1%	18.3%
200	0.0%	0.0%	2.9%	1.4%
230	0.0%	4.3%	2.9%	2.8%
240	23.1%	26.1%	8.6%	16.9%
270	0.0%	0.0%	5.7%	2.8%
290	7.7%	0.0%	20.0%	11.3%
300	0.0%	4.3%	0.0%	1.4%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.91

The desired total length in weeks of the outpatient physiotherapy was investigated in the survey for both an individual modular programme and for a standardized programme. It was found that this characteristic of the programme did not influence the length. For both an individual modular programme and for a standardized programme, the median length was recorded at 12 weeks. (tables 3-26 and 3-27). The median of 12 weeks was strongly supported and consistent for all specialities and language regions.

Table 3-26 In your opinion, how long should an individual modular outpatient cancer rehabilitation programme take on average in weeks to be effective? (number of weeks). According to medical speciality.

# Weeks	Oncologist	Physio-therapist	Other	Grand Total
1	0.0%	0.0%	2.9%	1.4%
2	0.0%	4.3%	0.0%	1.4%
4	0.0%	4.3%	2.9%	2.8%
6	0.0%	0.0%	8.6%	4.2%
8	7.7%	13.0%	17.1%	14.1%
9	0.0%	4.3%	0.0%	1.4%
10	0.0%	0.0%	2.9%	1.4%
12	61.5%	47.8%	37.1%	45.1%
14	0.0%	4.3%	2.9%	2.8%
15	7.7%	0.0%	0.0%	1.4%
16	0.0%	4.3%	5.7%	4.2%
18	0.0%	0.0%	2.9%	1.4%
20	0.0%	0.0%	2.9%	1.4%
24	15.4%	8.7%	14.3%	12.7%
25	0.0%	8.7%	0.0%	2.8%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.93

Table 3-27 In your opinion, how long should a standardized outpatient cancer rehabilitation programme take on average in weeks to be effective? (number of weeks). According to medical speciality.

# Weeks	Oncologist	Physio-therapist	Other	Grand Total
1	0.00%	0.00%	2.86%	1.41%
4	0.00%	4.35%	8.57%	5.63%
6	0.00%	4.35%	2.86%	2.82%
8	7.69%	0.00%	8.57%	5.63%
9	0.00%	4.35%	0.00%	1.41%
10	0.00%	0.00%	5.71%	2.82%
12	69.23%	56.52%	48.57%	54.93%
14	0.00%	8.70%	0.00%	2.82%
15	0.00%	0.00%	2.86%	1.41%
16	0.00%	4.35%	14.29%	8.45%
19	0.00%	0.00%	2.86%	1.41%
24	7.69%	8.70%	2.86%	5.63%
25	7.69%	8.70%	0.00%	4.23%
Missing data	7.69%	0.00%	0.00%	1.41%
Grand Total	100.00%	100.00%	100.00%	100.00%

P = 0.91

The definition of an interdisciplinary outpatient programme and the minimal number of modules to fulfil the definition was surveyed. Overall according to the participants, for an outpatient programme to be considered interdisciplinary the median number of modules on offer should be at least four, with the patient completing at least three modules during their rehabilitation program. (tables 3-28 and 3-29). For physiotherapists, it is enough to offer three modules. For all other groups, the median remained at four. In CH-IT, it is enough to complete two modules to fulfil the definition. For all other groups, the median remained at three modules.

Table 3-28 What is the minimum number of modules (different disciplines) to be offered for an outpatient interdisciplinary cancer rehabilitation programme? According to medical speciality.

# Modules	Oncologist	Physio-therapist	Other	Grand Total
1	0.0%	0.0%	5.7%	2.8%
2	15.4%	13.0%	2.9%	8.5%
3	23.1%	43.5%	17.1%	26.8%
4	30.8%	21.7%	28.6%	26.8%
5	7.7%	8.7%	22.9%	15.5%
6	7.7%	8.7%	14.3%	11.3%
8	7.7%	0.0%	8.6%	5.6%
9	0.0%	4.3%	0.0%	1.4%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.43

Table 3-29 What is the minimum number of modules (different disciplines) that a patient must take for an outpatient interdisciplinary cancer rehabilitation programme? According to medical speciality.

# Modules	Oncologist	Physio-therapist	Other	Grand Total
1	0.0%	4.3%	17.1%	9.9%
2	23.1%	34.8%	17.1%	23.9%
3	38.5%	43.5%	31.4%	36.6%
4	7.7%	4.3%	28.6%	16.9%
5	0.0%	8.7%	0.0%	2.8%
6	7.7%	0.0%	2.9%	2.8%
8	15.4%	0.0%	2.9%	4.2%
9	0.0%	4.3%	0.0%	1.4%
Missing data	7.7%	0.0%	0.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.10

3.3.3 PROCESSES

Referrals to outpatient rehabilitation centres can come from many sources including oncologists, gynaecologists, AIM, PMR and GPs. Patients can also directly refer to themselves. Referrals from the cantonal cancer leagues should also be an option. Many options were proposed in each case from the different participants. Several respondents also added that any qualified cancer rehabilitation specialist including oncology nurses should be able to refer a patient for rehabilitation treatment. There were no eye-catching outliers from the different specialists and language regions.

Table 3-30 Who should the referring physicians be? (multiple selections possible). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Family doctor	17.0%	20.2%	19.3%	19.2%
Gynecologist	15.1%	15.2%	13.6%	14.4%
Oncologist, GIM, PMR	22.6%	23.2%	24.3%	23.6%
Doctor in other medical specialisation	15.1%	14.1%	14.3%	14.4%
Patient	15.1%	11.1%	15.7%	14.0%
Cantonal Cancer League (KKL)	9.4%	14.1%	12.1%	12.3%
Other	5.7%	2.0%	0.7%	2.1%
Grand Total	100.00%	100.00%	100.00%	100.00%

Decisions on the admission of patients to an outpatient cancer rehabilitation programme should be according to two-thirds of the participants be made by the rehabilitation team, with one third favouring a specialist physician as a gatekeeper. For a couple of participants, an oncology nurse or admission's coordinator would also be an option.

Table 3-31 Who should decide on admission and entry to an outpatient cancer rehabilitation programme? (selection). According to medical speciality.

Gatekeeper	Oncologist	Physio-therapist	Other	Grand Total
Oncologist, AIM, PMR	30.8%	30.4%	37.1%	33.8%
Rehabilitation Team	69.2%	69.6%	57.1%	63.4%
Other non-medical	0.0%	0.0%	5.7%	2.8%
Grand Total	100.0%	100.0%	100.0%	100.0%

The survey respondents were also asked in a free text question, to identify factors which would promote and facilitate the implementation of an outpatient cancer rehabilitation programme. Central is the

embedding of the cancer rehabilitation both as a core module and an individual module in the treatment chain of modern oncology, ideally in specific cancer rehabilitation boards. Soft factors were regularly cited including good teamwork, motivation, communication and leadership. Aspects such as short travelling distance for the participants, good and structured processes and guaranteed financing are also decisive for the participation in the cancer rehabilitation programme. Close teamwork with oncologists and other specialists who refer patients is also decisive.

3.3.3.1 FINANCING THE ONCOLOGICAL AMBULATORY REHABILITATION

The financial organisation of the rehabilitation was investigated in the survey. Overall there was no preferred system amongst the different specialities with each alternative scoring between one quarter and one-third of the preferences. These differences presumably also reflect the differences in underlying programme design and whether the programme is modular, standardized or of mixed form.

Table 3-32 How should the billing of services look like? (selection). According to medical speciality

Billing system	Oncologist	Physio-therapist	Other	Grand Total
Individual billing	23.1%	21.7%	31.4%	26.8%
Flat rate billing	23.1%	30.4%	22.9%	25.4%
Combination of above	38.5%	30.4%	28.6%	31.0%
I don't know.	15.4%	17.4%	17.1%	16.9%
Grand Total	100.0%	100.0%	100.0%	100.0%

P = 0.97

The pattern of responses was also quite similar across the three language regions. The only apparent outlier was in CH-FR, where the flat rate billing model was preferred by more than half of this group (53.8%).

Table 3-33 How should the billing of services look like? (selection). According to language region.

	CH-DE	CH-FR	CH-IT	Grand Total
Individual billing	30.2%	7.7%	33.3%	26.8%
Flat rate billing	16.3%	53.8%	26.7%	25.4%
Combination of above	34.9%	15.4%	33.3%	31.0%
I don't know.	18.6%	23.1%	6.7%	16.9%
Grand Total	100.0%	100.0%	100.0%	100.0%

According to the free text analysis for those survey participants who answered flat-rate billing or a combined billing, the cost of the cancer rehabilitation coordination office should be covered within the flat rate billing process.

The survey checked on the need for certification of the outpatient cancer rehabilitation programme. Amongst the survey respondents, almost all respondents (94.2%) were in favour of a certification of the outpatient cancer rehabilitation programme. The most favoured reasons selected were recognition by patients and stakeholders, a guarantee of the quality of the programme and delivery of a standardized programme. Improved programme financing and reimbursement would also be another advantage identified by respondents in favour of certification.

Table 3-34 What would be the advantage of certification? (Multiple selections possible). According to medical speciality.

	Oncologist	Physio-therapist	Other	Grand Total
Recognition	28.1%	34.5%	40.2%	36.0%
Quality assurance	25.0%	31.0%	36.6%	32.6%
Standardization of performance/programmes	28.1%	24.1%	18.3%	22.1%
No advantage	6.3%	5.2%	1.2%	3.5%
Other	9.4%	1.7%	1.2%	2.9%
I don't know	3.1%	3.4%	2.4%	2.9%
Grand Total	100.0%	100.0%	100.0%	100.0%

3.3.4 COMPARISON OF THE SWISS IDEAL PROGRAMME WITH THE SWISS REHA CRITERIA

In table 3-35, the results from the survey have been compared to the SWISS REHA criteria¹⁸⁶ to identify where the Swiss ideal outpatient cancer rehabilitation programme matches with the existing SWISS REHA criteria¹⁸⁶ and where divergences are present. To construct the Swiss ideal programme, the most frequently given or median responses from the survey have been used. To facilitate comparison between the two sets of criteria, divergences from the Swiss ideal programme have been highlighted in bold.

Table 3-35 Comparison of the Swiss ideal programme with the SWISS REHA criteria.

	Swiss ideal programme	Programme according to SWISS REHA criteria
Compulsory professional requirements: Number of disciplines	Minimum of 4 modules (disciplines) offered and a minimum of 3 modules by patients undertaken	A minimum number of 4 (below mentioned) disciplines form an integral part of the rehabilitation teams
Compulsory professional requirements: Field of the medical lead	Oncology or GIM with a minimum one year of rehabilitation experience or PMR specialist	General Internal Medicine (GIM) or Oncology with a minimum of two years of rehabilitation experience or a Physical Medicine and Rehabilitation (PMR) specialist
Compulsory professional requirements: mandatory rehabilitation modules	Physiotherapy and exercise & sports therapy	Physiotherapy and/ or occupational therapy
Professional requirements: Rehabilitation modules as required (contractually regulated access)	occupational therapy nutritional counselling psychotherapy/ psycho-oncology speech and swallowing therapy social counselling & support complementary medicine sexual counselling creative therapy (painting and music therapy) pastoral care	occupational therapy nutritional counselling psychology speech therapy social counselling & support Work integration orthopaedic technology Rehabilitation care (e.g. specialised Spitex) (The disciplines form an integral part of the rehabilitation team, which is under medical supervision)
Organisational requirements; Coordinator	Coordination through a rehabilitation team (rehabilitation board)	A coordinating function is mandatory
Organisational requirements exchange of information	Electronic patient dossier Monthly team meetings	regulated information flow At least one team meeting per month
Organisational requirements: Programme structure	An individual modular program or A standardized programme with core modules + further modules according to individual requirements	No reference to different programme forms (e.g. individual modular or standardized with core modules and other modules if required)

Organisational requirements: Programme structure	Rehabilitation begins during or after completion of acute oncological treatment	Rehabilitation usually begins after completion of the medical treatment.
Organisational requirements: Minimum number of modules per patient/week	Patients during acute oncological treatment at least 2 modules/week Patients after acute oncological treatment at least 4 modules/week	At least 4 disciplines (modules)/week
Organisational requirements: Number of minutes/ units feasible per week	Patients during acute oncological treatment 120 min. At 30 min. per unit = 4 units Patients after acute oncological treatment 180 min. At 30 min. per unit = 6 units	Minimum 10 treatment units per week and patient Note: Duration of 1 unit is not defined. At 30 min. per unit = 300 minutes At 45 min. per unit = 450 minutes
Organisational requirements: Duration of outpatient rehabilitation	individual modular programme = 12 weeks standardized programme = 12 weeks	No indication of duration
Financing	Individual billing or flat rate billing or combination of above	No indication of the financing
Qualitative requirements: assessments Screening instrument	Preferred generic assessments <ul style="list-style-type: none">- ESAS score, if necessaryWHODAS II- ECOG/Karnofsky or adapted ECOG- Evaluation of Functional Performance (EFL)- distress thermometer Preferred discipline-specific assessments <ul style="list-style-type: none">- 6-minute walking test- NRS- timed get-up and go	Minimum 2 of the assessments mentioned, one generic and one subject/discipline-specific Generic assessments <ul style="list-style-type: none">- ESAS score, if necessaryWHODAS II- ECOG/Karnofsky or adapted ECOG- EFL- further assessments depending on the problem Discipline-specific <ul style="list-style-type: none">- 6-minute walk test- Timed get up and go test

3.4 DISCUSSION

3.4.1 COMPARISON WITH THE SWISS REHA CRITERIA FOR ONCOLOGICAL REHABILITATION AND INTERNATIONAL LITERATURE.

According to SWISS REHA, internal and oncological rehabilitation is concerned with people who are suffering from several internal medical or oncological/haematological diseases, comorbidities or, as a result of their treatment, including surgery, require a coordinated, interdisciplinary approach to rehabilitation under medical guidance and supervision. The objectives of the rehabilitation being the improvement of functional limitations and improvement of activities in everyday life, in the world of work and participation. To support these objectives, SWISS REHA has defined quality and performance criteria to govern the setup and deployment of multi-disciplinary outpatient cancer rehabilitation programmes and interventions in Switzerland¹⁸⁶.

The survey results indicate that the future desired outpatient cancer rehabilitation programme would only partially fulfil the existing SWISSREHA criteria¹⁸⁶. Key disparities occur particularly in the programme design and structure and specifically around how many interventions are required to constitute an outpatient cancer rehabilitation programme, the extent of standardisation versus individualisation of the programme i.e. how many and which modules in a programme should be obligatory and finally the duration and intensity of the programme. These disparities relate in turn to the underlying definition and concept of outpatient cancer rehabilitation that the programme is built upon.

In contrast to cardiac rehabilitation where the patients are more homogeneous, cancer patients vary more (cancer type, prognosis, disability level) and a standard programme cannot so easily be uniformly applied¹⁸⁷. Therefore, it seems reasonable to have a more flexible programme and fix the threshold for mandatory modules quite low so that patients in need are not excluded, can gain access to the programmes and subsequently benefit from the interventions. Additional optional modules would then be added individually, as required to achieve the threshold number of modules which would constitute an interdisciplinary cancer rehabilitation programme. The SWISS REHA criteria¹⁸⁶ stipulate that a minimum number of four cancer rehabilitation disciplines form an integral part of the rehabilitation teams. However only one or maximum two of these interventions are mandatory namely physiotherapy and/or ergotherapy (occupational health). In contrast, the survey respondents stated that the availability of just four modules by the outpatient cancer rehabilitation centre and completion by the patient of just two or three of them should suffice as a minimum threshold for outpatient cancer rehabilitation. Two of these interventions should also be mandatory and should be physical activity-based i.e. physiotherapy and exercise/sports therapy. The question that ensues, is how many modules and different interventions are required at a minimum to fulfil the criteria for a multidisciplinary cancer rehabilitation programme and what ultimately constitutes a multi- or interdisciplinary programme, as opposed to a simple mono- or bi-disciplinary intervention? Indeed if these survey results are accepted (i.e. physiotherapy and physical activity are sufficient on their own for outpatient cancer rehabilitation), the cancer rehabilitation

programme no longer represents interdisciplinary or integrated care as defined by SWISS REHA or other national guidelines that have been developed elsewhere¹⁸⁸. That is not to say that monodisciplinary interventions are not of value and should not be performed but rather they do not equate to interdisciplinary cancer rehabilitation care and should not be labelled as such. Physiotherapy and physical exercise have been proven to be of value and are recommended for all outpatient cancer rehabilitation patients in the international literature¹⁸⁷. From the international literature review, it is apparent that as with the SWISS REHA criteria¹⁸⁶, interventions were only rarely mandatory. The international data supports the fact that outpatient cancer rehabilitation programmes are usually extensively tailored to individual patients' needs². Furthermore, when the information was found on mandatory interventions, it was observed that it was solely regarding physical activity⁴⁸.

In addition to mandatory or core interventions, SWISS REHA requires "contractually regulated access to" eight other disciplines or interventions, namely occupational therapy, work integration, orthopaedic technology, psychology, speech therapy, nutrition consultation, social work and rehabilitation care (e.g. specialised SpiteX)¹⁸⁶. As we learnt from the guided discussion, the term "contractually regulated access to" is not understood by the acteurs from the rehabilitation centres and its precise significance needs to be clarified. Five of these eight modules overlap with the survey results, namely occupational therapy, nutritional counselling, psychology, speech therapy, social counselling and support. Furthermore, when looking at the most cited interventions from the international literature review, in addition to physical training and physiotherapy, the most commonly cited interventions were nutritional counselling, social therapy/counselling, education, strength training, psychological support and occupational therapy, indicating a high degree of overlap between the international literature research and the survey findings concerning which modules should be available according to the individual needs of the patient.

National evidence-based cancer rehabilitation guidelines in the Netherlands are considered the most advanced, existing since 2011¹⁸⁹ and having been updated in 2017¹⁹⁰. They can provide some important insights for desired future developments in Switzerland. Based on these guidelines, cancer rehabilitation refers solely to rehabilitation medicine, which is an outpatient interdisciplinary treatment aimed at maximizing autonomy and participation of (former) cancer patients who have multiple and interrelated problems on the physical, cognitive, emotional or social level, and/or regarding role functioning as a result of having cancer and/or the treatment of it. Importantly in the revised guidelines, cancer rehabilitation no longer comprises mono- or multidisciplinary interventions for patients who have single or unrelated functional problems, although this service is offered in primary care to cancer patients to improve the functional, physical, psychological or social problems associated with cancer as non-coordinated monodisciplinary measures. In other words, those oncology patients who have single or unrelated functional problems on the physical, cognitive, emotional or social level should be referred in the Netherlands to receive monodisciplinary rehabilitation interventions, but these are not the same patients who should be referred and admitted to multidisciplinary cancer rehabilitation programmes. Therefore, concerning the actual SWISS REHA guidelines and to ensure delivery of true multidisciplinary cancer rehabilitation, the evidence suggests that the minimum number of interventions should not be reduced below the currently recommended four interventions. However, all cancer patients should continue to receive some form of mandatory physical activity probably physiotherapy

and if they require interrelated multidisciplinary cancer rehabilitation therapy a minimum of three additional non-physical activity interventions should be decided based upon individual medical need.

The duration of cancer rehabilitation is not fixed in the SWISS REHA criteria¹⁸⁶. According to survey participants, the programme should last on average twelve weeks, independent of the type of programme and whether it is an individual modular or a standard programme. Based on the information that could be gathered from the international literature research with data available for eight of the fifteen countries, we could observe that outpatient cancer rehabilitation programme durations varied between 3 weeks in Germany²⁹ and up to 30 weeks in some of the Canadian programmes²⁷, the average duration being 9.5 weeks (\pm 4.5 weeks). In the Netherlands, the duration also varied between eight and twelve weeks. This variability in rehabilitation duration presumably reflects the classification of different cancer patients and not just whether the programme is modular or individual.

Amongst the programme prerequisites in the SWISS REHA criteria¹⁸⁶, are a minimum of ten treatment units per week per patient. At the guided discussion, it was apparent that this prerequisite of ten units poses several problems. First, it is currently not feasible for capacity reasons for many of the centres to offer this quantity. Second, no allowance is made that treatment intensity would differ according to patient health, amount of functional deficit and cancer rehabilitation goal, socio-economic situation, travel distance to the cancer rehabilitation centre and between the phase of treatment (for instance acute versus post-acute treatment). Third, it is not clear how many minutes constitute a treatment unit and that according to the intervention type, the duration of a treatment unit would presumably also be different. For instance, a physical unit e.g. of physiotherapy would presumably be shorter than a unit of psychotherapy. For this reason, the survey questionnaire sought to clarify the intensity of the programme in standard time units to establish the appropriate amount of rehabilitation therapy during both the acute phase of treatment and for post-acute treatment phase. From this, it emerges that whilst the quantity of rehabilitation that a patient can undergo in the post-acute treatment phase increases from 120 to 180 minutes this would still only represent 6 units at 30 minutes, 4 units at 45 minutes or 3 units at 60 minutes. When analysing the intensity of the programmes in the international comparison of 15 countries, data on programme intensity was available for eight countries. Regarding the frequency of rehabilitation interventions (or sessions) per week, a high degree of variation between countries was identified. Nevertheless, the average intensity seemed to be around 2 to 4 sessions/interventions per week^{3,191}, giving support to the feedback from the outpatient cancer rehabilitation centres in Switzerland, that ten units per week are not feasible for both practical and medical reasons. Therefore, it seems reasonable to adapt the number of units downwards in the SWISS REHA criteria¹⁸⁶ considering patient classification and also the timing of the rehabilitation during or after the end of the acute treatment. However, we should avoid being over specific in the criteria and the number of programme modules or units of rehabilitation therapy should be flexible to adequately anticipate the classification of different oncological patients. Different patient sets with severe chemotherapy-associated neuropathies, cancer therapy-associated fatigue syndrome, orthopaedic problems such as vertebral body fractures, lymphedema, psychological/psychiatric problems have very different rehabilitation indications and rehabilitation requirements.

Another area of divergence between the SWISS REHA criteria and the survey results concern the leadership and organisation of the multidisciplinary outpatient cancer rehabilitation programme. From the guided discussion, it was known that the SWISS REHA requirement to have at least two years of rehabilitation experience, when the programme director is not a PMR specialist, is a resource challenge. The survey results confirmed that oncologists are the preferred choice to lead the programme because of their better understanding of the future recovery potential of the oncology patients and their expertise to assess patients' ability to undergo multidisciplinary cancer rehabilitation. The international literature review indicates that in the nine countries where data was available on this criterion, usually the PMR specialist or other selected member within the rehabilitation team e.g. physiotherapist and not an oncologist with rehabilitation experience led the programme. Therefore, if oncologists are to continue to perform this function, this experience requirement may need to be reduced to a lower limit of a minimum of one year as indicated by the survey results. The central point regarding leading physicians is that one must be involved who can assess the rehabilitation prognosis, i.e. the controllability of the cancer disease or the question of functional deficits after completed cancer therapy. In addition to the quantitative requirements expressed in number of years of cancer rehabilitation experience, the precise definition of what exact experience is indicated with the term "cancer rehabilitation experience" still needs to be clarified and according to the survey free text could include experience with physical, emotional, social coordinated measures, and acquisition of competencies in goal-oriented approach and inter-professionality/ interdisciplinarity.

The SWISS REHA criteria¹⁸⁶ stipulate that a coordinating function is mandatory but do not specify which speciality should be accountable for ensuring patient coordination in the programme. The Swiss survey results indicate a strong preference for a rehabilitation team. Within this team, (oncology) nurses could act as coordinators because of their close contact and understanding of the patients' requirements. According to the survey suggestions, this person must be part of the multi-professional team, can be a physiotherapist or movement therapist, also theoretically nutrition counselling or social counselling or from the nursing sector. It should not be a doctor who is overqualified for these coordination tasks. Moreover, the role of the coordinating function should be clarified in the SWISS REHA criteria. The coordinator should be someone from the multi-professional rehabilitation team, with clear responsibility and triage and decision-making processes. According to the international literature review, there is usually a coordinator and the function varies by country.

To support patient coordination, the SWISS REHA criteria¹⁸⁶ require a regulated information flow and at least one team meeting per month. The survey results are in line with this requirement. They specify that in the ideal programme, the regulated information flow should be coordinated with an electronic patient dossier accessible to the rehabilitation team, accompanied by regular monthly meetings where oncology patients would be individually discussed. However, the type of information flow via e-mail, report, patient dossier etc. is probably less central than the rehabilitation process itself. The rehabilitation team could be comparable to the tumour board concept. In the tumour board, a multidisciplinary team decides on the acute treatment strategy. Some survey and discussion participants whilst supporting this inter-disciplinary approach of the tumour board have also indicated that such a board would not have the capacity to also make decisions on the rehabilitation strategy and proposed instead to establish a

specific “rehabilitation board” which could be tasked with this role. In this setting, rehabilitation indications with formalized processes can be developed and functional deficits described and targeted for cancer rehabilitation interventions.

The SWISS REHA criteria¹⁸⁶ also define qualitative requirements for outpatient cancer rehabilitation involving generic and subject-specific assessments with a minimum of two of those selected from the list defined by SWISS REHA; in each case one generic and one subject-specific assessment. From the generic assessments (ESAS score, if necessary WHODAS II; ECOG/Karnofsky or adapted ECOG; and EFL) proposed by SWISS REHA, all instruments were to some extent considered useful by those respondents medically competent to answer the question. Besides, the support for the distress-thermometer indicates that this test could be added to the list of generic screening instruments from SWISS REHA. The subject-specific and disease-specific tests listed by SWISS REHA in their qualitative requirements are the 6-minute walking test and timed get up and go. These tests (particularly the 6MWT) were also broadly supported by the survey participants. The survey did not, however, reveal any additional well supported subject-specific tests (e.g. HADS, NRS etc.) for any of the other disciplines involved in rehabilitation. Data from the international literature research indicated that there does not seem to be an international consensus as to which assessment tools are best serving the purposes of cancer rehabilitation programmes. Most assessment tools in use were discipline-specific and not generic or programme-specific.

The SWISS REHA criteria¹⁸⁶ do not specify how patients should be referred and subsequently be admitted to a cancer rehabilitation centre. The survey results show that different physician specialities involved in treating different cancer types should do this, along with GPs, the cantonal cancer leagues (KKL) or the patients themselves. The international literature research showed that referral to outpatient cancer rehabilitation was very different between countries, reflecting amongst other factors the differences in national health care systems. In most countries participating in the international literature review, a health professional was involved in the referral process, but in six countries out of 15, self-referral seemed to play a key role.

Financing of cancer rehabilitation programmes is not addressed in the SWISS REHA criteria. During the guided discussion, guaranteed financing was identified as a conducive factor for the implementation of a cancer rehabilitation programme although there was no clear consensus on whether one financing model would be more conducive to a successful cancer rehabilitation programme than another one. For this reason, the most frequent models were tested for support in the survey. This showed that of the three main options including individual fee for service billing, flat-rate billing or combination of both, there was no clear difference in favour of one model, presumably reflecting divergences in opinions about the most appropriate programme form (individual programme or combined programme with core and additional interventions as needed). For those advocating a combination of flat fee for core modules with a fee for service approach for additional models, based on an analysis of the free text section, flat rate billing was foreseen for the physiotherapy and exercise/sports therapy interventions inclusive of coverage for the cost of services from the coordination centre, as coordination is required for all cancer rehabilitation modules. Again, according to the free text, all other interventions should be billed with individual flat rates.

Certification is currently not possible for the centres offering cancer rehabilitation programmes, because as has been discussed, they cannot currently completely fulfil all the SWISS REHA criteria. The question, therefore, remains, on how valuable it would be for the centres who would in the future be able to fulfil modified criteria to seek certification. According to the survey, 75% of respondents consider certification as advantageous. The international literature research did not reveal any certification as such in the fifteen countries investigated. What could be observed was that some countries seemed to have quality standards for their programmes. In Luxembourg¹⁹² after the start of the programme every two and a half years, there should be an external audit and, in the Netherlands, this should be once every five years⁶¹. The potential benefit of certification or quality standards and its implications for Switzerland requires further analysis and investigation.

3.4.2 COMPARISON OF THE SURVEY RESULTS WITHIN THE THREE SPECIALTY GROUPS AND THREE LANGUAGE REGIONS.

The guided discussion had indicated that there may be important differences in the approach to outpatient cancer rehabilitation amongst the different language regions or specialists. The results of the survey were therefore stratified by three speciality groups and the three language regions. The chi-squared test was used to reject the null hypothesis that the data are independent. None of the tests performed reached significance and therefore do not provide hard evidence of interaction or dependence.

The results of the speciality group stratification are now also briefly discussed. As far as the management of the outpatient cancer rehabilitation is concerned, this was relatively homogeneous with no significant outliers, even if the oncologists would entrust themselves, to a more marked extent than the physiotherapists and “others” group indicated, as the group most suited to lead the ambulatory outpatient cancer rehabilitation programmes even when they have no oncological rehabilitation experience.

In the more technical section of the survey on target groups and screening instruments, the result which strongly stands out is that the “other” group often has a higher number of participants who responded, “do not know” as presumably, they were less technically qualified to respond to these types of questions. Some caution in the subsequent interpretation of these questions by speciality is, therefore, necessary because of their overall weight of the “other” group in the survey accounting for half of the survey participants.

The questions relating to programme structure do show some apparent trends regarding speciality classification. The physiotherapists chose more strongly than the other two speciality groups in favour of a combination programme of standardised core models and individual models and much less for a purely individualised programme. Independent of the timing of the outpatient cancer rehabilitation, oncologists are more cautious than the other specialities about the number rehabilitation modules that are feasible for the patient during both phases of treatment (during and after finishing). On the other hand, physiotherapists are of the view that optimally only three different interventions are necessary as core offer, whereas the other groups consider four modules as optimal. Concerning the cancer

rehabilitation processes regarding referrals, admittance, financing and outpatient cancer rehabilitation certification, no deviations between the results of the different specialities were apparent.

Overall the suspicion aroused from the guided discussion of regional differences at least in some important elements of the outpatient cancer rehabilitation does not seem to have been fully confirmed with the survey results. When it comes to the management and organisation of the programme the results were homogeneous between the regions. Additionally, the questions about the section target groups and screening instruments did not provide any clear suggestions for differences.

Concerning the structure of the programme and as suspected from the guided discussion, there was a non-significant trend in CH-DE in favour of a fully individual modular programme i.e. no core interventions/ groups, at least when rehabilitation begins during the acute treatment phase. In the Latin speaking regions, a small majority of respondents were in favour of a combined standardized and individual modular programme whereas, in the CH-DE, this structure was preferred by only one-third of responders. However, and somewhat in contradiction for the CH-DE, in the subsequent survey questions, physical interventions i.e. physiotherapy and exercise and sports therapy where considered by all three language regions to optimally belong to a standardised programme. Additionally, in the CH-IT and CH-FR regions, there was a majority in favour of including psychotherapy and nutritional counselling as part of a more extensive standardized programme, reflecting the overall stronger support for a combined (standardized and individual) programme in these regions. A further inter-regional difference concerning programme structure was apparent in the responses. Whilst all regions consider an outpatient cancer rehabilitation programme should be offered by a rehabilitation centre with at least four modules, in the CH-IT it was considered enough for a programme when a patient completed two of them. In contrast in CH-DE and CH-FR, it would be necessary to complete at least three interventions. Here caution should be applied to this apparent regional difference because of potential confounding factors, as in CH-IT, nine from the thirteen participants were also physiotherapists (see above discussion on inter-speciality differences).

During the guided discussion, different financing models for outpatient cancer rehabilitation were proposed and evaluated with apparently different regional support levels. The survey results have identified similar differences. The CH-DE and CH-IT recommended a fee for service option or a combination of both financing systems. In contrast in the CH-FR, a flat fee financing system would be preferred by the majority. This result in the CH-FR stands somewhat in contradiction to the preferred programme structure in the CH-FR, which indicated a preference for a programme with both standardised programme modules and individual modules. The reason for this contradiction in the CH-FR between a more “flexible” programme structure and a more “rigid” financing model is not clear from the survey results. One interpretation might be that the CH-FR participants prefer to standardise a core set of modules in an outpatient cancer rehabilitation programme and assure a straightforward financing model for them. This explanation would be reasonable if most cancer rehabilitation participants mainly required only core modules. This issue requires further investigation with the survey participants from CH-FR.

Argumentation in favour of the combination financing approach is, on the one hand, the flexibility that the system offers and on the other hand the chance to improve flat-rate billing for the core areas such as physiotherapy and sports therapy with cost coverage of the coordination function. Individual modules can then be separately billed with individual rates. Finally, the motivation to achieve certification for the individual centres was welcomed by all three language regions with similar reasons and support levels.

3.4.3 CONCLUSIONS AND RECOMMENDATIONS

The Swiss national study on interdisciplinary outpatient cancer rehabilitation provides a thorough basis to design an evidence-based outpatient cancer rehabilitation programme and build on and adapt the SWISS REHA guidelines with the relevant acteurs. As has been outlined, the online survey confirms that many of the SWISS REHA quality and performance criteria fit with the actual or desired cancer rehabilitation programmes in Switzerland. Other criteria might need to be added, adapted or removed. The table below could represent a basis for a discussion between KLS, SWISSREHA, NSK, oncoreha.ch and other acteurs concerned with outpatient cancer rehabilitation. Table 3-36 highlights the differences between the actual criteria from SWISS REHA; the ideal requirements coming from the on-line survey; and recommendations, based on the above discussion, to bridge or resolve or highlight unresolved issues that require further research and reflection.

Table 3-36 Comparison of the Swiss ideal programme with the SWISS REHA criteria and study recommendations.

Criteria	Swiss ideal programme	Programme according to SWISS REHA criteria	Study recommendations (rationale)
Compulsory professional requirements: Number of disciplines	Minimum of 3 modules (disciplines) offered and a minimum of 2 modules by OR patients undertaken	A minimum number of 4 (below mentioned) disciplines form an integral part of the rehabilitation teams	As per SWISS REHA criteria (below 4 modules is no longer considered a multi-disciplinary programme in the international literature)
Compulsory professional requirements: Field of the medical lead	Oncology or AIM with a minimum one year of rehabilitation experience or PMR specialist	AIM or Oncology with a minimum of two years of rehabilitation experience or physical medicine and rehabilitation (PMR) specialist	As per the Swiss ideal programme (more realistic recommendation given the resources available in the OR centres) Define exactly what competencies must be acquired by medical lead during this experience.

Compulsory professional requirements: Mandatory rehabilitation modules	Physiotherapy and exercise & sports therapy	Physiotherapy and/ or occupational therapy	As per the Swiss ideal programme (compulsory modules limited to physical activity)
Professional requirements: Rehabilitation modules as required (contractually regulated access)	Occupational therapy nutritional counselling psychotherapy/ psycho-oncology Speech/swallowing therapy social counselling & support complementary medicine sexual counselling creative therapy (painting and music therapy) pastoral care	Occupational therapy nutritional counselling psychology Speech therapy social counselling & support Work integration orthopaedic technology Rehabilitation care (e.g. specialised Spitex) (The disciplines form an integral part of the rehabilitation team, which is under medical supervision)	Optional modules as per Swiss ideal programme (High level of overlap between SWISS REHA criteria and survey results. Survey list is more extensive supporting differing OR needs of heterogeneous cancer patients)
Organisational requirements: Coordinator	Coordination through a rehabilitation team (rehabilitation board)	A coordinating function is mandatory	Swiss ideal programme and SWISS REHA criteria match (The exact role of the coordinating function should be clarified in the SWISS REHA criteria)
Organisational requirements: Exchange of information	Electronic patient dossier Monthly team meetings	Regulated information flow At least one team meeting per month ("rehabilitation board")	Swiss ideal programme and SWISS REHA criteria match ("Rehabilitation board" to make decisions on the rehabilitation strategy/ need)

Organisational requirements: Programme structure	An individual modular program or A standardized programme with core modules + further modules according to individual requirements	No reference to different programme forms (e.g. individual modular or standardized with core modules and other modules if required)	As per the Swiss ideal programme. (A standardized programme with core modules + further modules according to individual requirements.) (This feature is missing from the SWISS REHA criteria)
Organisational requirements: Minimum number of modules per patient/week	Patients during acute oncological treatment at least 2 modules/week Patients after acute oncological treatment at least 3 modules/week	At least 4 disciplines (modules)/ week	As per the Swiss ideal programme. (Swiss ideal programme fits with phase of oncological treatment.)
Organisational requirements: Number of minutes/ units feasible per week	Patients during acute oncological treatment 120 min.. At 30 min. per unit = 4 units Patients after acute oncological treatment 180 min. At 30 min. per unit = 6 units	Minimum 10 treatment units per week and patient Note: Duration of 1 unit is not defined. At 30 min. per unit = 300 min. At 45 min. per unit = 450 min.	As per the Swiss ideal programme (Units are quantified in minutes and adapted to the phase of oncological treatment.)
Organisational requirements: Duration of outpatient rehabilitation	Individual modular programme = 12 weeks on av. Standardized programme = 12 weeks on av. (individual patient length depends on the level of functional deficit etc.)	No indication of duration	As per the Swiss ideal programme (Criteria not fixed by SWISS REHA)
Financing	Individual billing or flat rate billing or combination of above	No indication of the financing	Combination? (Requires further research and contacts and interviews?)

Qualitative requirements: assessments Screening instrument		Minimum 2 of the assessments mentioned, one generic and one subject/discipline-specific	As per the Swiss ideal programme (High degree of overlap between SWISS REHA criteria and Swiss ideal programme.)
	<p>Preferred generic assessments:</p> <ul style="list-style-type: none"> -ESAS score, if necessary WHODAS II -ECOG/Karnofsky or adapted ECOG -Evaluation of Functional Performance (EFL) -Distress thermometer 	<p>Generic assessments:</p> <ul style="list-style-type: none"> -ESAS score, if necessary WHODAS II -ECOG/Karnofsky or adapted ECOG -EFL -Further assessments depending on the problem 	
	<p>Preferred discipline-specific assessments</p> <ul style="list-style-type: none"> -6-minute walking test -NRS -timed get-up and go 	<p>Discipline-specific</p> <ul style="list-style-type: none"> -6-minute walk test -Timed get up and go test 	

D. CONCLUSIONS AND OUTLOOK

This national study on cancer rehabilitation is a step towards the definition of uniform, differentiated and implementable evidence-based service and quality criteria for Swiss outpatient oncological rehabilitation.

Assessment Switzerland & International

Internationally as well as in Switzerland, there were large differences with respect to form and implementation of programmes for outpatient oncological rehabilitation. The financing of such programmes seems to be a major challenge for their implementation.

Effectiveness & Cost Efficiency

Outpatient multidisciplinary oncological rehabilitation has positive effects on the physical and mental health of patients, as well as their ability to work. However, due to methodological limitations and different patient groups involved in the studies, no general conclusions can be drawn. Indications for a good cost-effectiveness of outpatient sports and exercise therapies are shown in methodologically good studies for patients with colon and lung tumours.

Outlook

There is great interest and a need for implementable criteria for outpatient oncological rehabilitation in Switzerland. As a first step in this study, an informal consensus was attained between the different players involved in the management, development and implementation of such programmes.

On the basis of the available results, the responsible multi-professional association oncoreha.ch, in cooperation with SWISS REHA and other acteurs, will be able to differentiate quality and performance criteria more precisely. Thus, the path is set for a certification and adequate financing of the programmes in the future in order to increase the quality of outpatient oncological rehabilitation.

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H. ABBREVIATION INDEX

1-RM/1RM	1-Repetition Maximum
6MWD	6-minute walking distance
DAART	Diagnostic, Assessment and Access to Rehabilitation and Treatment (Assessment)
DASH	“Disabilities of Arm, Shoulder and Hand”-Questionnaire
EORTC	European Organisation for Research and Treatment of Cancer
EORTC-QLQ-C30	European Organisation for Research and Treatment of Cancer Quality-of-life Questionnaire Core 30
EQ-5D	European Quality of Life-5 Dimensions
FACIT	Functional Assessment of Chronic Illness Therapy
FACT-An	Functional Assessment of Cancer Therapy – Anaemia
FACT-B	Functional Assessment of Cancer Therapy-Breast
FACT-G	Functional Assessment of Cancer Therapy – General Scale
FPACQ	Flemish Physical Activity Computerized Questionnaire
HADS	Hospital Anxiety and Depression Scale
HRQoL	health-related quality of life
LASA	Linear Analogue Self-Assessment
LASAs of QOL	Linear Analogue Self-Assessment of Quality Of Life
MFI	Multidimensional Fatigue Inventory
MOS SF-36	Medical Outcomes Study (Short Form 36 questionnaire)
OMCR	Outpatient Inter-/Multidisciplinary Cancer Rehabilitation
POMS	Profile Of Mood States
QLQ-C30	Quality-of-life Questionnaire Core 30
SF-36	Short Form 36
Spitzer QOL Uniscale	Spitzer Quality of Life Uniscale
SQUASH	Short Questionnaire to Assess Health enhancing physical activity
STAI	State-Trait Anxiety Inventory
VAS	Visual Analogue Scale
WAI	Work Ability Index
WLQ	Work Limitations Questionnaire

I. APPENDIX

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1 B. INTERNATIONAL SITUATION

1.1 OUTPATIENT CANCER REHABILITATION IN SELECTED COUNTRIES

1.1.1 TARGETED INTERNET: SEARCH PROTOCOL

1. **National cancer league web page search**
 - a. Going to national cancer league web site
 - b. Looking for info from the main menu, about
 - a. outpatient rehabilitation
 - b. rehabilitation
 - c. Using "search" option if applicable, using key words (either in English and/or in local language)
 - a. "outpatient rehabilitation" (or synonym/corresponding term)
 - b. "rehabilitation" (or synonym/corresponding term)
 - d. Revising all the search results (max first 30)
 - e. In case of relevant references (i.e links to info sheets or other web sites), revising these as well
2. **Google search**
 - a. Using google.ch search engine
 - b. Carrying out Google search using the local concept of *outpatient cancer rehabilitation + guidelines* (term will be in quotation marks) + the name of the country if needed (in case the language is the same in many countries).

For example: "outpatient cancer rehabilitation guidelines" United States

- c. Looking through the answers on the first 50 hits
- d. In case not finding answers to all the questions, conducting new, targeted search about missing topic. Looking through the answers on the first 10 hits
For example, in case the missing topic is financing: "outpatient rehabilitation financing" US
- e. Reporting all the steps

3. Existing literature

Questions we would like to answer with this targeted internet search

1. National cancer strategy – does it exist?
2. Is rehabilitation mentioned in national cancer strategy?
3. Is outpatient cancer rehabilitation available?
4. **Are there national guidelines for outpatient cancer rehabilitation?**
5. Type of rehabilitation, if outpatient rehabilitation is not available.
6. **Legislation** (is it mentioned in the law that people have to receive rehabilitation)?
7. How is outpatient cancer rehabilitation **financed**?
8. **Start** of the rehabilitation (before, during, after treatment)
9. Who is **recommending** patient that he/she should undergo rehabilitation (referral)?
10. Who is **responsible** for the outpatient rehabilitation programme (e.g. physician, oncologist)?
11. Who is **coordinating** the patient pathway (e.g. physician, nurse)?
12. Is the outpatient rehabilitation multiprofessional? List the **professionals**.
13. Sport therapist or physiotherapist or both are included?
14. Are there any **mandatory interventions**? If yes, which ones?
15. What is the **duration** of the outpatient rehabilitation programme?
16. List all the **interventions** which are provided to patients.
17. What is the typical **intensity** of these interventions?
18. How is the **information flow** organised (e.g. team meetings)?
19. Are there **mandatory assessments**, which have to be done to track patient progress?
20. Do **quality criteria** for the rehabilitation exist?

1.1.2 DUTCH DECISION TREE (ENGLISH VERSION – 2011)

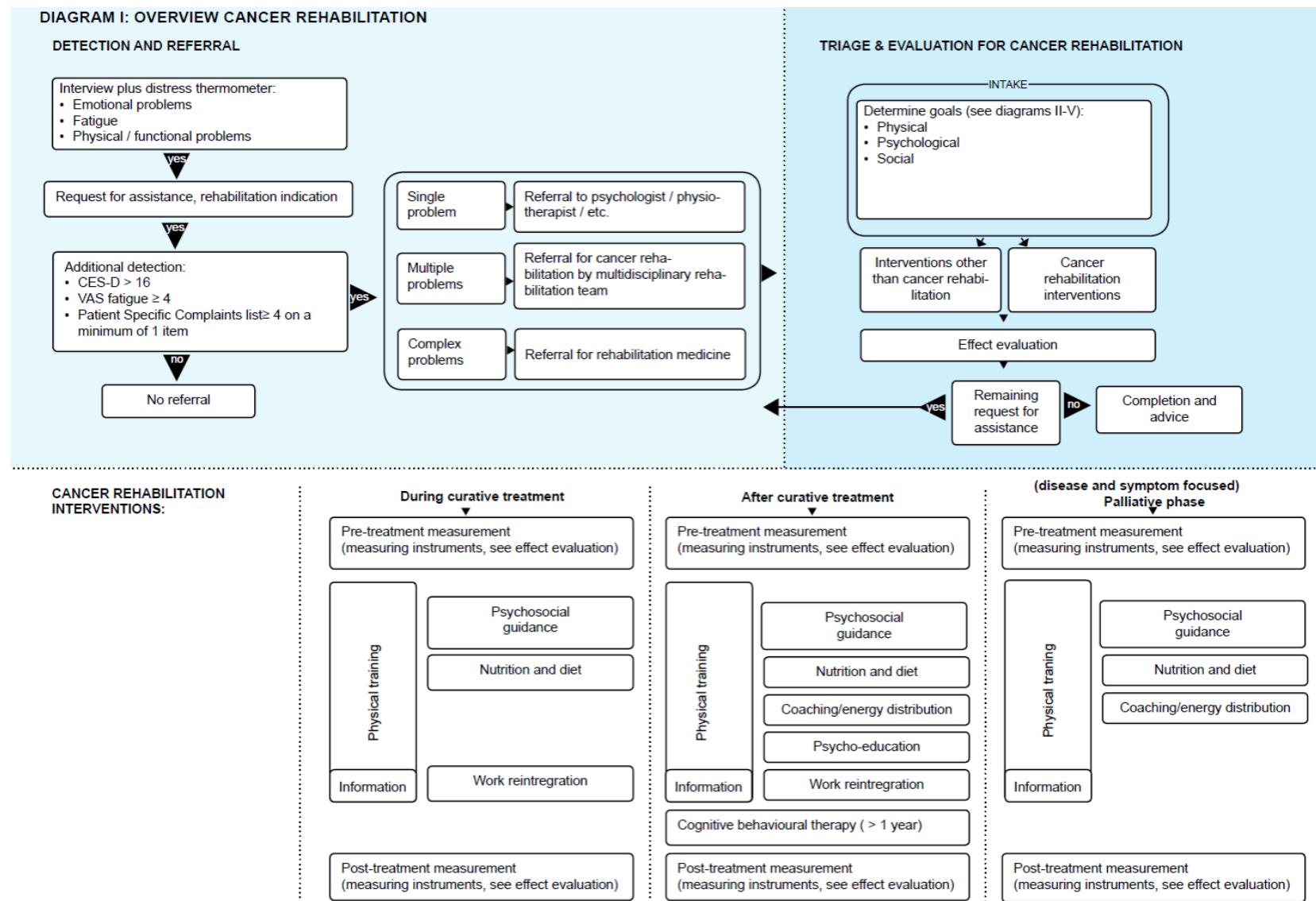


DIAGRAM II: FROM PHYSICAL GOALS TO INTERVENTION (1)

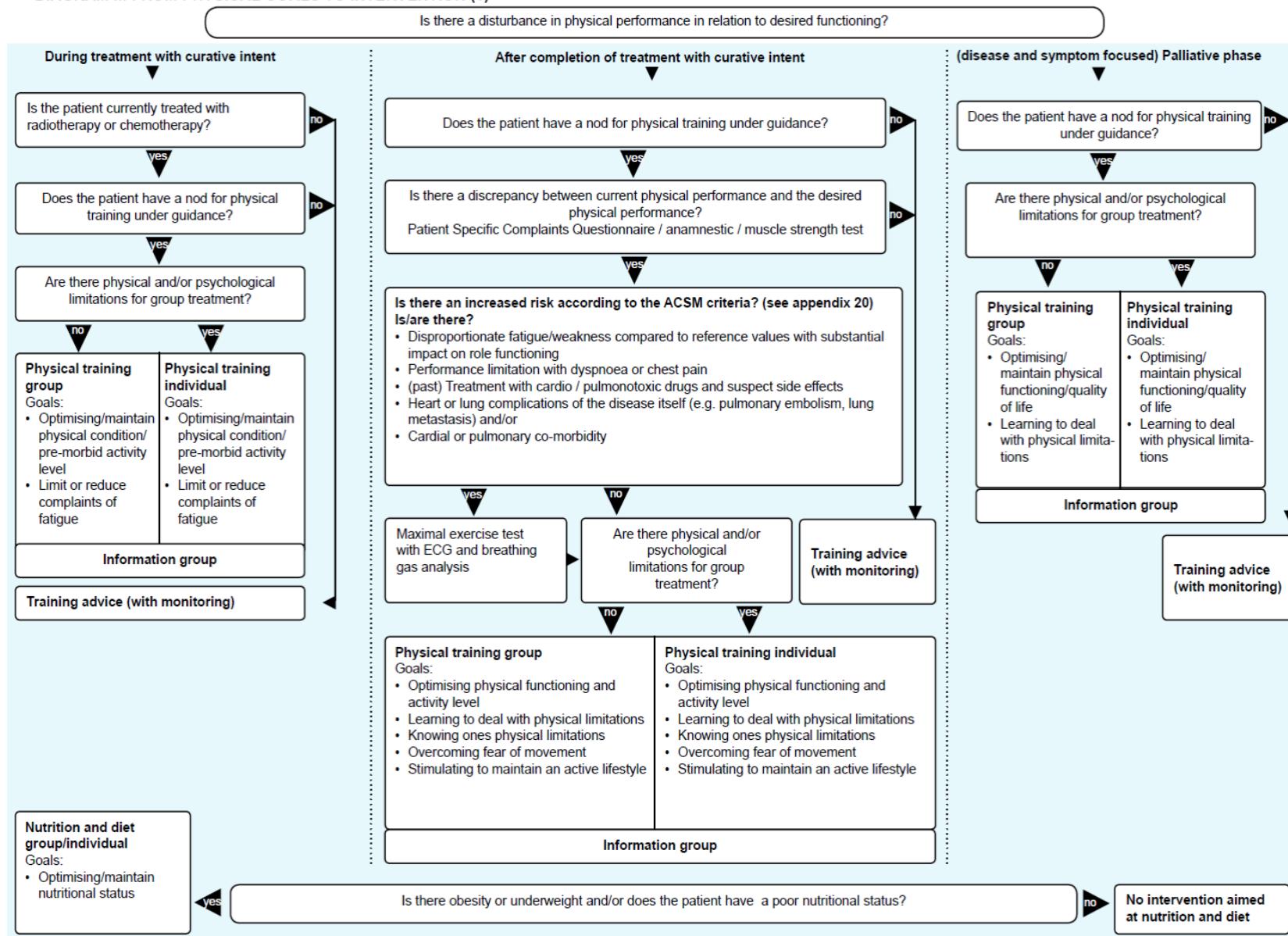


DIAGRAM IV: FROM PSYCHOLOGICAL GOALS TO INTERVENTION

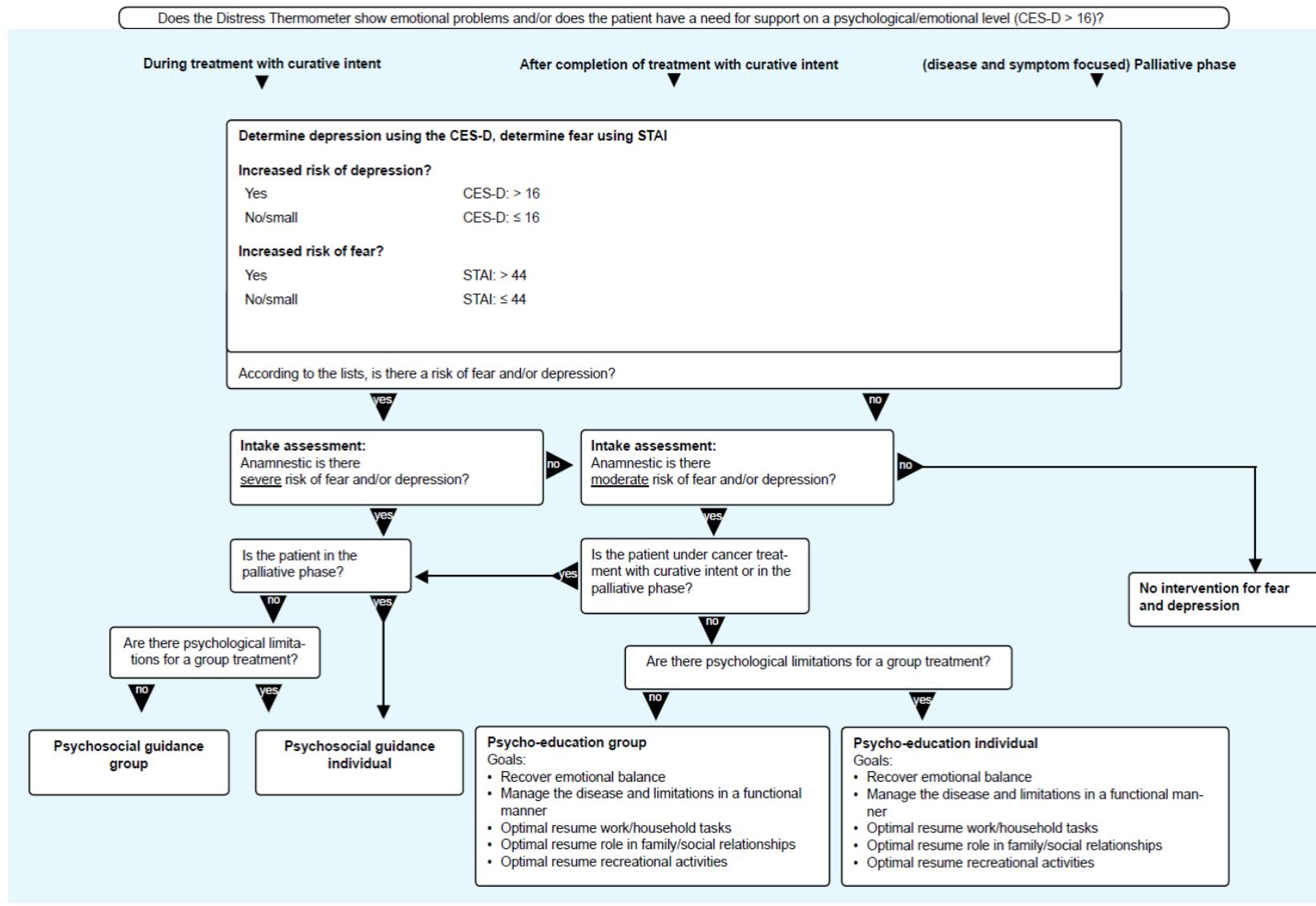
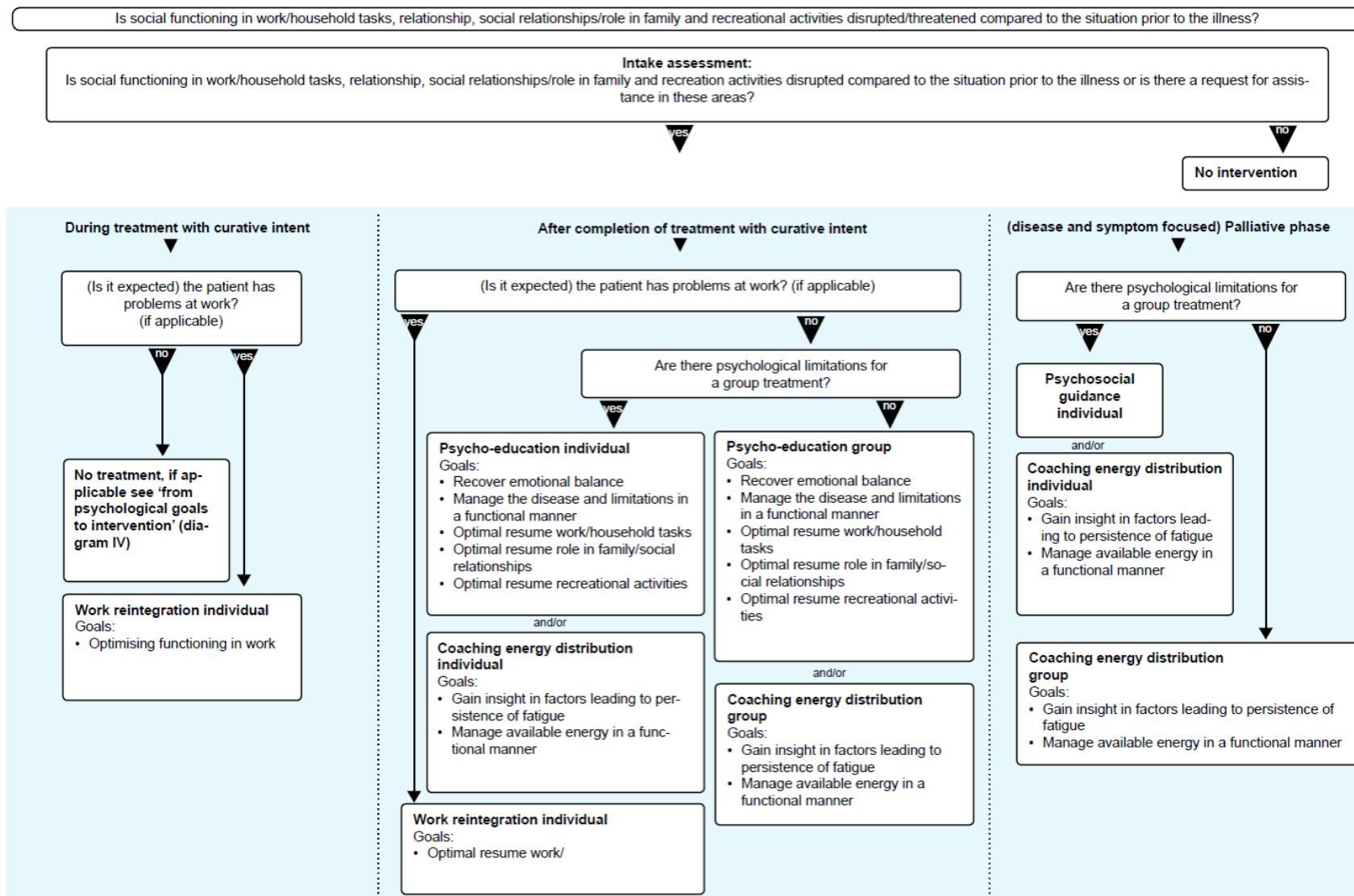
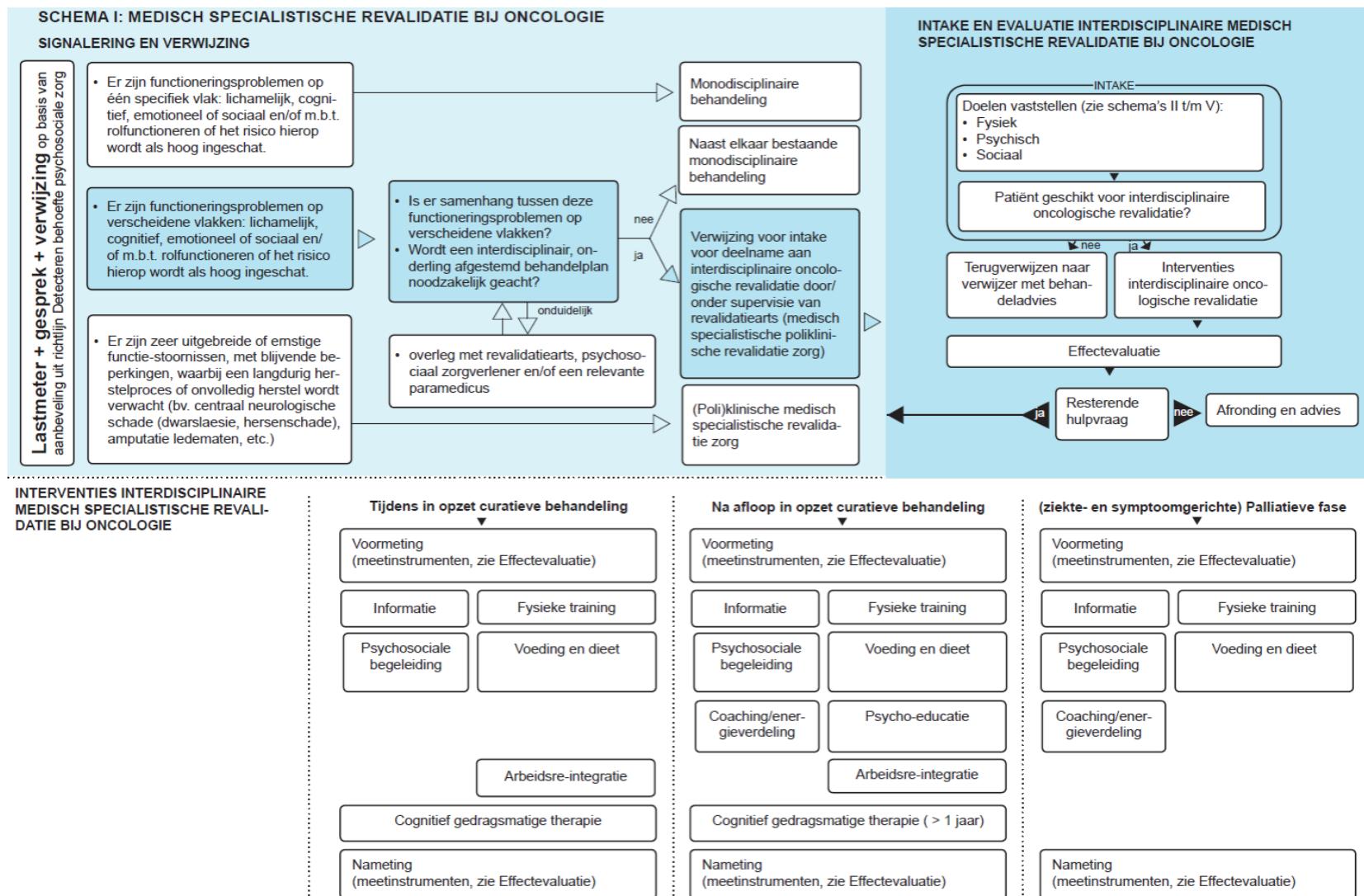


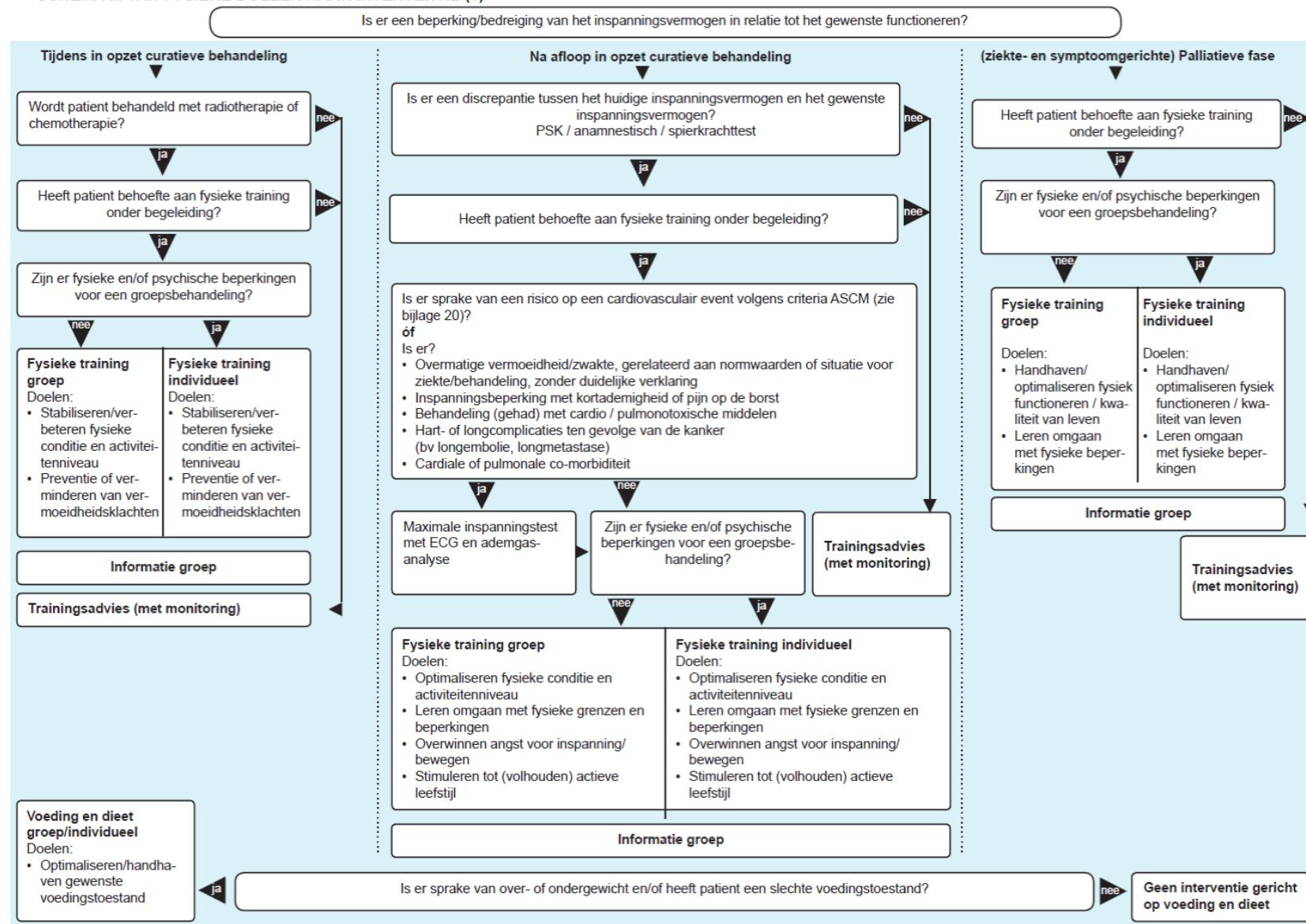
DIAGRAM V: FROM SOCIAL GOALS TO INTERVENTION



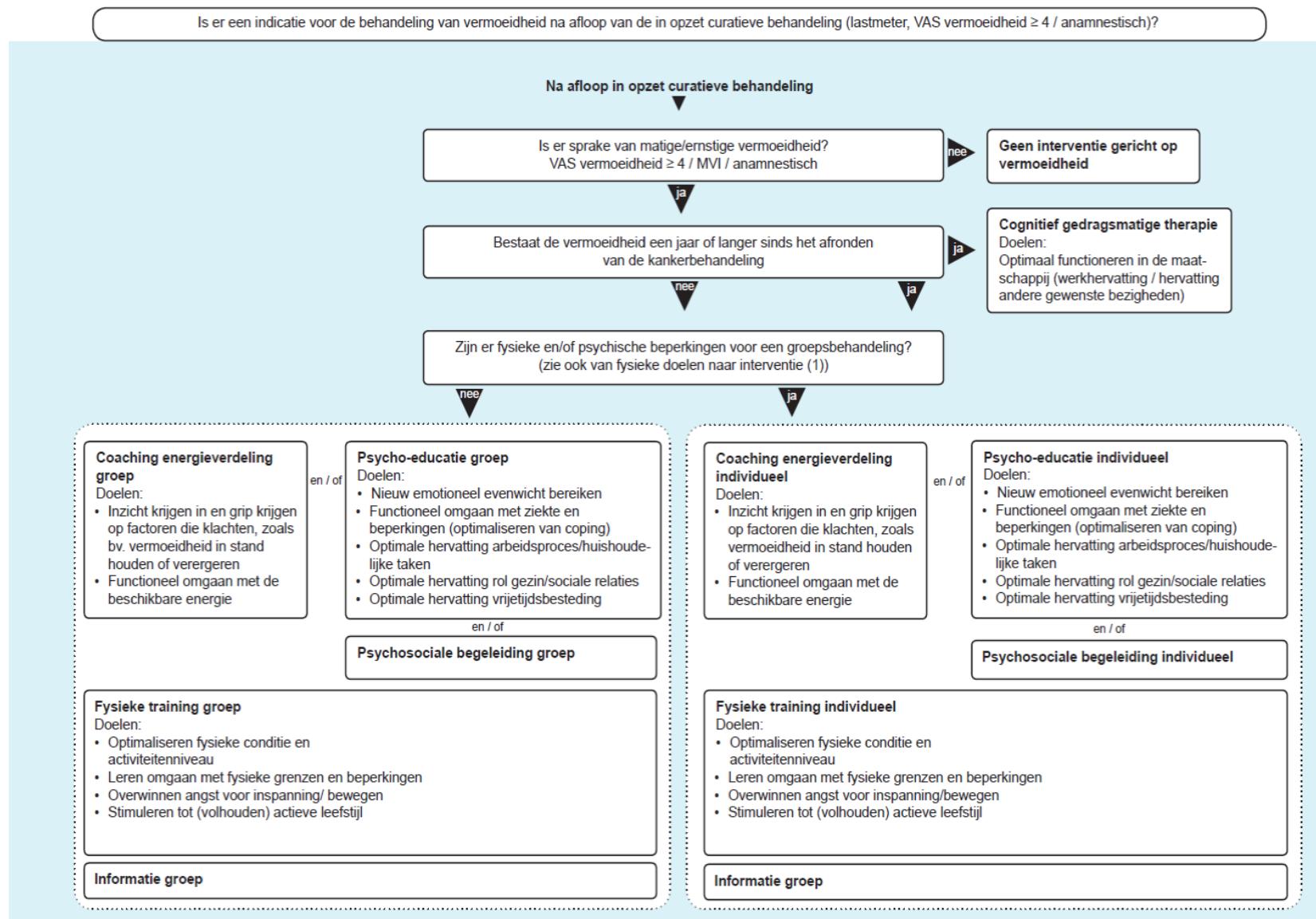
1.1.3 DUTCH DECISION TREE (DUTCH VERSION – 2017)



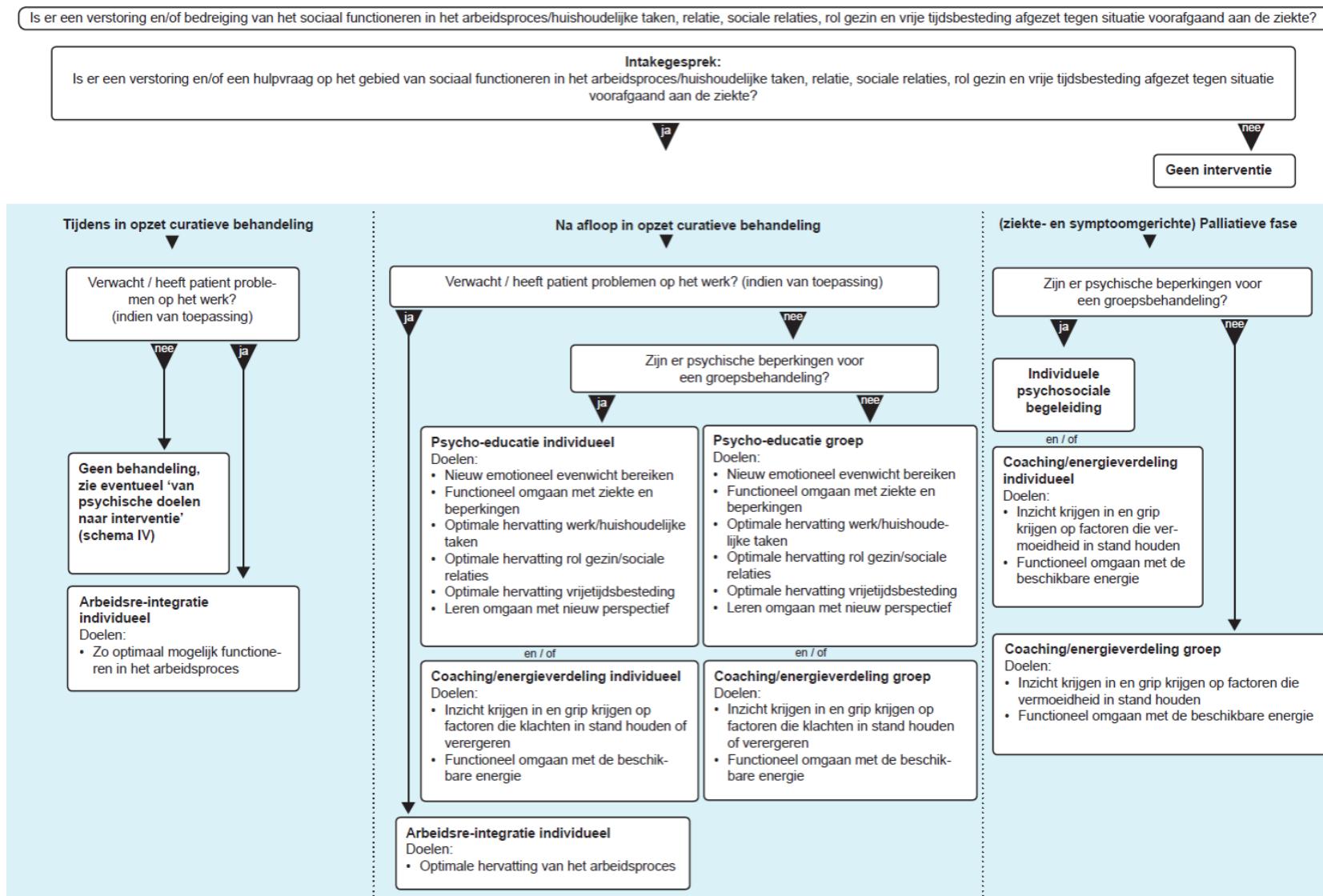
SCHEMA II: VAN FYSIEKE DOELEN NAAR INTERVENTIE (1)



SCHEMA III: VAN FYSIEKE DOELEN NAAR INTERVENTIE (2)



SCHEMA V: VAN SOCIALE DOELEN NAAR INTERVENTIE



1.1.4 SUGGESTED MEASUREMENT INSTRUMENTS

Functional and anatomical characteristics:

Pain

- Visual Analogue Scale (VAS & Instruction),
- the Numeric Rating Scale (NRS) (Questionnaire and Manual),
- Verbal Rating Scale (VRS),
- faces scale of multidimensional scales or the pain scales of the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire- C30,
- Scoring Tool (EORTC QLQ-30) or
- SF/RAND-36 (RAND, Manual, Scoring Tool).

Body composition

- height,
- weight,
- abdominal circumference
- fat percentage,
- Body Mass Index (BMI),
- abdominal size,
- weight change percentage

Fatigue

- Multidimensional Fatigue Index (MFI & Scoring Tool)

Physical functioning:

- maximum direct or indirect 1-RM (1-RM),
- maximum exercise test with respiratory gas analysis and ECG,

Physical activity:

- European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire- C30,
- SF/RAND-36,
- 6-minute walking test,
- 10 meter shuttle walk test
- 1-minute stair climb test
- sit to stand x 5 test
- comparison the of the activity of the patient to the movement standard (not recommended to use questionnaires, but rather objective measures of physical activity, e.g. accelerometer)

Health-related quality of life:

- EORTC QLC-30,
- Medical Outcomes Study Short Form (SF-36 or the RAND-36),

Psychological aspects:

- Center for Epidemiology Depression-Scale (CES-D),
- State Trait Anxiety Inventory (STAI)

1.1.5 EXHAUSTIVE LIST OF ALL PROFESSIONALS INVOLVED IN OUTPATIENT CANCER REHABILITATION IN THE 15 STUDIED COUNTRIES

Professionals	AU	BE	BG	CA	CH	DE	DK	ES	FR	IE	IT	LT	NL	NO	SE	UK	US
Art, music, and/or drama therapist																X	
Cancer care coordinator															X		
Case manager																X	
Clinical nutrition physiologist															X		
Creative therapist																	
Dental hygienist															X		
Dentist															X		
Dietitian	x		x		x	x				x	x			x	x	x	
Doctor (?)				x		x									x		
Ergotherapist	x				x	x											
Exercise physiologist			x														
General practitioner			x														
Home health aide															x		
Internist			x														
Kinesiologist			x							x							
Lymphoedema practitioner															x	x	
Masseur	x				x												
Medical social worker				x							x						
Mental health counselor															x		
Neuropsychologist						x									x		
Nurse		x	x	x							x	x	x	x	x	x	
Occupational therapist	x									x	x	x	x	x	x	x	
Oncologist	x														x		
Orthopedist																	
Orthoptist															x		
Orthotist															x	x	
Pharmacist		x															
Priest/deacon/pastor					x				x					x		x	
Prosthetist															x		
Psychiatrist															x		
Psychologist	x		x		x	x			x	x	x	x					
Psycho-beautician								x									
Physiotherapist	x		x		x	x			x	x	x	x	x	x	x	x	
Radiographer															x		
Rehabilitation physician		x			x				x	x						x	
Recreational therapist		x														x	
Rehabilitation nurse		x														x	
Sexologist													x	x			
Social and health assistant						x											
Social counselor/worker	x		x	x	x	x				x	x	x	x			x	
Sophrologist																	
Speech-language therapist		x			x	x								x	x	x	
Spiritual care worker		x								x							
Sport scientist																	
Sport therapist										x							
Stoma and/or incontinence therapist			x										x				
Vocational counsellor		x				x									x		

1.1.6 EXHAUSTIVE LIST OF ALL INTERVENTIONS EXISTING IN OUTPATIENT CANCER REHABILITATION IN THE 15 STUDIED COUNTRIES

	All interventions														
Physical interventions	Physical training (general)	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Physiotherapy	X	X		X		X	X				X	X	X	X
	Strength training	X	X		X	X				X	X	X			
	Ergotherapy		X				X								
	Exercise physiology (lecture)		X												
	Physical training counseling								X						
Psychological intervention	Sport therapy							X		X					
	Psychological therapy	X					X	X	X						X
	Psychological support		X			X					X	X	X	X	
	Relaxation therapy	X		X				X			X				
	Cognitive behavioural therapy													X	
	Psychiatric support														X
Social support & RTW support	Psycho-education														
	Self-help groups							X	X						
	Social therapy/counseling	X	X	X			X	X				X	X	X	
	Career advice								X						
Symptoms/disease management interventions	Labour market retainment								X						
	Support services	X													
	Work reintegration		X									X	X		
	Sleep therapy or management	X					X								
	Stoma and incontinence treatment							X						X	
	Speech and language therapy	X	X												X
Nutritional interventions	Fatigue management	X					X								
	Medical intervention	X													
	Nursing	X	X			X								X	
	Lymphedema management	X							X						
	Pain management	X			X	X									
	Dietetics	X	X			X	X	X			X	X	X	X	
Other interventions	Education (e.g. around symptom management)	X	X		X	X	X	X				X	X		
	Occupational therapy	X			X			X				X	X	X	
	Massage/ acupuncture/ meditation/ yoga	X		X							X			X	
	Sexual advice						X	X				X	X		
	Activities of daily living														
	Art/music therapy	X	X												
	Counseling with priest/diakon														X
	Dental interventions														X
	Drug therapies							X							
	Energy distribution														X
	Relationship advice	X													
	Smoking cessation counseling							X	X						
	hydro-therapy, electro-therapy, cosmetic														
	Health training														X

1.2 EFFECTS OF MULTIDISCIPLINARY OUTPATIENT CANCER REHABILITATION: A SYSTEMATIC REVIEW

1.2.1 SEARCH STRATEGIES

MEDLINE

S1. TI (interdisciplinary OR multidisciplinary OR multimodal OR multidimensional OR multiprofessional OR multifaceted OR interdisciplinary OR multidisciplinary OR multi-modal OR multi-dimensional OR multi-professional OR multifaceted) OR AB (interdisciplinary OR multidisciplinary OR multimodal OR multidimensional OR multiprofessional OR multifaceted OR interdisciplinary OR multidisciplinary OR multi-modal OR multi-dimensional OR multi-professional OR multifaceted)

S2. (MH "Neoplasms+") OR TI (cancer* OR neoplasm* OR tumor* OR tumour* OR oncolog* OR carcinoma* OR malignan* OR leukemi* OR sarcom* OR lymphom* OR melanom* OR blastom* OR radiotherapy OR chemotherapy) OR AB (cancer* OR neoplasm* OR tumor* OR tumour* OR oncolog* OR carcinoma* OR malignan* OR leukemi* OR sarcom* OR lymphom* OR melanom* OR blastom* OR radiotherapy OR chemotherapy)

S3. (MH "Rehabilitation+") OR (MH "Physical and Rehabilitation Medicine+") OR TI (rehab* OR readapt* OR survivor*) OR TI ((supportive OR palliative) N3 care) OR AB (rehab* OR readapt* OR survivor*) OR AB ((supportive OR palliative) N3 care) NOT (MH "Terminal Care+")

S4. S1 AND S2 AND S3

S5. S4 NOT ((MH "Animals+" NOT MH "Humans")) NOT (((MH "Child+" OR MH "Infant+" OR MH "Adolescent") NOT MH "Adult+")))

EMBASE

#1 interdisciplinary:ti,ab OR multidisciplinary:ti,ab OR multimodal:ti,ab OR multidimensional:ti,ab OR multiprofessional:ti,ab OR multifaceted:ti,ab OR 'inter-disciplinary':ti,ab OR 'multidisciplinary': ti,ab OR 'multi-modal':ti,ab OR 'multi-dimensional':ti,ab OR 'multi-professional':ti,ab OR 'multi-faceted':ti,ab

#2 'neoplasm'/exp OR cancer*:ti,ab OR neoplasm*:ti,ab OR tumor*:ti,ab OR tumour*:ti,ab OR oncolog*:ti,ab OR carcinoma*:ti,ab OR malignan*:ti,ab OR leukemi*:ti,ab OR sarcom*:ti,ab OR lymphom*:ti,ab OR melanom*:ti,ab OR blastom*:ti,ab OR radiotherapy:ti,ab OR chemotherapy:ti,ab

#3 ('rehabilitation'/exp OR 'rehabilitation medicine'/exp OR rehab*:ti,ab OR readapt*:ti,ab OR survivor*:ti,ab OR (((supportive OR palliative) NEAR/3 care):ti,ab)) NOT 'terminal care'/exp

#4 #1 AND #2 AND #3

#5 #4 NOT ([animals]/lim NOT [humans]/lim) NOT ([[infant]/lim OR [child]/lim OR [adolescent]/lim) NOT ([adult]/lim OR [aged]/lim)) NOT [conference abstract]/lim

CINAHL

S1. TI (interdisciplinary OR multidisciplinary OR multimodal OR multidimensional OR multiprofessional OR multifaceted OR interdisciplinary OR multidisciplinary OR multi-modal OR multi-dimensional OR multi-professional OR multifaceted) OR AB (interdisciplinary OR multidisciplinary OR multimodal OR multidimensional OR multiprofessional OR multifaceted OR interdisciplinary OR multidisciplinary OR multi-modal OR multi-dimensional OR multi-professional OR multifaceted)

S2. (MH "Neoplasms+") OR TI (cancer* OR neoplasm* OR tumor* OR tumour* OR oncolog* OR carcinoma* OR malignan* OR leukemi* OR sarcom* OR lymphom* OR melanom* OR blastom* OR radiotherapy OR chemotherapy) OR AB (cancer* OR neoplasm* OR tumor* OR tumour* OR oncolog* OR carcinoma* OR malignan* OR leukemi* OR sarcom* OR lymphom* OR melanom* OR blastom* OR radiotherapy OR chemotherapy)

S3. (MH "Rehabilitation+") OR TI (rehab* OR readapt* OR survivor*) OR TI ((supportive OR palliative) N3 care) OR AB (rehab* OR readapt* OR survivor*) OR AB ((supportive OR palliative) N3 care) NOT (MH "Terminal Care+")

S4. S1 AND S2 AND S3

S5. S4 NOT ((MH "Animals+" NOT MH "Human")) NOT (((MH "Child+" OR MH "Infant+" OR MH "Adolescence+") NOT MH "Adult+")))

Cochrane Central Register of Controlled Trials

#1 interdisciplinary or multidisciplinary or multimodal or multidimensional or multiprofessional or multifaceted or "inter-disciplinary" or "multi-disciplinary" or "multimodal" or "multi-dimensional" or "multi-professional" or "multi-faceted":ti,ab,kw (Word variations have been searched)

#2 cancer* or neoplasm* or tumor* or tumour* or oncolog* or carcinoma* or malignan* or leukemi* or sarcom* or lymphom* or melanom* or blastom* or radiotherapy or chemotherapy:ti,ab,kw (Word variations have been searched)

#3 rehab* or readapt* or survivor* or ((supportive or palliative) near/3 care):ti,ab,kw (Word variations have been searched)

#4 #1 and #2 and #3

PEDro

S1 Abstract and Title: multidisciplinary AND

Subdiscipline: oncology AND

Title only: rehab*

S2 Abstract and Title: interdisciplinary AND

Subdiscipline: oncology AND

Title only: rehab*

1.2.2 CHARACTERISTICS OF INTERVENTIONS IN RANDOMIZED CONTROLLED TRIALS

First author, year	Interventions	Intensity	Duration	Professionals
Adamsen et al. 2009	High-intensity physical training, relaxation training, body awareness training, massage	9h per week: physical training 3 times per week for 90min, relaxation 3 times per week for 30min, massage 2 times a week for 30min, body-awareness training once per week for 90min	6 weeks	Physiotherapists, a specially trained nurse
Cho et al. 2006	Psychology-based education, physical training, peer support group activity	5.5h per week: education once per week for 90min, exercise twice per week for 90min, group activity once per week for 60min	10 weeks	Psychology-based education: oncology nurse, surgeon, dietician, image consultant. Physical training: not specified. Peer support group activity: researcher.
Clark et al. 2013	Physical therapy (conditioning exercises), cognitive behavioural therapy, education around cancer management, relaxation, spirituality training, social therapy, phone counselling	4.5h per week: 3 sessions per week, 90min each	2–4 weeks + 10 phone counselling sessions for 22 weeks	Physical therapist, clinical psychologist/psychiatrist, advanced practiced nurse, hospital chaplain, clinical social worker
Jarden et al. 2016	Physical training (including relaxation), health counseling sessions	Ca 3h per week (physical training 3 times per week 60min) + 30–60min health counselling at week 1, 6, and 12	12 weeks	Not specified
Midtgård et al. 2013	Physical training, counseling sessions	Ca 1.5h per week (1 session per week 1.5h) + 9 sessions per year, 1–2 hours each	12 months	Counselling: trained psychologist; Physical training: not specified

Rummans et al. 2006	Physical therapy, cognitive behavioural therapy, social therapy, emotional support intervention, spiritual intervention	3–4.5h per week (8 sessions over 3 weeks, 90min each)	3–4 weeks	Physical therapist, psychiatrist/psychologist, advanced practice nurse, hospital chaplain, social worker
----------------------------	---	---	-----------	--

1.2.3 CHARACTERISTICS OF INTERVENTIONS IN BEFORE-AFTER STUDIES

First author, year	Interventions	Intensity	Duration	Professionals
Andersen et al. 2006	Physical training, relaxation, massage, body-awareness training	9h per week: physical training 3 times per week for 90min, relaxation 3 times per week for 30min, massage 2 times a week for 30min, body-awareness training once per week for 90min	6 weeks	Trained physiotherapists, a specially trained nurse
Gordon et al. 2005	Physical training targeting shoulder movement, education, psychosocial advice, peer support	1-2h per week	8 weeks	Exercise physiologist
Leclerc et al. 2018	Physical training, psychoeducational sessions	6.5h per week: 4.5h physical training, 2h psychoeducation	12 weeks	Physiotherapist, psychologist, a professor in physiotherapy and rehabilitation, dietician, neurologist
Leensen et al. 2017	Physical training, personal occupational counselling	Ca 2h per week Physical exercise 2h per week + 1-3 counselling sessions per 12 weeks	12 weeks	Physiotherapist, oncological occupational physician
Seibaek et al. 2016	Information, physical training, and supportive group sessions	3h per day once a week	4 weeks	Nurse specialists, chief surgeon, physiotherapist, body therapist, sexologist, psychotherapist

Thorsen et al. 2016	Physical training, patient education, group discussion	4-5h per day once a week	7 weeks	Social worker, health practitioner, physiotherapist
----------------------------	--	--------------------------	---------	---

1.2.4 RISK OF BIAS IN RANDOMIZED CONTROLLED STUDIES

Adamsen et al. 2009

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Randomization was done by computer (Clinical Internet Trial Management System: CITMAS)
Allocation concealment	Unclear risk	<i>„The allocation sequence was executed by the clinical research unit and concealed from the project team.“</i> <i>„Study allocation was not concealed, either to the patient or to the healthcare professionals, ...“</i>
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcomes; assessors are also providing interventions
Incomplete outcome data	Low risk	Number and reasons for missing data reported, dropouts equal in intervention and control group
Selective reporting	Low risk	Study protocol available, all outcomes reported in results in appropriate manner
Bias due to confounding	Low risk	Randomization, stratification, restriction, multivariable analysis performed

Cho et al. 2006

Bias	Authors' judgement	Support for judgement
Random sequence generation	Unclear risk	Sequence generation process not mentioned
Allocation concealment	Unclear risk	Not mentioned
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	More than one of the primary outcomes is a self-reported outcome
Incomplete outcome data	Low risk	Numbers and reasons for missing data reported; baseline characteristics of analysed patients similar between intervention and control group
Selective reporting	Unclear risk	Study protocol could not be detected, all outcomes reported in appropriate manner
Bias due to confounding	Low risk	Randomization and restriction performed. No imbalances in baseline characteristics

Clark et al. 2013

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Randomization was done by Pocock-Simon randomization procedure (minimization)
Allocation concealment	Low risk	Minimization procedure was used
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome

Incomplete outcome data	Low risk	Numbers and reasons for missing data reported; intention to treat analysis performed. 2 different sample sizes reported: 131 and 129.
Selective reporting	Unclear risk	Study protocol could not be detected; primary outcomes reported in a proper way; use of additional measures not reported in objectives, results of additional measures reported poorly
Bias due to confounding	Unclear risk	<p>Randomization, restriction, stratification performed.</p> <p><i>„Week 4 change from baseline was modeled using ANOVA/GEE procedures to determine whether there was a relation between baseline characteristics and study results. Study arm, tumor type, and ECOG performance status were all found to be significant contributors to the change from baseline, but the model itself was not a good fit, explaining only 27% of the variability in the change scores.“</i></p>

Jarden et al. 2016

Bias	Authors' judgement	Support for judgement
Random sequence generation	Unclear risk	Sequence generation process not mentioned
Allocation concealment	Unclear risk	Not mentioned
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk*	<p>Self-reported outcomes</p> <p>*Primary outcome is not a self-reported outcome (6MWD), but no information whether the assessors were blinded = unclear risk of bias for primary outcome</p>
Incomplete outcome data	Low risk	Numbers and reasons for missing data reported

Selective reporting	Low risk	Study protocol available, primary and most secondary outcomes reported in a proper manner.
Bias due to confounding	Low risk	Randomization, restriction, stratification, and multivariable analysis performed

Midtgård et al. 2013

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Randomization was done by computer (Clinical Internet Trial Management System: CITMAS)
Allocation concealment	Unclear risk	Not mentioned
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	One of the primary outcomes is a self-reported outcome
Incomplete outcome data	Low risk	Numbers and reasons for missing data reported; intention to treat analysis performed; high dropout rate, but reasons similarly distributed
Selective reporting	Unclear risk	Study protocol could not be detected; all outcomes reported in a proper manner
Bias due to confounding	Low risk	Randomization, restriction, and stratification performed

Rummans et al. 2006

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Minimization procedure
Allocation concealment	Low risk	Minimization procedure

Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome
Incomplete outcome data	Low risk	Numbers and reasons for missing data reported; sensitivity analyses performed, which indicated that the missing data had no impact on the initial results.
Selective reporting	Unclear risk	Study protocol could not be detected; primary outcome reported in a proper manner; secondary outcomes reported incompletely
Bias due to confounding	Low risk	Randomization, restriction, stratification, multivariable analysis performed

1.2.5 RISK OF BIAS IN BEFORE-AFTER STUDIES

Andersen et al. 2006

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No control group, no randomization
Allocation concealment	High risk	Not applicable, which may lead to bias
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome
Incomplete outcome data	High risk	High dropout rate: 11 patients out of 88 dropped out during the rehabilitation, further 23 patients were excluded from the analysis. However, numbers and reasons for missing data reported and „ <i>The characteristics of those excluded did not differ from those included with regard to age, education, previous exercise history, diagnosis or treatment.</i> “

Selective reporting	Unclear risk	Study protocol could not be detected
Bias due to confounding	High risk	In data analysis, only disease status used as an explanatory variable. No other form of control for confounding used except of restriction.

Gordon et al. 2005

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No randomization
Allocation concealment	High risk	Patients could choose the group themselves
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome
Incomplete outcome data	Low risk	The risk of incomplete outcome data reduced by imputation methods (SUDAAN software that accommodates for missing data)
Selective reporting	Unclear risk	Study protocol could not be detected
Bias due to confounding	Unclear risk	Restriction and multivariable analysis conducted, but imbalances in baseline characteristics prevailed after controlling for potential confounders.

Leclerc et al. 2018

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No randomization
Allocation concealment	High risk	Patients could choose the group themselves

Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a patient self-reported outcome
Incomplete outcome data	High risk	Numbers and reasons for missing data are reported. However, high dropout rate at T3 and T4 (over 50%)
Selective reporting	Unclear risk	Study protocol could not be detected
Bias due to confounding	High risk	No other control for confounding except of restriction. Differences in baseline characteristics on main outcome measures, no multivariable analysis.

Leensen et al. 2017

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No control group, no randomization
Allocation concealment	High risk	Not applicable, which may lead to bias
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome
Incomplete outcome data	High risk	Reasons for missing data not reported, high dropout rate at 18 months (27 out of 95 participants dropped out)
Selective reporting	Unclear risk	Study protocol could not be detected
Bias due to confounding	High risk	No other control for confounding except of restriction. No multivariable analysis.

Seibaek et al. 2016

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No control group, no randomization
Allocation concealment	High risk	Not applicable, which may lead to bias
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a patient self-reported outcome
Incomplete outcome data	High risk	Insufficient reporting of attrition/exclusions. High dropout rate: out of 217 participating patients, 107 questionnaires were collected in the first session and 92 after one year.
Selective reporting	High risk	The study only presents results of mean scores of baseline and post-intervention results; no individual-level comparison of changes in baseline and post-intervention results are presented/conducted.
Bias due to confounding	High risk	No other control for confounding except of restriction. No multivariable individual-level analysis.

Thorsen et al. 2016

Bias	Authors' judgement	Support for judgement
Random sequence generation	High risk	No control group, no randomization
Allocation concealment	High risk	Not applicable, which may lead to bias
Blinding of participants and personnel	High risk	Not applicable, which may lead to bias
Blinding of outcome assessment	High risk	Primary outcome is a self-reported outcome

Incomplete outcome data	Unclear risk	Number of patients who started the programme and dropout rate not mentioned; no decision tree available
Selective reporting	Unclear risk	Study protocol could not be detected
Bias due to confounding	Low risk	Restriction and multivariable logistic analysis performed (results adjusted for baseline characteristics)

1.2.6 DETAILED RESULTS OF INDIVIDUAL RCTS

Author, year of publication	Outcome measures	Time of measure	Significant results: intervention group (IG) vs control group (CG)			
			Physical status	Psychosocial status	Quality of life	Return to work status
Adamsen, 2009	EORTC QLQ-C30, MOS SF-36, VO2max, 1RM, physical activity questionnaire	Week 6 after baseline (post- rehabilitation)	<p>Fatigue: EORTC QLQ-C30 -6.6 points (-12.3; -0.9) in IG vs CG, P=0.02, effect size=0.33, (0.04–0.61).</p> <p>Physical functioning: MOS SF-36 mean difference 4.4 points (1.1–7.7), effect size 0.37 (0.09–0.65).</p> <p>Role physical: MOS SF-36 mean difference 12.4 points (3.4–21.5), effect size 0.37 (0.10–0.64).</p> <p>Physical component scale MOS SF-36 mean difference 1.9 points (0.3–3.4), effect size 0.35 (0.06–0.63).</p> <p>Cardiorespiratory fitness: VO2max improvement 10.7% (SD 0.5) compared to no improvement in CG.</p> <p>Muscle strength 1RM average improvement 29.6% (SD 36.4) compared to no improvement in CG.</p>	<p>Role emotional: MOS SF-36 mean difference 12.0 points (1.9–22.0), effect size 0.32 (0.05–0.59).</p> <p>Mental health: MOS SF-36 mean difference 3.3 points (0.2–6.4), effect size 0.28 (0.2–0.56).</p> <p>Mental component scale: MOS SF-36 mean difference 3.2 points (1.1–5.4), effect size 0.41, (0.14–0.69).</p> <p>Vitality: MOS SF-36 mean difference 8.8 points (4.4–13.1), effect size 0.55 (0.27–0.82).</p>	No significant results	No measures

Cho, 2006	Range of motion of the affected shoulder joint, psychosocial adjustment, quality of life questionnaire	Week 10 after baseline (post-rehabilitation)	Range of motion of the affected shoulder joint: Increased rate showed a significant difference in the IG at 11.5%, compared to the CG at 1.3%, P = 0.000.	Psychosocial adjustment: increased by 2.9 points (P = 0.019) in IG, decreased by 3.0 points (P = 0.020) in CG. Significant between-group difference (P = 0.000).	Quality of life: increased by 0.9 points (P = 0.001) in IG, decreased by 0.1 points (0.511) in CG. Significant difference post-test (P = 0.002)	No measures
Clark, 2013	FACT-G	Week 4 after baseline (post intensive rehabilitation)	Physical well-being: FACT-G, IG: 67.7 (SD 20.7), CG: 57.7 (SD 21.7) (P<0.01)		Quality of life: FACT-G maintenance in IG (mean change, -1.4; SD 24.25), reduction in CG (mean change, -6.2; SD 19.93), P=0.01. <u>FACT-G ITT analysis</u> (nonevaluable patients successes) IG fewer failures than CG (14 vs 26; P=0.02).	No measures
		Week 27 after baseline (post less-intensive rehabilitation)	No significant results	No significant results	No significant results	No measures

Jarden, 2016	6MWD, VO2max, FACT-An, FACT-G, HADS, EORTC QLQ- C30, sit to stand, biceps curl, physical activity questionnaire, MOS SF-36	Week 6 and week 12 after baseline (post- rehabilitation)	<p>Physical function: <u>6MWD</u> adjusted group comparison 83.0 m (46.5-119.5); P<0.0001; IG effect size 1.00.</p> <p>Cardiovascular fitness: <u>VO2max</u> adjusted group comparison 0.65 L/m (0.37-0.92), P<0.0001; IG effect size 1.14.; <u>Sit to stand</u> adjusted group comparison 4.1 times (2.1-6.1), P<0.0001; IG effect size 1.06.</p> <p>Muscle strength: <u>Left biceps curl</u>, adjusted group comparison 5.2 (2.9-7.5), P<0.0001; IG effect size 1.42.; <u>Right biceps curl</u> adjusted group comparison 7.1 (4.8-9.4), P<0.0001; IG effect size 1.21.</p> <p>Physical acitivity level: sedentary behavior change in CG 19.4% to 13.8%; in IG 20.6% to 3.2% (P=0.0229).</p> <p>Physical well-being: <u>FACT-An</u> adjusted between group difference 3.6 points (0.3-6.9), IG effect size 0.74.</p> <p>Functional well-being: <u>FACT-An</u> adjusted between group difference 3.2 (0.0-6.5), IG effect size 0.78.</p> <p>Physical health: <u>SF36</u> significant between group difference (P=0.0198).</p> <p>Nausea and vomiting: <u>EORTC QOL-C30</u>. Significant between-group differences (P=0.0081).</p>	<p>Emotional well-being: <u>FACT-An</u> adjusted between group difference 2.5 points (0.4-4.6), IG effect size 0.50.</p> <p>Anxiety: <u>HADS</u> adjusted between group difference -2.6 points (-4.4;-0.8), IG effect size 0.68.</p> <p>Depression: <u>HADS</u>. Adjusted between group difference -1.8 points (-3.5;-0.1).</p> <p>Emotional functioning: <u>EORTC QOL-C30</u> significant between-group differences (P=0.0258).</p>	<p>Global health: <u>EORTC QOL-C30</u>. Significant between-group difference, P=0.0069.</p>	No measures
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Midtgård, 2013	Saltin and Grimby questionnaire, incremental exercise test (VO _{2max}), 1RM, EORTC QLQ-C30, HADS, MOS SF-36	Week 52 after baseline (post-rehabilitation)	<p>Self-reported physical activity level: PA goal behavior (≥ 3 h/week) 70.4% (58%–87%) in IG, 43.4% (32%–55%) in CG. IG had superior improvement compared to CG ($P = 0.026$).</p> <p>Cardiorespiratory fitness: <u>VO_{2peak}</u> absolute treatment effect ratio 1.04 (1.00–1.07) in favor of IG. Mean difference between IG and CG 0.081 l/min (0.011–0.151). In addition, significant results for <u>peak power output</u> and <u>time to exhaustion</u>.</p> <p>Muscle strength: RM1 treatment effect ratio for leg press 1.22 (1.15–1.30); chest press 1.109 (1.06–1.16).</p>	<p>Depression: HADS between-group difference –0.53 points in favor of IG. Treatment effect size 0.57 (0.31–0.83).</p> <p>Mental health: MOS SF-36. Mean difference between IG and CG 4.68 points. Treatment effect size 1.06 (1.00–1.12).</p>	No statistically significant results.	No measures
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Rummans, 2006	Spitzer QOL Uniscale and LASAs of QOL; Symptom Distress Scale, POMS Short Form; FACIT-Spiritual wellbeing	Week 4 after baseline (post- rehabilitation)	Physical symptom reduction: <u>LASA</u> mean change IG 0.4, CG -10.0, P=0.022.	Overall spiritual well-being: <u>LASA</u> mean difference between IG and CG 9 points, P=0.003). Emotional well-being: <u>LASA</u> mean change IG 2.8, CG - 5.4, P=0.046). Social well-being: <u>LASA</u> financial issues mean change IG 7.0, CG -3.6, P=0.025; legal concerns mean change IG 6.7, CG -4.7, P=0.048. Emotional distress: <u>POMS</u> tension/anxiety higher in CG (P=0.042); confusion/bewilderment higher in CG (P=0.014).	Overall quality of life: <u>LASA</u> mean difference between IG and CG 9 points (72.8 v 64.1; P=0.047). IG increase by 3 points, CG decrease by 9 points (P=0.009). Number of participants reporting significant increase of 8 points 43% in IG, 22% in CG, P=0.025).	No measures
		Week 8 after baseline (post- rehabilitation)	No significant results	No significant results	No significant results	No measures
		Week 27 after baseline (post- rehabilitation)	No significant results	No significant results	No significant results	No measures

95% Confidence Intervals in () if not mentioned otherwise

Only significant results of post-rehabilitation (and not mid-rehabilitation) measurements are marked.

1.2.7 DETAILED RESULTS OF INDIVIDUAL BEFORE-AFTER STUDIES

Author, year of publication	Outcome measures	Time of measure	Significant results in intervention group			
			Physical status	Psychosocial status	Quality of life	Return to work status
Andersen, 2006	Common Toxicity Criteria questionnaire	Daily self-assessment from baseline until 6 weeks after baseline (post-rehabilitation)	Pain: CTC Myalgia score from 0.36 to 0.17 (P=0.013); Other pain score from 0.53 to 0.39 (P=0.041). Symptoms/side effects: CTC arbitrary-derived sum score decreased by 27% (P=0.036)	No significant results, although mental fatigue part of the symptoms/side effects total score.	No measures	No measures
Gordon, 2005	FACT-B, DASH	8 weeks after baseline (post-rehabilitation)	No significant results	No significant results	<u>FACT-B</u> score from 98.7 to 94.8 (84.8, 104.9) (P=0.04); <u>FACT-B+4</u> score from 112.1 (104.3, 120.0) to 108.1 (98.5, 117.7) (P=0.04)	No measures
		6 months after baseline (post-rehabilitation)	Not directly compared with the baseline level, p values not reported.	Not directly compared with the baseline level, p values not reported.	Not directly compared with the baseline level, p values not reported.	No measures
		12 months after baseline (post-rehabilitation)	Not directly compared with the baseline level, p values not reported.	Not directly compared with the baseline level, p values not reported.	Not directly compared with the baseline level, p values not reported.	No measures
Leclerc, 2018	EORTC QLQ-C30, EQ-5D, FACIT-Fatigue, STAI,	3 months after baseline (post-rehabilitation)	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	No measures

	HADS, FPACQ	6 months after baseline (post- rehabilitati on)	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	No measures
		12 months after baseline (post- rehabilitati on)	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	<i>No direct comparison with the baseline level, p values not reported</i>	No measures
		24 months after baseline (post- rehabilitati on)	<p>Greater subjective improvement in the IG compared to the CG in the following areas:</p> <p>Functional role: <u>EORTC-QOL-30</u> (P=0.036).</p> <p>Physical function: <u>EORTC-QOL-30</u> (P=0.042).</p> <p>Fatigue: <u>EORTC-QOL-30</u> (P=0.0001) & <u>FACIT-Fatigue</u> (P<0.001).</p> <p>Pain: <u>EORTC-QOL-30</u> (P=0.0004).</p> <p>Insomnia: <u>EORTC-QOL-30</u> (P=0.020).</p> <p>Diarrhea: <u>EORTC-QOL-30</u> (P=0.020).</p>	<p>Greater subjective improvement in the IG compared to the CG:</p> <p>Emotional state: <u>EORTC-QOL-30</u> (P=0.003).</p> <p>Anxiety: <u>STAI</u> State of anxiety (P<0.0001), Trait of anxiety (P<0.0001). <u>HADS</u> (P=0.0003).</p> <p>Depression: <u>HADS</u> (P<0.0001).</p>	<p>Quality of life: <u>EORTC-QOL-30</u> & <u>EQ-5D</u>. Greater subjective improvement in the IG compared to CG (P<0.0001).</p>	No measures

Leense n, 2017	Work resumption questionnaire, VAS, self-efficacy scale, WAI, WLQ, 1-RM, VO ₂ peak test, MFI, SQUASH, EORTC-QLQ-C30,	6 months after baseline (post-rehabilitation)	<p>Fatigue: MFI General fatigue improved, mean change -1.6 (-2.6; -0.6) (P=0.003). EORTC-QLQ-30, mean change -9.2 (-15.1; -3.4) (P=0.005).</p> <p>Reduced activity: MFI mean change -1.6 (2.6; -0.6).</p> <p>Physical activity: <u>SQUASH</u> mean change -11.2 (-19.0; -3.5).</p> <p>Cardiorespiratory fitness. <u>VO_{2peak}</u> decreased, mean change -1.9 (-2.9; -0.9) (P<0.001).</p> <p>Muscle strength. 1RM. Leg press mean difference 44.8kg (38.0; 51.6) (P<0.001). Deltiod pulley mean difference 9.9kg (8.1; 11.7) (P<0.001).</p> <p>Short exercise capacity. <u>Steep ramp test</u> mean change 27.5 (20.6; 34.4) (P<0.001).</p> <p>Role functioning. <u>EORTC-QOQ-30</u> mean change 9.7 (3.6; 15.9) (P=0.005).</p> <p>Nausea. <u>EORTC-QLQ-30</u> mean change -6.1 (-11.5; -0.6) (P=0.011).</p>	<p>Return to work: 49 participants (59%) had returned to work.</p> <p>Perceived importance of work. <u>VAS</u> mean change 1.0 (0.6; 1.5) (P<0.001).</p> <p>Work limitations. <u>WLQ</u> Time management mean change 19.3 (11.9; 26.7) (P<0.001). Physical demands mean change 7.1 (3.0; 11.1) (P=0.001). Production demands mean change 13.5 (6.6; 20.3) (P<0.001).</p>	

		12 months after baseline (post-rehabilitati on)	Not directly compared with the baseline level, p values not reported.	Not directly compared with the baseline level, p values not reported.		Return to work: 86% of the study population returned to work
		18 months after baseline (post-rehabilitati on)	<p>Fatigue: <u>MFI</u>. Improved over the study period ($P=0.000$). Physical fatigue improved over the study period ($P=0.000$). <u>EORTC-QLQ-30</u>. Improved over the study period ($P<0.000$).</p> <p>Reduced activity: <u>MFI</u>. Improved over the study period ($P=0.000$).</p> <p>Physical activity: <u>MFI</u>. Improved over the study period ($P=0.000$).</p> <p>Physical functioning: <u>EORTC-QLQ-30</u>. Improved over the study period ($P<0.001$).</p> <p>Role functioning: <u>EORTC-QLQ-30</u>. Improved over the study period ($P=0.000$).</p> <p>Nausea: <u>EORTC-QLQ-30</u>. Improved over the study period ($P<0.012$).</p>	<p>Reduced motivation: <u>MFI</u>. Improved over the study period ($P=0.000$).</p> <p>Mental fatigue. <u>MFI</u>. Improved over the study period ($P=0.045$).</p> <p>Emotional functioning. <u>EORTC-QLQ-30</u>. Improved over the study period ($P=0.002$). Social functioning. <u>EORTC-QLQ-30</u>. Improved over the study period ($P=0.003$)</p>	<p>Global health. <u>EORTC-QLQ-30</u>. Improved over the study period ($P<0.000$).</p>	<p>Return to work self-efficacy. <u>Self-efficacy scale</u>. Improved over the study period ($P=0.000$), mean difference 0.5 (0.3; 0.7).</p> <p>Work limitations. <u>WLQ</u>. Time management limitations increased over the study period ($P=0.000$). Mental-interpersonal demand limitations increased over the study period ($P=0.000$).</p>

Seibaek , 2016	SF-36	12 months after baseline (post-rehabilitati on)	Role physical: <u>SF36.</u> Improvement from 63.2 (55.4; 71.9) to 76.4 (68.8; 83.9).	Vitality: <u>SF-36.</u> Improvement from 63.3 (59.4; 67.2) to 69.0 (64.3; 73.6). Social functioning: <u>SF-36.</u> Improvement from 84.7 (80.8; 88.6) to 89.8 (86.1; 93.6). Role emotional: <u>SF-36.</u> Improvement from 69.4 (62.3; 76.6) to 77.5 (69.7; 85.3).	No measures	No measures
Thorsen , 2016	EORTC QLQ-C30, Fatigue questionnaire, self reported work status	6 months after baseline (post- rehabilitati on)	<u>Significant improvements of patients who improved their work status at 6 months:</u> Physical functioning: <u>EORTC-QLQ-30.</u> Mean change 8.5 (P<0.001). Role functioning: <u>EORTC-QLQ-30.</u> Mean change 25.8 (P<0.001). Fatigue: <u>EORTC-QLQ-30.</u> Mean change -17.9 (P<0.001). Fatigue Questionnaire. Physical fatigue mean change -3.1 (P<0.001). Total fatigue mean change -3.5 (P<0.001). Nausea/vomiting : <u>EORTC-QLQ-30.</u> Mean change -2.7 (P=0.040). Pain: <u>EORTC-QLQ-30.</u> Mean change -9.7 (P=0.003). Dyspnea: <u>EORTC-QLQ-30.</u> Mean change -14.9 (P<0.001). Sleep problems: <u>EORTC-QLQ-30.</u>	<u>Significant improvements of patients who improved their work status at 6 months:</u> Emotional functioning: <u>EORTC-QLQ-30.</u> Mean change 9.0 (P<0.001). Cognitive functioning: <u>EORTC-QLQ-30.</u> Mean change 5.4 (P<0.017). Social functioning: <u>EORTC-QLQ-30.</u> Mean change 18.4 (P<0.001) <u>Significant improvements of patients who did not improve their work status at 6 months:</u> Financial problems: <u>EORTC-QLQ-30.</u> Mean change 10.8 (P=0.012)	<u>Significant improvement s of patients who improved their work status at 6 months:</u> Global health and quality of life: <u>EORTC-QLQ-30.</u> Mean change 14.1 (P<0.001). <u>Significant improvement s of patients who did not improvetheir work status at 6 months:</u> Global health and quality of life: <u>EORTC-QLQ-30.</u> Mean change 7.2 (P=0.035).	Out of patients who did not work at baseline level, 38 patients (36%, 27;45) had unimproved work status; 68 patients (64%, 55;73) had improved.

			<p>Mean change - 11.6 (P=0.002).</p> <p>Appetite loss: <u>EORTC-QLQ-30.</u> Mean change - 9.0 (P=0.002). <u>Significant improvements of patients who did not improve their work status at 6 months:</u></p> <p>Physical functioning: <u>EORTC-QLQ-30.</u> Mean change 6.1 (P<0.022).</p> <p>Role functioning: <u>EORTC-QLQ-30.</u> Mean change 17.6 (P<0.001).</p> <p>Fatigue: <u>EORTC-QLQ-30.</u> Mean change -18.3 (P<0.001). <u>Fatigue Questionnaire.</u> Physical fatigue mean change - 3.3 (P<0.001). Total fatigue mean change - 3.5 (P<0.001).</p> <p>Physical activity: <u>Physical activity index</u> mean change 0.7 (P=0.022)</p>		
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95% Confidence Intervals in () if not mentioned otherwise

1.3 COST-EFFECTIVENESS OF PHYSICAL ACTIVITY INTERVENTION IN CANCER SURVIVORS: A SYSTEMATIC REVIEW

1.3.1 SEARCH STRATEGY BASIC

Auftragsrecherche zur Studie *Physical activity in cancer survivors cost-effective?* Barbara Gubler

Suchresultate zur Studie Are physical activity interventions in adult cancer survivors cost-effective?

Suchprotokolle:

- | | |
|----------------------|----------------------------|
| Cinahl 13052019.pdf | Cochrane 13052019.txt |
| CRD 13052019.pdf | Epistemonikos 13052019.txt |
| EconLit 13052019.pdf | |
| Embase 13052019.pdf | |
| Medline 13052019.pdf | |

	Deduplication	
	Before	after
Medline	834	831
Embase	1544	840
Cochrane	407	231
Cinahl	428	148
CRD	16	7
EconLit	24	20
Epistemonikos	37	0
Pool	3290	2077

Reference files: activity cancer costs.enlx

Before:		after:	
All References	(3290)	All References	(2077)
Configure Sync...		Configure Sync...	
Recently Added	(3290)	Recently Added	(2077)
Unfiled	(2883)	Unfiled	(1846)
Trash	(0)	Trash	(0)
My Groups		My Groups	
Cinahl	(428)	Cinahl	(148)
Cochrane	(407)	Cochrane	(231)
CRD	(16)	CRD	(7)
EconLit	(24)	EconLit	(20)
Embase	(1544)	Embase	(840)
Epistemonikos	(37)	Epistemonikos	(0)
Medline	(834)	Medline	(831)

1.3.2 SEARCH STRATEGY PER DATABASE

Medline

#	Search Description	Results	Type	Actions	Annotations
1	exp Neoplasms/ or (neoplasm* or cancer* or tumor* or tumour* or carcinoma* or neoplasia* or leukemia* or melanoma* or sarcoma* or lymphoma* or malignant* or oncolog*).ti,ab.	4103109	Advanced	Display Results More	
2	exp Exercise/ or exp Exercise Therapy/ or exp Sports/exp or (exercis* or sport* or fitness or exertion* or endurance or gymnastic*).ti,ab. or (physical adj3 (activ* or training)).ti,ab.	550583	Advanced	Display Results More	
3	exp Cost-Benefit Analysis/ or costs.ti,ab. or economic*.ti,ab. or (cost adj3 (effectiv* or efficien* or analy* or utility or benefi*)).ti,ab.	527115	Advanced	Display Results More	
4	1 and 2 and 3	844	Advanced	Display Results More	
5	4 not (animals not humans).sh.	834	Advanced	Display Results More	

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Search results [16 hits] Selected records [0 hits]

Any field AND

DARE CRD assessed review (bibliographic)
 CRD assessed review (full abstract)
 Cochrane review
 Cochrane related review record
 NHS EED CRD assessed economic evaluation (bibliographic)
 CRD assessed economic evaluation (full abstract)
 HTA HTA in progress
 HTA published

Publication year to Record date to

Search Clear MeSH search

Results for: (neoplasm* OR cancer* OR tumor* OR tumour* OR carcinoma* OR neoplasia* OR leukemia* OR melanoma* OR sarcoma* OR lymphoma* OR malignant* OR oncolog*) AND (exercis* OR sport* OR fitness OR exertion* OR endurance OR gymnastic* OR (physical NEAR3 (activ* OR training))).TI AND (costs OR economic* OR (cost NEAR3 (effectiv* OR efficien* OR analy* OR utility OR benefi*)))

First	Last	Show all previews	Selected all	Clear selections	Export	
Year	Database	Source	Title			
2014	NHS EED	BMC Public Health	Long term health outcomes and cost-effectiveness of a computer-tailored physical activity intervention among people aged over fifty: modelling the results of a randomized controlled trial [Preview]			

Results for: (neoplasm* OR cancer* OR tumor* OR tumour* OR carcinoma* OR neoplasia* OR leukemia* OR melanoma* OR sarcoma* OR lymphoma* OR malignant* OR oncolog*) AND (exercis* OR sport* OR fitness OR exertion* OR endurance OR gymnastic* OR (physical NEAR3 (activ* OR training))).TI AND (costs OR economic* OR (cost NEAR3 (effectiv* OR efficien* OR analy* OR utility OR benefi*)))

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	<u>Search ID#</u>	<u>Search Terms</u>	<u>Search Options</u>	<u>Actions</u>
<input type="checkbox"/>	S4	S1 AND S2 AND S3	Search modes - Find all my search terms	View Results (428) Edit
<input type="checkbox"/>	S3	(MH "Cost Benefit Analysis") OR TI ((costs OR economic*)) OR TI ((cost N3 (effectiv* OR efficien* OR analy* OR utility OR benefi*))) OR AB ((costs OR economic*)) OR AB ((cost N3 (effectiv* OR efficien* OR analy* OR utility OR benefi*)))	Search modes - Find all my search terms	View Results (181,942) Edit
<input type="checkbox"/>	S2	((MH "Sports+") OR (MH "Exercise+") OR (MH "Physical Activity")) OR TI ((exercis* OR sport* OR fitness OR exertion* OR endurance OR gymnastic*)) OR TI ((physical N3 (activ* OR training))) OR AB ((exercis* OR sport* OR fitness OR exertion* OR endurance OR gymnastic*)) OR AB ((physical N3 (activ* OR training)))	Search modes - Find all my search terms	View Results (277,356) Edit
<input type="checkbox"/>	S1	(MH "Neoplasms+") OR TI ((neoplasm* OR cancer* OR tumor* OR tumour* OR carcinoma* OR neoplasia* OR leukemia* OR melanoma* OR sarcoma* OR lymphoma* OR malignan* OR oncolog*)) OR AB ((neoplasm* OR cancer* OR tumor* OR tumour* OR carcinoma* OR neoplasia* OR leukemia* OR melanoma* OR sarcoma* OR lymphoma* OR malignan* OR oncolog*))	Search modes - Find all my search terms	View Results (625,400) Edit

Embase Session Results (13 May 2019)

No.	Query	Results
#5	#1 AND #2 AND #3 NOT ([animals]/lim NOT [humans]/lim) NOT [conference abstract]/lim	1544
#4	#1 AND #2 AND #3	2348
#3	'cost effectiveness analysis'/exp OR 'cost utility analysis'/exp OR 'cost benefit analysis'/exp OR costs:ti,ab OR economic*:ti,ab OR ((cost NEAR/3 (effectiv* OR efficien* OR analy* OR utility OR benefi*)):ti,ab)	749606
#2	'exercise'/exp OR 'training'/exp OR 'sport'/exp OR 'physical activity'/exp OR exercis*:ti,ab OR sport*:ti,ab OR fitness:ti,ab OR exertion*:ti,ab OR endurance:ti,ab OR gymnastic*:ti,ab OR ((physical NEAR/3 (activ* OR training)):ti,ab)	1024897
#1	'neoplasm'/exp OR neoplasm*:ti,ab OR cancer*:ti,ab OR tumor*:ti,ab OR tumour*:ti,ab OR carcinoma*:ti,ab OR neoplasia*:ti,ab OR leukemia*:ti,ab OR melanoma*:ti,ab OR sarcoma*:ti,ab OR lymphoma*:ti,ab OR malignan*:ti,ab OR oncolog*:ti,ab	5500431

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				View Results (24)
<input type="checkbox"/>	S4	S1 AND S2 AND S3	Search modes - Find all my search terms	View Details Edit
<input type="checkbox"/>	S3	TX ((costs OR economic*) OR TX ((cost N3 (effectiv* OR efficien* OR analy* OR utility OR benefi*)))	Search modes - Find all my search terms	View Results (1,211,237) View Details Edit
<input type="checkbox"/>	S2	TX ((exercis* OR sport* OR fitness OR exertion* OR endurance OR gymnastic*)) OR TX ((physical N3 (activ* OR training)))	Search modes - Find all my search terms	View Results (31,275) View Details Edit
<input type="checkbox"/>	S1	TX (neoplasm* OR cancer* OR tumor* OR tumour* OR carcinoma* OR neoplasia* OR leukemia* OR melanoma* OR sarcoma* OR lymphoma* OR malignan* OR oncolog*)	Search modes - Find all my search terms	View Results (1,865) View Details Edit

1.3.3 DATA EXTRACTION FILE - STUDY CHARACTERISTICS

First Author	May ¹⁵⁸	Gordon ¹⁵⁵	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Year of Publication	2017	2017	2018	2018	2015	2010	2019	2014	2015
Country	Netherlands	Australia	Netherlands	Netherlands	Netherlands	Australia	USA	Ireland	Australia
Study design	Cost utility analysis	Cost utility and cost-effectiveness analysis	Cost utility and cost-effectiveness analysis	Cost utility analysis	Cost utility analysis	Cost utility analysis	Cost utility analysis	Cost-consequences analysis	Cost-consequences analysis
Population	165 female with breast cancer; 18 male and 11 female with colon cancer	194 female with breast cancer	230 female with breast cancer	181 female with breast cancer; 49 colon ; 12 ovarian; 26 lymphoma; 4 cervix and 5 testis cancer	422 premenopausal female breast cancer	89 female with breast cancer	1635 (547 women and 551 men) lung cancer	31 female breast cancer; 5 colon; 3 lymphoma; 2 oesophageal and 2 gynecological cancer	410 patients (221men and 189 women) with colorectal cancer
Eligibility criteria	Breast and colon cancer with histological diagnosis of cancer less than six (breast cancer) or ten (colon cancer) weeks before study recruitment; Stage M0; Scheduled for chemotherapy; Age 25-75; Not treated for cancer in the five years preceding recruitment; Understanding the Dutch language; Karanovski performance status of 60 or higher; Able to walk 100m; No contra indication for physical activity	Patients with histological confirmed primary breast or colon cancer undergoing adjuvant chemotherapy at one of 12 participating hospital in the wider Amsterdam region; No serious orthopedic, cardiovascular or cardiopulmonary conditions; No malnutrition or serious psychiatric or cognitive problems; Dutch language	Patients aged 18-70 years; Histologically confirmed breast, colon, ovarian, cervix or testis cancer, or lymphomas with no indication of recurrent or progressive disease;	Patients aged 18-70 years; Histologically confirmed breast, colon, ovarian, cervix or testis cancer, or lymphomas with no indication of recurrent or progressive disease;	Women with newly diagnosed breast cancer undergoing adjuvant therapy (radiation therapy, chemotherapy and/or hormonal therapy) following surgery. Received adjuvant chemotherapy and/or hormonal therapy at diagnosis; Received adjuvant chemotherapy and/or hormonal therapy following surgery. Exclusion severe cardiac disease, uncontrolled hypertension or orthopedic injury precluding participation in an exercise program	Cited near hospital of the region of Amsterdam or Rotterdam; Primary breast cancer (stages T1-4, N0-1, and M0); Younger than 50 years and premenopausal at diagnosis; Received adjuvant chemotherapy and/or hormonal therapy; Disease free at study entry; Reported at least a minimal level of menopausal symptoms; Chemotherapy had to be completed at least 4 month, not more than 5 years before study entry; Hormonal therapy could still be ongoing	Aged 70-89 years sedentary behavior (<20 min/week in the past month performing regular physical activity and <125 min/week of moderate physical activity); At high risk of mobility disability based on lower extremity; Functional limitations Short Physical Performance Battery (SPPB)16 score ≤9 out of a 12; Ability to walk 400 m in ≤15 minutes without sitting, leaning, or the help of another person or walker; No major cognitive impairment; Possibility of safely participate in the intervention as determined by medical history, physical exam and resting ECG	Diagnosis of solid tumor or lymphoma, completion of radiotherapy and/or chemotherapy with curative intent within the preceding 2-6month; Modified Bruce Fitness test result of average fair or poor, according to predetermined cut-off points for age and gender	Adult residents in Queensland with histologically confirmed diagnosis of primary colorectal cancer within the previous 12 month; Poor health behavior of less than 150min exercise less than a week, less than 5 served fruits and vegetable a week or overweight
Sample Characteristics	Mean age 50.0 +/- 7.9 intervention and 49.4 +/- 7.6 control in breast cancer; Mean age 57.4 +/- 11.2 intervention and 59.1 +/- 8.9 control in colon cancer. Exception patients with breast cancer in the treatment group were higher educated	Average age of 52 +/- 8years; BMI 26.6 +/- 5.2kg/m2	Mean age of 51 years. Non participants were significantly lower educated and less likely to be working.	Mean age H1: 53 years LMI: 55 years	Mean age of 48.2 years	Mean age of 55.9 years in intervention and 54.2 years in control group.	Mean age of 78.9 years.	Mean age of 51 years.	Mean age 64.9 years intervention; 67.8 years usual care

Setting	Outpatient clinic at 7 hospitals	Home based and telephone based at 4 participating hospitals	In-hospital and home based at 12 participating hospitals	Not known	CBT: hospital based; PA: home-based	Home based	Study center based at 8 different centers and home based	Hospital based and home based	Home based
Intervention specification									
Intervention type	Cardiovascular interval training of alternating intensity and strength training with additional 30min physical activity recommendation on 3 days a week	Individually tailored cardiovascular and strength training	OncoMove and OnTrack: cardiovascular and strength training and physical activity recommendation of 30min being active for 5times a week.	Supervised and individualized cardiovascular and strength training with additional recommendation of 30min being physically active on 3 days a week in additional	Cardiovascular training individualized in duration and frequency per week	Cardiovascular, strength and shoulder training delivered by DVD	Cardiovascular and strength training with flexibility and balance components	Individually prescribed cardiovascular training with recommendation of additional home based training	Telephone based health behavior change intervention. Encourage of doing 10000 steps per day
Additional behavior change intervention	No	No	OncoMove: Behavioral reinforcement techniques	Behavioral motivation counseling techniques	CBT and CBT/PE group with 6weekly group sessions of 90min inkl. relaxation techniques	No	Face-to-face introduction session by a health educator who described the intervention, communicated expectations, and answered questions for both groups of 45min	Telephone based coaching and home based exercise instructions based on the theory of planned behavior	Acceptance and commitment therapy of 10calls within 6month
Professions involved	Physiotherapist	Exercise physiologist	OncoMove: Nurse; OnTrack Exercise physiologist	Physiotherapist and Medical Doctor	Clinical psychologist, clinical social worker, physiotherapist	NA	Exercise physiologist	Physiotherapist	Health coaches
Adherence to the intervention	83% in the class offered	88%	Onco Move: NI class intervention and 55% home based training OnTrack: 71% class intervention and 48% home based	HI: 74% and LMI: 70%	CBT: 58% PE: 64% and CBT/PA:70%	Adherence to the training was higher in the first 3 month than later on. After 12 month 11 of 37 participants completed their program	PA 63%	1/4 completed full program, 70% attendance to home trainings	NI

Starting point of intervention	Newly diagnosed (< 6 weeks for breast and <10 weeks for colon cancer) and scheduled for chemotherapy	3-4 weeks post-surgery	Both programs started from the first cycle of chemotherapy until 3 weeks after the last cycle	Completed adjuvant chemotherapy	Undergone adjuvant chemotherapy and/hormonal therapy	Following surgery undergoing adjuvant chemotherapy, 1-2 weeks after starting	Following curative intent and possible walk of 400m within 15min without assistive device or sitting	2-6 month after completion of chemotherapy	Histologically confirmed diagnosis within the previous 12 month
Comparator	Usual care with instruction to maintain habitual levels of activity	Usual care	Usual care	Waiting list control	Waiting list control	Active sham intervention with relaxation and flexibility program	Weekly health education	Usual care with instruction to maintain habitual levels of activity	Usual care
Comparator specification	Maintenance to habitual physical activity pattern (incl. routinely offered exercise programs) without further information about intensity and frequency	Depending on hospital involved; From no physical activity advice to encouragement in physical activity without information on intensity and frequency	Variation according to hospital guidelines and preferences; No routine exercises were included.	NI	NI	30min	NI	NI	NI

Note. HI High intensity; LMI Low to moderate intensity; CBT cognitive behavioral therapy; PE physical exercise; NI no information; NA not applicable

1.3.4 DATA EXTRACTION FILE - COST DATA

First Author	May ¹³⁸	Gordon ¹³⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Analytic approach	Trial based	Trial based	Trial based	Trial based	Trial based and model based (exploration up to 5 years)	Trial based	Model based	Trial based	Trial based
Perspective	Societal and health care	Health provider (patients and government), service provider, private (intervention in routine practice of privately working exercise physiologists)	Societal	Societal	Healthcare system	Societal	Organizational and societal	Health system	NA
Health outcome of primary papers	Travier ¹² : Effect on physical fatigue, submaximal cardiorespiratory fitness and muscle strength. Between group difference of -1.3 (95% CI -2.5 to -0.1) in physical fatigue	Hayes ⁴³ : Effect on quality of life, physical fitness, and fatigue. Post-pre score of Fact-F questionnaire of +6.8 (95% CI 3.9 to 9.8) points	van Waart ⁴⁵ : OncoMove: less decline in cardiorespiratory fitness, physical function, less nausea, vomiting and pain. OnTrack: muscle strength, physical fatigue. A between group difference of OnTrack versus usual care of -2.7 (95% CI -4.0 to 1.4) in physical fatigue was found, OncoMove was not statistical significant. After 6 month all groups returned to baseline level. OncoMove and OnTrack returned earlier to work	Kampshoff ⁴⁰ : Hl and LMI: increased peak VO2max, less general+physical fatigue, increased physical functioning, less problems in return to work. Hl better quality of life+less anxiety.	Duijts ⁴⁶ : Long-term effects were similar between groups on FACT-ES: CBT 0.4 p<0.001 PE: 0.31 p<0.007 and CBT/PE: 0.36 p 0.001. Betw een group difference of -2.0 (95% CI -2.9 to -1.1) in physical fatigue, -1.3 (95%CI -2.2 to -0.4) in general fatigue, PeakVO2 of 2.2(95%CI 1.2 to 3.1) and low to moderate intensity training versus usual care stated -1.4 (95% CI -2.3 to 0.5) on physical fatigue	Haines ³⁷ : Improves in VAS, global health and physical function. Long term follow up (12 month) did not show betw een group differences. All three intervention groups had a significantly greater short term decrease in urinary symptoms than control. Results were stable over time only for CBT group.	Pahor ⁴¹ : Major mobility disability were reduced within the program. 14.7 % of physical activity and 19.8% of health education participants had persistent mobility disability. With intervention major mobility disability (HR=0.82 p=0.3) and persistent mobility disability (HR=0.72 p=0.006) the subgroup with low physical function at baseline received considerable benefit (HR=0.81)	Broderick ⁴⁷ : No betw een group differences on health related outcomes. Increase quality of life level and decreased physical fatigue. Clinically meaningful change in FACT-G overall with 5.6 (95% CI 1.1 to 10.1).	Hawkes ⁴⁴ : Physical health related quality of life increased, no effect on mental health related quality of life. At 12 months, significant intervention effects were observed for moderate PA (28.5 minutes per week; P = .023) and a suggested intervention effect was observed for physical HRQoL (1.7; P = .072).
Definition of treatment effect in cost-effectiveness analysis	QALY	QALY and improvement in Quality of life	QALY and improvement in clinical outcome	QALY	QALY	QALY	QALY and disease free survival	Clinical outcome	Clinical outcome
Utility data derive from	Trial based	Trial based	Trial based	Trial based	Trial based	Trial based	Observational study	NA	NA

Primary health outcome cost-effectiveness analysis (utility score)	EQ-5D after 18 weeks for breast cancer: 0.83 intervention and 0.83 control with mean difference of 0.001. Colon cancer: 0.83 intervention and 0.80 control group with mean difference of 0.02		EQ-5D-3L assessed 12 month post surgery for intervention 0.86 and 0.85 control group		EQ-5D-3L assessed after 6month study period. OncoMove 0.63 and OnTrack 0.65.		SF 36 converted to EQ-5D for menopausal symptoms: 0.78 from the first to 0.85 of the last cycle with transition probabilities in CBT of 0.484 and 0.453 in PE		EQ-5D utility after 6 month: Intervention 0.80 and 0.83 control		EQ-5D calculated to an average of 0.79		NR	SF-6D at 6Month intervention group 0.745 and usual care group 0.753 by mean difference of 0.004
Currency	Euro	Australian Dollar	Euro	Euro	Euro	Australian Dollar	US Dollars	Euro	Euro					
Cost year	2011	2014	2017	2012	No information	2006	2017	2013		Valued in 2013 Australian Dollar and converted to 2015 Euro				
Time horizon	less than 1 year	1 year	1 year	64 weeks	5 years	less than 1 year	median of 2.6 years	less than 1 year	less than 1 year					
Discounting	No discounting was performed	No discounting was performed	No discounting was performed	For costs and effects	For costs and effects	No discounting was performed	For costs and effects	No discounting was performed	No discounting was performed					
Discount rate	NA	NA	NA	4% costs and 1.5% effect	4% costs and 1.5% effect annually	NR	0.03	0.05	NR					
Cost data derived from	Fee schedules and tariffs	Fee schedules and tariffs	Fee schedules and tariffs	Market price	Fee schedules and tariffs	Market price	Observational study	Fee schedules and tariffs	Fee schedules and market price					
Direct intervention costs derive from	Bottom up micro costing method -> 4.50 Euro/session remaining costs; 55Euro/Session personnel; Divided by the mean number of patients present per session (2.5)-> 22.18 Euro per Session; Intake session -> 75% of the cost of the regular session; Non healthcare costs: PACT travelling costs	service provider model: project records including exercise physiologist additional intervention and material; Private model: Government costs subsidized service by private exercise physiologist through the Medicare Benefit schedule	Postal questionnaire assessing health care and informal costs, associated with absenteeism from work, unpaid productivity losses prior to randomization, health care visits; Support by oncology nurses and physical therapists	Healthcare use and medication; Dutch standard costs used to value healthcare use. Medication use	Costs are micro costed; Attendance of exercise+booster sessions were registered; Intervention providers time investments valued using their gross hourly salaries incl. overhead; Material costs estimated by invoices; All other cost categories assessed using 3monthly questionnaires with 3month recall periods; Healthcare costs incl. costs of primary and secondary healthcare use and medication; Dutch standard costs used to value healthcare use. Medication use	Medicare subsidized hospitalization costs; Pharmaceutical costs and other direct health care costs; Administration; Material costs	Health professional; Labor; Staff training; Hospitalization costs were calculated using Australian Diagnosis Related Grouping cost weights	National Health and Nutritional Examination Survey for participants aged over 70 years	Salary of senior physiotherapist and physiotherapy assistant within the Irish healthcare; 2hours a week administration	Health coach and administrative salaries; Telephone expenses; Office consumables; Pedometers; Participant booklets; Resources information derive from self-reporting during telephone interviews; Australian government cost schedules were used to assign costs to each medicine				

	Medication (individualized), cancer therapy (individualized), Radiotherapy (230), hospital days (465.8), Day care (200.12), Consults medical specialists (74.42), Consults other care givers, phone consult other caregivers, prof. home care 36.27, Non Healthcare costs: Paid domestic help (36.27) Patient travel costs (individualized)	service provider model: out of pocket intervention costs Private model: out of pocket interventions without travel costs (homebased intervention)	No more information	No more information	Number of healthcare visits and medication	No more information	No more information	No more information	General practitioner; specialist doctor consultation; Medication; Health professional visit
Other direct costs									
Health care costs intervention Group	Societal perspective: Mean of 19623 in breast cancer and 15013 in colon cancer. Health care perspective: Mean of 12713 in breast cancer and 7640 in colon cancer	Service provider model 126620; Private model 112267	OncoMove mean 23191 OnTrack mean 22834	LMI 13278 HI 9153	CBT 500.46 (190.07+210.3 9+100) per patient, for all 86 patients 43039.56; PE 507.37 (196.98+210.3 9+100) per patient and 44141.19 over all patients after 1 cycle	Mean 10082	Organizational perspective: 110224 Societal perspective: 116685	NA	274063
Monetary direct intervention costs	PACT in breast cancer mean 794 and PACT in colon cancer mean 824	Service provider model 967.31; Private model 837.81	Onco-Move: 3552.14 OnTrack: 57506.58	LMI:815; HI:858	CBT 190.07 per patient, for all 86 patients 16346.02; PE 196.98 per patient and 17137.26 over all patients	NA	NA	4103	Mean 280.33
health care costs intervention group	Societal perspective: Mean of 19623 in breast cancer and 15013 in colon cancer. Health care perspective: Mean of 12713 in breast cancer and 7640 in colon cancer	Service provider model 126620; Private model 112267	OncoMove mean 23191 OnTrack mean 22834	LMI 13278 HI 9153	CBT 500.46 (190.07+210.3 9+100) per patient, for all 86 patients 43039.56; PE 507.37 (196.98+210.3 9+100) per patient and 44141.19 over all patients after 1 cycle	Mean 10082	Organizational perspective: 110224 Societal perspective: 116685	NA	Mean 1337
Inflation of health care costs to 2017 Swiss Francs	37965 breast cancer 29046 colon cancer	119970	OncoMove: 35001 OnTrack:34462	LMI: 23782 HI: 16394	75108	15407	139220	NA	436319
Inflation health care costs to 2017 US Dollars	30462 breast cancer 23306 colon cancer	100439	OncoMove: 29335 OnTrack: 28884	LMI: 20102 HI: 13857	62881	11635	116686	NA	368664

	Societal perspective: Mean of 17473 in breast cancer and 19154 in colon cancer						Organizational perspective: 105485 Societal perspective: 105967		
Direct cost control group	Health care perspective: Mean of 16335 in breast cancer and 18474 in colon cancer	2680	20795	NR	NR	Mean 3819	105485 Societal perspective: 105967	NR	199445
Definition indirect costs	Unpaid domestic help and sick leaves	NR	Informal care, absenteeism, unpaid productivity	Informal care, absenteeism, unpaid productivity	NR	Productivity gains (paid and unpaid employment gained or lost)	Travelling costs for in-facility sessions. Time spent from lost work, using the federal minimum wage.	NR	NR
From where indirect costs derive from	Cost diary	NA	Cost diary	Informal care was valued using shadow price; Absenteeism was assessed using participant reports of their number of absence days and in case of partial absence, their percentage of normal working hours worked:	NA	Paid and unpaid employment gained or lost relative to baseline assessment	Consumer price index calculator 2017 US Department of Labor; National Health and Nutritional Examination Survey for participants aged 70 years and more	NA	NA
Indirect costs intervention group	Societal perspective: Mean of 1104 (SD 1511) unpaid domestic help and 4378 (SD 3650) sick leaves in breast cancer and mean of 1186 (SD 2418) unpaid domestic help and 4887 (SD 4335) sick	NR	OncoMove 18885 OnTrack 17795	LMI 23585 HI 18770	NR	0	Organizational perspective: 6461	NA	NA

	societal perspective: Mean of 934 (SD 1025) unpaid domestic help and 3808 (SD 3120) sick	NR	18317	NR	NR	Mean 1280	organizational perspective: 482	NA	NA
Indirect costs control group	leaves in breast cancer and mean of 411 (SD 427) unpaid domestic help and 5826 (SD 4371) sick leaves in colon cancer								
Threshold value	20000	50000	30000 and 80000	20000 and 52000 in the main analysis 58000 and 80000 in the side analysis respectively	20000, 30000 and 80000	No adoption in prior	100000	NA	NA
Incremental cost	2912 breast cancer; 4321 saving in colon cancer	Service provider model 2644; Private model 2282	OncoMove 2571; OnTrack 1184	2429 HI versus LMI	NA	0	4740	NA	NA
Incremental cost saving per strategy	2912 breast cancer; 4321 colon cancer	Service provider model: 2644; Private model: 2282	OncoMove: NA; OnTrack: 33313	2429 HI versus LMI	CBT: 184; PA: 185	0	4740	NA	NA
Incremental effectiveness	0.01 in breast cancer; 0.03 in colon cancer	0.009 in service provider model	OncoMove 0.04 OnTrack 0.04	No w ithin group differences	CBT: 0.0079 PE: 0.0067	0.03 (full data set) 0.02 (outliers excluded)	0.6	NA	NA
Synthesis of costs and benefits	Bootstrap analysis of individual patient data	Service provider and private model	Bootstrap analysis using 5000 replications	Total cost and effect differences were estimated using linear mixed model analyses, adjusted for baseline, age, gender and intervention timing. Incremental cost-effectiveness ratios (ICERs) were calculated by dividing the adjusted total cost differences by those in effects. Uncertainty around cost differences and ICERs was estimated using bias corrected bootstrap	treatment costs over a 6month period for achieving a relevant difference on the FACT ES and HFRS was calculated the following way: incremental treatment costs = Number needed to treat x Interventions costs. The incremental utility ratio, representing the additional costs required for the particular intervention to generate one additional QALY in comparison to WLC was calculated.	Point estimation of the number of value based QALYs gained per patient was considerable uncertainty in the point estimate as demonstrated by the cost effectiveness acceptability plane scatter plots and their 95% confidence ellipses	Decision tree, Markov model to simulation health state progressions in 4 different states: disease free and increased exercise, disease free w ith no change in exercise, recurrence disease and death; Monte Carlo simulation w ith 100000 iterations in sensitivity analysis	NA	NA

		Probabilistic+de terministic; Absenteeism with human capital approach, Intervention costs for OnTrack based on the number of planned sessions instead of the attended session, per protocol approach w ith 75% of adherence, calculating the costs using the friction cost approach, return to work directly after chemotherapy, estimating costs from a health care perspective, adding intervention costs associated w ith the time invested by the patients in	Probabilistic and deterministic; QALY low to high 95% CI in intervention and usual care group; Leasing car; provider model costs; out of pocket expenses low to high; incremental number of improvers.	Probabilistic and deterministic; Fixed intervention costs, patients w ith disease recurrence excluded, subgroup analysis for general fatigue, grip strength and PeakVO2	Probabilistic and deterministic; One-way analyses w ith +/-20% effect lasts 1.5 years, effect lasts 3years, -20% in menopausal symptoms, +/- 20% cognitive behavioral therapy intervention costs, +/-20% physical exercise intervention costs, +/- disease state menopausal symptoms and perceived reduction in menopausal symptoms	Probabilistic and deterministic; Exclusion of 7 extreme outliers	Probabilistic and deterministic; On cost, probability of increasing exercise, and health utility benefit	NA	NA
Result	403394/QALY for breast cancer; No information for colon cancer	Service provider model: 105231/QALY Private model: 90842/QALY	OncoMove 70052/QALY OnTrack 26916/QALY	CBT: 87.831/QALY PE: 22.502/QALY 28.078/QALY	NI	79504/QALY	NA	NA	
summary of results	Colon cancer: lower health- care costs and less hours absence from work. Breast cancer: higher cost no apparent effect on quality of life	Exercise intervention may be cost- effective if society is willing to pay approximately 3000AUSDollar per month	Longer cycles of chemotherapy induces higher health care costs. Probability of cost- effectiveness increases substantially with increased compliance. OnTrack could be cost- effective for general and physical fatigue depending on willingness to pay. OncoMove is not likely to be cost-effective. Both treatments are not cost- effective for physical fitness.	High intensity training: effect on role and social functioning were significantly lager for HI than LMI. Cardio- respiratory fitness w as successfully for short and long-term in both group. HI w as cost- effective due to lower health care costs. Dose response relationship of exercise intensity.	CBT and PE are effective and cost-effective. Choice on patient preferences.	7 outlier had extremely intense health care costs. DVD multimodal exercise program improve short term health but of questionable economic efficiency	Costs of exercise program w ere most sensitive to the change of results and the intervention cost-effective on an organizational but not on a societal level	NA	NA

Probability of cost effectiveness	<p>In colon cancer the intervention was 100% dominant in breast cancer the probability of effectiveness was 2%</p> <p>The likelihood of the service provider model being cost-effectiveness was 44.4% and 46.3% for private model</p>	<p>Irrespective of the willingness to pay, the maximum probability of Onco-Move and OnTrack being cost-effective compared with LMI was 87%. This probability increases to 91% at a willingness-to-pay threshold 55% and 79% respectively; With 80000 willingness-to-pay threshold 55% and 79% respectively</p>	<p>PE has the highest probability of being cost-effective only up to a ceiling ratio of ca. 26000/QALY. Beyond the ceiling ratio, CBT has the highest probability of being cost-effective with a probability of 49% at a ceiling ratio of 30000/QALY up to 56% at 80000/QALY</p>	<p>There was low probability (0.05% utility based QALYs full data set and 25.55% utility based QALYs outliers excluded) that the intervention would be both less costly and more effective than the control condition.</p>	<p>The LIFE exercise program was cost-effective with 71% and usual care with years were not calculated, as 27% of the time. Increasing willingness to pay to 150000/QALY probabilities were 94% and 4%.</p>	<p>Quality adjusted life survival information was not available.</p>	<p>Costs and effects were not connected in a cost-effectiveness analysis because there were mixed results in several outcomes of the trial</p>
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Note. NR not reported; NA not applicable; HI High intensity; LMI Low to moderate intensity; CBT cognitive behavioral therapy; PE physical exercise; SD standard deviation

1.3.5 JUDGEMENT OF REPORTING – CHEERS

Quality of reporting CHEERS

Husereau D, Drummond M, Petrou S, et al. Consolidated health economic evaluation reporting standards (CHEERS)

—explanation and elaboration: a report of the ISPOR Health Economic Evaluations Publication Guidelines Good Reporting Practices Task Force. Value Health. 2013;16(2):231-250.

Individual items will be scored as either "0" (no transparency), "0.5" (medium transparency), "1" (fully transparency) or "NA" (not applicable)

First Author	May ¹⁵⁸	Gordon ¹⁵⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Identification of economic evaluation	1	1	1	1	1	1	1	0.5	0
Remark on judgment							The authors did not wanted to realize an economic evaluation, they did only a cost-consequences analysis		Title expectations can not getting confirmed with the data used
Abstract	1	1	1	1	1	1	1	0.5	1
Remark on judgment							Methods of the economic evaluation are missing		
Background and objectives	1	1	1	1	1	1	1	1	1
Target population and subgroups	1	1	1	1	1	1	1	0.5	1
Remark on judgment							Brief information but referenced to primary paper		
Setting and location	1	1	1	1	1	1	1	1	1
Study perspective	1	1	1	1	1	1	1	NA	NA
Remark on judgment							Not reported cost consequence paper		Not reported cost consequence paper
Comparators	1	1	1	1	1	1	1	0.5	1
Remark on judgment							Brief information but referenced to primary paper		
Time horizon	1	0.5	1	1	1	1	1	1	1
Remark on judgment		Time horizon not clearly stated							
Discount rate	1	0	1	1	1	0	1	NA	NA
Remark on judgment		No information about discount rate	Justification for no discounting			No information about discount rate		Discounting has no relation to this study	Discounting has no relation to this study
Choice of health outcome	1	1	1	1	1	1	1	0.5	1
Remark on judgment								no utility information	
Measurement of effectiveness	1	1	1	1	1	1	1	1	1
Measurement of preference-based outcomes	1	1	1	1	1	1	1	1	1
Estimating resources (13a)	1	0.5	1	1	1	1	1	1	NA
Remark on judgment		No information about adjustments made to approximate opportunity costs							Not reported cost consequence paper
13b	NA	NA	NA	NA	1	NA	1	NA	NA
Currency, price date and conversion	1	0	1	1	1	0	1	1	1
Remark on judgment		No information about unit costs and adjusting estimated unit costs to the year of reported costs		No descriptions of methods of adjusting estimated unit costs to the base year of reported costs but it is referenced		Definition of market prices unclear			
Choice of model	NA	NA	NA	NA	1	NA	1	NA	NA
Assumption	NA	NA	NA	NA	1	NA	1	NA	NA
Analytical methods	1	0.5	0.5	1	1	1	1	0.5	1
Remark on judgment		Nothing is known about skewed, missing or censored data, no bootstrap information.	Nothing is known about skewed, missing or censored data, no bootstrap information.					Nothing is known about skewed, missing or censored data	
Study parameters	1	1	1	1	1	1	1	1	1
Remark to judgement									

Incremental costs and outcomes	1	1	1	1	1	0.5	1	NA	NA
Remark to judgement	Not clearly stated						Not focus on		
Characterizing uncertainty (20a)	1	1	1	1	1	1	NA	NA	
Remark to judgement							Not reported cost consequence paper not to expect	Not reported cost consequence paper, not to be expect	
Characterizing heterogeneity	NA	1	1	1	1	0	1	NA	NA
Study finding, limitations, generalizability and current knowledge	1	1	1	1	1	1	1	1	1
Source of funding	1	1	1	1	1	1	1	1	1
Conflict of interest	1	1	1	1	1	1	1	1	1
Overall judgment of quality of reporting	high	moderate	high	high	high	moderate	high	(low)	(low)

1.3.6 JUDGEMENT OF METHODOLOGY - CHEC

Health economics criteria checklist extended CHEC

Evers S., Goossens M., de Vet H., van Tulder M., Ament A., Criteria list for assessments of methodological quality of economic evaluations:

Consensus on Health economic criteria, int. J. of Technology Assessments in Health Care. 2005

First Author	May ¹³⁸	Gordon ¹³⁹	van Waart ¹⁴⁰	Kampshoff ¹⁴¹	Mewes ¹⁴²	Haines ¹⁴³	Ha ¹³⁷	Broderick ¹⁴⁴	Gordon ¹⁴⁵
Study population clearly described	1	1	1	1	1	1		1	1
Remark on judgment	Drop outs are stated in primary paper								
Are competing alternatives clearly described	1	1	1	1	0	1		1	1
	The physical activity intervention itself is not clearly stated. The waiting list control is not clearly described and included in the outcomes as stated at the beginning of the study								
Remark on judgment									
Interventions not clearly described									
Well defined research question, posed in answerable form	1	1	1	1	1	1		1	1
Is the economic study design appropriate to the stated objective	1	1	1	1	1	1		0	0.5
Are the structural assumption and the validation methods of the model properly reported	0	1	1	1	1	1		1	NA
Remark on judgment	Not enough information	2006-2008 primary study	2010-2012 primary study						
Chosen time horizon appropriate to include relevant costs and consequences	1	1	1	1	1	1		1	1
Are all important and relevant costs for each alternative identified	1	0	1	1	0	1		0	1
Remark on judgment	Intervention delivery is not stated for private model and usual care costs are not described exactly				No indirect costs are included in the analysis		Indirect costs are missing		
Are all important and relevant outcomes for each alternative identified	1	1	1	1	1	1		1	1
Are all costs measured appropriately in physical units	1	1	1	1	1	1		1	1
Remark on judgment	Combination of market price out of the RCT and tariffs and fees for extrapolation								
Are costs valued appropriately	1	1	1	1	1	1		1	1
Are outcomes valued appropriately	1	1	1	1	1	0		1	1
Are all outcomes measured appropriately	1	1	1	1	1	1		1	1
Incremental analysis of costs and outcomes of alternatives performed	1	1	1	1	1	1		NA	NA
Are all future costs and outcomes discounted appropriately	1	1	1	1	1	0		1	0

Remark on judgment	No information about discounting							
Are all important variables, whose values are uncertain appropriately subjected to sensitivity analysis	1	1	1	1	1	1	0	0
Do the conclusions follow from the data reported	1	0	1	1	1	1	1	1
Remark on judgment	Not all data are respected in reporting (discrepancies between the two groups are not reported in the conclusion)							
Does the study discuss the generalizability of the results to other settings/patient/groups	1	1	1	1	1	1	1	1
Does the article indicate that there is no potential conflict of interests of study researchers and funders	1	1	1	1	1	1	1	1
Are ethical and distributional issues discussed appropriately	0	0	1	1	1	1	1	1
Overall judgment of methodology	high	moderate	high	high	high	moderate	(low)	(low)

1.3.7 JUDGEMENT OF METHODOLOGY - PHILIPS

Judging decision analytic models using the philips checklist

Review of guidelines for good practice in decision-analytic modelling in health technology assessment Z Philips,¹ L Ginnelly,^{1*} M Sculpher,¹

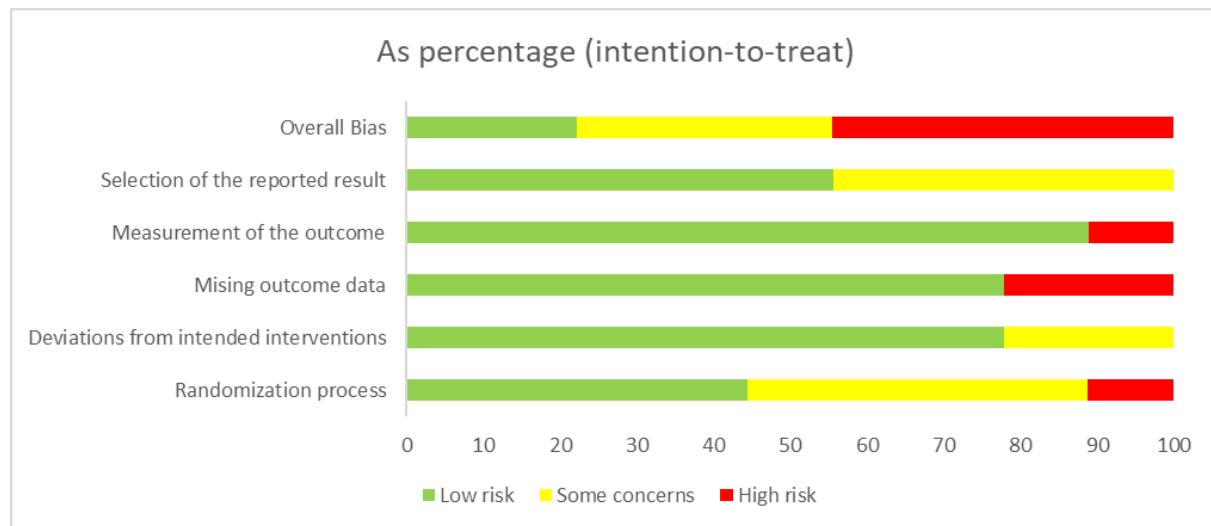
1 K Claxton,^{1,2} S Golder,³ R Riemsma,³

1 fulfills

0 not fulfills

Authors	Mewes ¹⁴²	Ha ¹³⁷
Statement of decision problem/objective S1	1	1
Statement of scope/perspective S2	1	1
Rationale for structure S3	1	1
Structural assumptions S4	1	1
Strategies/comparators S5	1	1
Model type S6	1	1
Time horizon S7	1	1
Disease states/pathways S8	1	1
Cycle length S9	1	1
Data identification D1	1	1
remark on judgement		
Data modelling D2	1	1
Baseline data D2a	1	1
Treatment effects D2b	0	1
remark on judgement	no alternative assumptions were explored through sensitivity analysis and no information on half-cycle correction (if any)	
Costs D2c	1	1
Quality of life weights (utilities) D2d	1	1
Data incorporation D3	1	1
remark on judgement		
Assessment of uncertainty D4	1	1
remark on judgement		
Methodological D4a	1	1
Structural D4b	1	1
Heterogeneity D4c	0	0
remark on judgement	no information about subgroups no information about subgroups	
Parameter	1	1
Internal consistency	1	1
External consistency	1	1
Overall judgment of methodology	high	high

1.3.8 JUDGEMENT OF RISK OF BIAS



Time	26.08.2019	26.08.2019	26.08.2019	02.09.2019	02.09.2019	26.08.2019	26.08.2019	09.09.2019	09.09.2019
Unique ID									
Assessor	gubg	gubg	gubg	gubg	gubg	gubg	gubg	gubg	gubg
Study ID	1	2	3	4	5	6	7	8	9
Reference	Travier149	Hayes150	van Waart140	Kampshoff141	Duijts153	Haines143	Pahor148	Broderick144	Hawkes151

Experimental	aerobic and resistance exercise	FTF and telephone based aerobic and resistance exercise	OncoMove as a homebased low intensity, individualized self managed physical activity intervention; OnTrack as a moderate to high intensity resistance and aerobic exercise program	High intensity exercise training versus low to moderate intensity exercise training	Cognitive behavioral therapy (CBT) and Physical exercise (PE) and CBT + PE	Home based strength, balance, shoulder mobility and cardiovascular endurance program	Structured moderate intensity program done in a center including aerobic, resistance and flexibility training	Twice weekly aerobically based group sessions in a hospital setting	Telephone delivered health coaching
Comparator	usual care	usual care	usual care	Waiting list control	Waiting list control	Sham intervention	A health education program including workshops and stretching program	usual care	usual care
Outcome	Quality of Life	Quality of Life	Quality of Life (Item Physical Functioning)	Health related quality of life	Health related quality of life	Health related quality of life	Major mobility disability	quality of life	quality of life
Results	2.3(-2.4-6.9) FTF 9.5 (5.3-3.8) Tel 13.5 (10.0-17.0)	OnTrack 9.9 (4.9-14.9) OncoMove 9.2 (3.9-14.5)	HI 5.9 (2.0-9.8)	CBT 4.47 se 3.48 PE 3.71 se 3.71 CBT+PE -1.55 se 3.48	VAS -4.62 (-10.88-1.63) Utility -0.04 (-0.13-0.04)	0.82 Hazard ratio	SF36 0-12 weeks exercise 3.3 (-1.5-8.1) usual care 3.6 (1.9-5.3)	physical component after 12 months (-0.2-3.5) 1.7	

Aim										
Effect of an 18week PA intervention compared to usual care in breast and colon cancer patients	Cooperation of the effectiveness of FtF and telephone delivered exercise intervention on QoL and patient reported and clinical measured function and treatment related side effects	The aim of the study was to evaluate the effectiveness of a home-based, low-intensity physical activity program and a supervised, moderate to high intensity program in maintaining or enhancing physical fitness and minimizing fatigue in patients undergoing adjuvant chemotherapy.	Examination of the effectiveness of high intensity and a low to moderate intensity resistance and endurance exercise program compared with a wait list control in cancer survivors	Evaluation of the effectiveness of CBT, PE and these two interventions combined to alleviate menopausal symptoms and improve body image, sexual functioning psychological well being and HRQoL in patients with breast cancer experiencing treatment induced menopause	Development and investigation of an exercise program that would be widely applicable to women with breast cancer regardless of their geographical location or socioeconomic status	Long-term structured physical activity program is more effective than a health education program in reducing the risk of major mobility disability	Evaluation of the feasibility and efficacy of an exercise intervention in de conditioned cancer survivors in the early recovery phase of cancer survivorship	Effect of a telephone delivered multiple health behavior change intervention in colon cancer survivors on health outcomes including physical activity, quality of life and cancer related fatigue, BMI, dietary intake and smoking		
Weight Sources	1	1	1	1	1	1	1	1	1	1
1.1	yes	yes	Probably yes	yes	yes	yes	yes	yes	yes	yes
1.2	yes	no information	no information	yes	NI	yes	probably yes	NI	yes	
Note for 1.1&1.2				The trial used a form of remote or centrally administered method to allocate interventions to participants and was controlled by an external unit, independent of the enrolment personnel	The trial used centrally administered method to allocate interventions to participants. There is no information about external controlled enrolment	The trial used a form of centrally administered method to allocate intervention to participants. Random assignment using envelopes was used	The trial used a form of centrally administered method to allocate intervention to participants	No information about allocation sequence	The trial used a form of external unit to allocate intervention to participants based on computer algorithm	
1.3	yes	no	no	no	no	probably no	no	probably yes	no	

Note for 1.3	Usual care twice as much follow up; Usual care 14% more low educated participants. Usual care 18% more premenopausal and more active participants	Differences are compatible with chance do not lead to a risk of bias	Differences are compatible with chance do not lead to a risk of bias	No imbalances are apparent	No imbalances are apparent or if any observed imbalances are compatible with chance.	No imbalances are apparent	No imbalances are apparent imbalances are compatible with chance	A small number of differences identified as 'statistically significant' at the conventional 0.05 threshold should usually be considered to be compatible with chance is not the case in this trial Imbalance was appropriate with P=0.05
1.0 Algorithm result	The allocation sequence was adequately concealed. Any baseline differences observed between intervention groups do not appear to be compatible with chance	The allocation sequence was adequately concealed; Any baseline differences observed between intervention groups appear to be compatible with chance	There is no information about concealment of the allocation sequence	The allocation sequence was adequately concealed; Baseline differences observed between intervention groups appear to be compatible with chance	There is no information about concealment of the allocation sequence; any baseline differences observed between intervention groups appear to be compatible with chance	The allocation sequence was adequately concealed; Any baseline differences observed between intervention groups appear to be compatible with chance; The allocation sequence was random	The allocation sequence was adequately concealed	The allocation sequence was adequately concealed Baseline differences between intervention groups suggest a problem with the randomization process
1.0 Assessor's Judgement 1.0 General note	some concerns	some concerns	some concerns	low risk of bias	some concerns	low risk of bias	low risk of bias	high risk of bias low risk of bias
1.0 Optional Question	Risk of bias is predicted towards null	Risk of bias is predicted away from null but with a very low risk	Risk of bias is predicted away from the null	Risk of bias is predicted towards null	Risk of bias away from null	Potentially risk of bias away from null	Potentially risk of bias toward null	Potentially risk of bias away from null Potentially risk of bias toward null
1.0 Note for optional question								
2.1	yes	no	NI	no	no	no	probably no	NI NI
2.2	Probably yes	Probably yes	Probably yes	Probably yes	Probably yes	Probably no	Probably yes	Probably yes Probably yes

Note for 2.1&2.2	No blinding of the participants and caregivers. In this case potentially not possible without a sham intervention	No blinding of participants and caregivers. In this case potentially not possible without a sham intervention	No information according to blinding of participants and caregivers. In this case potentially not possible without a sham intervention	No blinding of the participants and caregivers; In this case potentially not possible without a sham intervention	No blinding of the participants yes, caregivers probably no. In this case potentially not possible without a sham intervention	Care givers and people delivering the DVD were probably blinded to the intervention	No information about the blinding of participants and caregivers	No information about the blinding of participants and caregivers	No information about the blinding of participants and caregivers
2.3	probably no	probably no	probably no	probably no	probably no	probably no	probably no	NI	NI
Note for 2.3	There are no strong reasons to believe that there were substantial deviations of intervention in both groups	There are no strong reasons to believe that there were substantial deviations of intervention in both groups	There are no strong reasons to believe that there were substantial deviations of intervention in both groups	There are no strong reasons to believe that there were substantial deviations of intervention in both groups	there are no strong reasons to believe that there were substantial deviations of intervention in both groups				
2.4									
Note for 2.4									
2.5									
Note for 2.5									
2.6	yes	yes	yes	yes	yes	yes	yes	NI	NI
Note for 2.6	Both intention-to-treat (ITT) analyses and modified intention-to-treat (mITT) analyses excluding participants with missing outcome data were considered appropriate	Both intention-to-treat (ITT) analyses and modified intention-to-treat (mITT) analyses excluding participants with missing outcome data were considered appropriate	Both intention-to-treat (ITT) analyses and modified intention-to-treat (mITT) analyses excluding participants with missing outcome data was considered	Both intention-to-treat (ITT) analyses and modified intention-to-treat (mITT) analyses excluding participants with missing outcome data are be considered appropriate	Both intention-to-treat (ITT) analyses and modified intention-to-treat (mITT) analyses excluding participants with missing outcome data are be considered appropriate	ITT is performed	ITT is performed	no Information	no Information
2.7							probably not		
Note for 2.7									

2.0 Algorithm result	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	some concerns	some concerns
2.0 Assessor's Judgement	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; No deviations from intended interventions arose because of the trial context	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; No deviations from intended interventions arose because of the trial context	Participants, careers or people delivering the interventions were aware of intervention groups during the trial	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; No deviations from intended interventions arose because of the trial context	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; An appropriate analysis was used to estimate the effect of assignment to intervention	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; An appropriate analysis was used to estimate the effect of assignment to intervention	Participants, careers or people delivering the interventions were aware of intervention groups during the trial; An appropriate analysis was used to estimate the effect of assignment to intervention	There is no information on whether there were deviations from intended intervention because of the trial context	There is no information on whether there were deviations for intended intervention because of the trial context
2.0 General Notes									
2.0 Optional Question	Risk of bias due to not blinded intervention gives us a risk away from the null	Risk of bias due to not blinded intervention gives us a risk away from the null	It tend to be a risk away from the null in cause of not much information about missing data management	Risk of bias due to not blinded intervention gives us a risk away from the null	Risk of bias due to not blinded intervention gives us a risk away from the null	Risk of bias due to not blinded caregivers gives us a risk away from the null	Risk in any direction due to information gap	Risk in any direction due to information gap	
2.0 Note for optional question									
3.1 Note for 3.1	no	yes	probably no	probably no	probably no	probably no	no	no	no
	Loss to follow up more than 10%	Data was available for nearly all participants; Most loss of follow up was in usual care group found	OnTrack has had sufficient data, Onco move (missing 15) and usual care (missing 13) have had a greater number of missing data	More than 5% missing data due to lost of follow up	More than 5% missing data due to lost of follow up	More than 5% missing data due to lost of follow up	There were a lot participants lost to follow-up	There were a lot participants lost due to follow up	There were a lot participants lost due to follow up
3.2	probably yes	NI	yes	probably yes	NI	yes	probably no	NI	

Note for 3.2		No information about sensitivity analysis	Sensitivity analysis was conducted	Missing data were replaced in sensitivity analysis	Sensitivity analysis was undertaken but not for missing data	Sensitivity analysis was undertaken	It is possible that missingness in the outcome was influenced by its true value	Not enough information to rate evidence that the result was not biased by missing outcome data
3.3		probably yes		yes		no	no	
Note for 3.3&3.4								
3.4		probably yes		yes				
Note for 3.4 (not use)		Missingness vary substantially between groups						
3.0 Algorithm result	low risk of bias	low risk of bias	high risk of bias	low risk of bias	low risk of bias	high risk of bias	low risk of bias	Low risk of bias
3.0 Assessor's judgement	Missing data for more than 10% = incongruence with the power calculation. ITT analysis was performed. Lost to follow up usual care > intervention group	Outcome data were available for nearly all, randomized participants	Outcome data were not available for all, or nearly all, randomized participants, There is evidence that the result was biased by missing outcome data	There is evidence that the result was not biased by missing outcome data	There is evidence that the result was not biased by missing outcome data	Proportion of missing data is higher 5% and there is evidence that the result could be biased; It is likely that the true value is influenced by missing data	There is evidence that the result was not biased by missing outcome data	There is evidence that the result was not biased by missing outcome data
3.0 General notes								
3.0 Optional Question								
3.0 Note for optional question	Those who where lost of follow up were imputed and showed the same characteristics to those participants used in the trial							

4.1	no	no	no	no	no	no	no	no	no								
Note for 4.1	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate	Measurements were appropriate								
4.2	no	no	no	no	no	no	probably no	probably no	probably no								
Note for 4.2	Measurements do not influence the groups	Measurements do not influence groups	Measurements do not influence the groups	Measurements do not influence the groups	Measurements do not influence groups	Measurements do not influence the groups	Measurements do not influence the groups	Measurements do not influence the groups	Measurements do not influence the groups								
4.3	no	no	NI	no	NI	no	no	no	no								
Note for 4.3	Blinded assessors in study center	No between group differences of ascertainment of the outcome	No information about blinding of the assessors probably there was no blinding...	Blinding of the assessors	No information about blinding of the assessors; Probably there was no blinding	Assessors were blinded	Assessors were blinded	assessors where blinded									
4.4	probably no			probably yes													
Note for 4.4&4.5																	
4.5	probably yes																
Note for 4.5 (not use)	It's not quite clear who performed the outcome assessment but there is a good chance it was the physiotherapist or investigators. It seems possible that they were influenced by their knowledge of intervention allocation																
4.0 Algorithm result	low risk of bias	low risk of bias	low risk of bias	low risk of bias	high risk of bias	low risk of bias	low risk of bias	low risk of bias	low risk of bias								

4.0 Assessor's Judgement	The method of measuring the outcome was appropriate; The measurement or ascertainment of the outcome did not differ between intervention groups; The assessment of the outcome could not have been influenced by knowledge of the intervention received	The method of measuring the outcome was appropriate; The measurement or ascertainment of the outcome did not differ between intervention groups; The assessment of the outcome could not have been influenced by knowledge of the intervention received	The method of measuring the outcome was appropriate; The measurement or ascertainment of the outcome did not differ between intervention groups; The assessment of the outcome could have been influenced by knowledge of the intervention received	The method of measuring the outcome was not inappropriate	The method of measuring the outcome was appropriate	The method of measuring was appropriate and the measurements do not influence the groups	The method of measuring the outcome was appropriate
	4.0 General note						
4.0 Optional Question	If a bias influence the result it would be away from null	If a bias influence the result it would be away from null	bias away from null	bias away from null			
4.0 Note for optional question							
5.1 Note for 5.1	yes	yes	NI	yes	NI	NI	yes
	Publication of the protocol	Publication of the protocol	No protocol is previous published	Publication of the protocol	No Information about publication of a protocol	No Information about publication of a protocol or a prefinalized analyze-plan	Publication of protocol
5.2	yes	no	no	no	NI	no	probably no
						NI	no

	Note for 5.2	Study protocol described measurement of EuroQuol-5D which is not reported in the study	There is only one possible way in which the outcome domain can be measured	There is only one possible way in which the outcome domain can be measured	There is evidence that all eligible reported results for the outcome domain correspond to all intended outcomes measurements	No selection of the results	No selection of the results	
5.3		no	no	no	no	NI	probably no	probably no
	Note for 5.3	There is evidence that all reported results for the outcome measurement correspond to all intended analysis	There is evidence that all eligible reported results for the outcome measurement correspond to all intended analysis	There is evidence that all eligible reported results for the outcome measurement correspond to all intended analysis	There is clear evidence that all eligible reported results for the outcome measurement correspond to all intended analysis		There are no information about the data predefined and at least documented	There is clear evidence that all eligible reported results for the outcome measurement correspond intended analysis
5.0 Algorithm result 5.0 Assessor's Judgement		some concerns	low risk of bias	some concerns	low risk of bias	some concerns	some concerns	low risk of bias
				The data were analyzed in accordance with a pre-specified plan that was finalized before unblinded outcome data were available for analysis; Result being assessed is unlikely to have been selected on the basis of the result; Reported outcome data are unlikely to have been selected				
				There is no information on whether the result being assessed is likely to have been selected on the basis of the results from multiple eligible outcome measurements within the outcome domain and from multiple eligible analysis of the data				

5.0 General note								
5.0 Optional Question								
5.0 Note for optional question								
Algorithm's overall Judgement	some concerns	some concerns	high risk of bias	low risk	high risk of bias	high risk of bias	low risk	high risk of bias
Assessor's overall Judgement	some concerns	some concerns	high risk of bias	low risk	high risk of bias	high risk of bias	low risk	high risk of bias
6.0 General Note								
6.0 Optional Question								

1.3.9 CALCULATION TO BASE YEAR 2017

Healthcare-cost calculation to base year 2017

Base	May138	Gordon139	van Waart140	Kampshoff141	Mewes142	Haines143	Ha137	Broderick144	Gordon145
Cost information	Direct intervention costs divided in healthcare and non healthcare costs	Intervention costs including patient costs, exercise physiologist, intervention materials other recourses, intervention delivery	Intervention costs divided in labor costs material costs	Intervention costs	Intervention cost per patient: CBT and PE	Healthcare costs and intervention costs	Healthcare costs	Intervention costs	Intervention costs including personnel, materials, other, stationary marketing,
Price Year	2011	2014	2017	2012	No information (2014 in assumption)	2006	2017	2013	Valued in 2013 Australian Dollar and converted to 2015 Euro
Unit of costs	Euro	Australian Dollar	Euro	Euro	Euro	Australian Dollar	US Dollars	Euro	Euro
Health care costs intervention Group	Societal perspective: Mean of 19623 in breast cancer and 15013 in colon cancer. Health care perspective: Mean of 12713 in breast cancer and 7640 in colon cancer	Service provider model 126620; Private model 112267	OncoMove mean 23191 OnTrack mean 22834	LMI 13278 HI 9153	CBT 500.46 (190.07+210.39+100) per patient, for all 86 patients 43039.56; PA 507.37 (196.98+210.39+100) per patient and 44141.19 over all patients after 1 cycle	Mean 10082	Organizational perspective: 110224 Societal perspective: 116685	NA	Mean 1337

Intervention costs	PACT in Breast Cancer Mean 794 and PACT in Colon Cancer Mean 824	Service provider model 967.31; Private model 837.81	Onco-Move: 3552.14 OnTrack: 57506.58	LMI:815; HI:858	CBT 190.07 per patient, for all 86 patients 16346.02; PA 196.98 per patient and 17137.26 over all patients	NA	NA	4103	Mean 280.33
Inflation of health care costs to base year Swiss Francs									
	32800.20483	111736.8722	35000.48534	21808.82284	69953.75339	11499.06088	139219.6739		2039.866914
Inflation of health care costs to 2017 Swiss Francs									
	25094.50518		34461.69127	15033.6011					
	37964.4924	119970.1154	35000.48534	23782.23192	75108.24048	15407.60867	139219.6739		2128.55678
Inflation of health care costs to base year in US Dollars									
	23470.66317	87174.4984	29335.16159	16106.1028	54576.28481	7184.631928			1651.104462
Inflation health care costs to 2017 US Dollars									
	17956.73781		28883.57896	11102.50157					
	29142.26521	98243.98555	29335.16159	19375.31511	61506.42487	10668.66182	116686		1772.057847
	22295.91945		28883.57896	13356.08428					

2 C. SWISS NATIONAL SURVEY 2018, Q2

2.1 ASSESSMENT OF THE SITUATION IN SWITZERLAND

2.1.1 QUESTIONNAIRES IN GERMAN AND FRENCH

Questionnaire in German

		Programm	Variablen
LEITUNG	Anbieter/Trägerschaft	Webseite	Freier Text
		Kanton	Freier Text
		Standort	Freier Text
		Rehabilitationsklinik	Ja = J, Nein= N, keine Ahnung=?
		Krebsliga	
	Partnerschaften & Kooperationen	Spezialklinik	
		Universität(-Spital)	
		Kantonsspital	
		Regionalspital	
		andere	
Fachgebiet der Medizinischen Leitung	Partnerschaften & Kooperationen		Freier Text
	Fachgebiet der Medizinischen Leitung	Rehabilitationsklinik	Name der involvierten Institutionen/ Personen
		Krebsliga Schweiz (KLS)	
		Kantonale Krebsliga (KKL)	
		Regionale Krebsliga (RKL)	
	Reha-Koordination	Therapeuten	Ja = J, Nein= N, keine Ahnung=?
		Spezialklinik	
		Universität(-Spital)	
		Regionalspital	
		andere	
ZIELGRUPPE & ZIELE	Medizinische Leitung		Freier Text
	Zielgruppe (Diagnose)	AIM (Facharzt für Allgemeine Innere Medizin)	Name der Fachperson
		Onkologie	Ja = J, Nein= N, keine Ahnung=?
		PMR (Facharzt für Physikalische und Medizinische Rehabilitation)	
		Andere	
	Screening (Instrument)	Koordinationsstelle vorhanden?	Freier Text
		Koordinator/in	Ja = J, Nein= N, keine Ahnung=?
		Facharzt Onkologie, AIM, PMR oder andere medizinische Fachrichtung	Name/ Institution
		(Onkologie-)Pflege	Ja = J, Nein= N, keine Ahnung=?
		Physiotherapie	
Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Andere		
	Prognose	Andere	Ja = J, Nein= N, keine Ahnung=?
		Alle	
		C00-C14 Bösartige Neubildungen der Lippe, der Mundhöhle und des Pharynx	
		C15-C26 Bösartige Neubildungen der Verdauungsorgane	
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	C30-C39 Bösartige Neubildungen der Atmungsorgane und sonstiger intrathorakaler Organe	
		C40-C41 Bösartige Neubildungen des Knochens und des Gelenkkörpels	
		C43-C44 Melanom und sonstige bösartige Neubildungen der Haut	
		C45-C49 Bösartige Neubildungen des mesothelialen Gewebes und des Weichtalgewebes	
		C50 Bösartige Neubildungen der Brustdrüse [Mamma]	
Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	C51-C58 Bösartige Neubildungen der weiblichen Genitalorgane		Ja = J, Nein= N, keine Ahnung=?
	Screening (Instrument)	C60-C63 Bösartige Neubildungen der männlichen Genitalorgane	
		C64-C68 Bösartige Neubildungen der Harnorgane	
		C69-C72 Bösartige Neubildungen des Auges, des Gehirns und sonstiger Teile des Zentralnervensystems	
		C73-C75 Bösartige Neubildungen der Schilddrüse und sonstiger endokriner Drüsen	
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	C76-C80 Bösartige Neubildungen ungenau bezeichneten, sekundärer und nicht näher bezeichneter Lokalisationen	
		C81-C96 Bösartige Neubildungen des lymphatischen, blutbildenden und verwandten Gewebes, als primär festgestellt oder vermutet	
		C97 Bösartige Neubildungen als Primärtumoren an mehreren Lokalisationen	
		Palliativ	Ja = J, Nein= N, keine Ahnung=?
		Kurativ	
Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Distress Thermometer		Ja = J, Nein= N, keine Ahnung=?
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Kein Screening-Instrument vorhanden	
		Anderes	
		Falls anderes, welches:	Freier Text
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Funktionalität/Mobilität im täglichen Leben eingeschränkt (Atemprobleme, Neuropathien, Lymphödeme, Inkontinenz, Gangunsicherheit, Probleme mit Gelenken/Muskulatur etc.)	
		körperliche Leistungsfähigkeit/Aktivität im Alltag eingeschränkt	
		besondere Ernährungssituation (Funktionsstörungen im HNO/Magen-Darmbereich, Mangelernährung, Gewichtsverlust/Gewichtszunahme etc.)	
		Emotionale Probleme (Angst, Wut, Traurigkeit, depressive Verstimmungen u.a.) vorhanden	
		Frage zur sozialen, beruflichen oder finanziellen Situation vorhanden	Ja = J, Nein= N, keine Ahnung=?
Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Handlungsfähigkeit in persönlichen, häuslichen und/oder beruflichen Umfeld eingeschränkt		
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Lebensqualität als Folge der Krankheit oder Therapien eingeschränkt	
		Umgang mit Krankheits- oder Therapiefolgen erschwert	
		Schmerzen vorhanden	
		Müdigkeit vorhanden	
	Welche Indikationen hat der Patient? (siehe auch Reha Logbuch)	Fragen/Anliegen zur Sexualität	
		Sprach- oder Schluckprobleme vorhanden	
		besondere Pflegesituation (Port, Stoma, Tracheostoma etc.)	
		Andere	
			Freier Text

PROGRAMM	Welches sind die minimalen Anforderungen zur Zulassung am ambulanten onkologischen Rehabilitationsprogramm?	Die Indikationen führen zu Partizipations einschränkung in Alltag und/oder Berufsleben		
		Realistische Zielsetzung		
		Motivation von Patient/in und Umfeld ist gegeben		
		Mobilität des Patienten nicht eingeschränkt		
		Ärztliche und pflegerische Unterstützung ambulant ausreichend		
	Was sind die Rehabilitationsziele?	Ambulantes Rehabilitationsangebot gut erreichbar		
		Distanzierung von sozialen Umfeld nicht erwünscht vom Patienten		
		Andere		Freier Text
		Wieder aktiv am Alltag und sozialen Leben teilnehmen		
		Rückkehr an den Arbeits- oder Ausbildungsplatz		
PHYSIOTHERAPIE	Ort der Rehabilitation	Autonomie		
		Bessere Lebensqualität		
		Verbesserung von Symptomen (Fatigue, Schmerzen u.a.)		
		Steigerung der körperlichen Leistungsfähigkeit/Aktivität im Alltag		
		Informationsaustausch/Neues lernen		
	Programmform	Anderes		Freier Text
		II Ort (Rehabilitation unter einem Dach)		
		mehrere Orte		
		wenn an mehreren Orten, an welchen?		Freier Text
		Individuell modular (verschiedene Module über einen Zeitraum bis max. 1 Jahr)		
BEWEGUNGS- & SPORTTHERAPIE	Beginn der Reha	Standardprogramm (definiertes Programm mit Kernmodulen + weiteren Modulen b.B.)		
		Nach der Diagnose & vor der medizinischen Behandlung		
		Während medizinischer Akutbehandlung		
		Nach Abschluss medizinischer Akutbehandlung		
		Andere		Freier Text
	Unterschiede der Programme abhängig vom Start der Rehabilitation	Sind die Programme unterschiedlich aufgebaut abhängig davon WANN die Rehabilitation beginnt (vor, während, nach Krebsbehandlung)?		
		Wenn ja, was ist der Unterschied?		
		Durchschnittliche Dauer des Programms in Wochen		Freier Text
		Durchschnittliche Anzahl Stunden pro Woche		Zahlen
		Anzahl obligatorischer Module (Therapien), die ein Patient belegen muss		Zahlen
ERNÄHRUNGSBERATUNG	Kommunikation in der Reha	Rehalogbuch		
		Elektronische Dokumente		
		Reha-Team-Rapport		
		Falls Reha-Team-Rapport, wie oft (alle X Tage)		
		Andere		Freier Text
	Familie & Partner	Kann die Familie/Partner Teil der Rehabilitation sein?		
		Wenn ja, inwiefern? (Teil an bestimmten Therapien etc.)		Freier Text
		Therapie		
		vorhanden?		
		Physiotherapeut vorhanden?		
PSYCHOTHERAPIE & PSYCHOONKOLOGIE	Dauer	Welche Ausbildung?		
		Durchschnittliche Dauer der Physiotherapie in Wochen		
		Durchschnittliche Anzahl Verordnungen		
		Anzahl Einheiten pro Verordnung		
		Dauer einer Einheit (in min)		Zahlen
	Therapieform	Physiotherapie in der Gruppe (Gruppentherapie)		
		Physiotherapie als Einzeltherapie		
		Physiotherapie gemischt (Gruppen- & Einzeltherapie)		
		Andere		Freier Text
		Therapie		
		vorhanden?		
		Bewegungstherapeut/in und/oder Sporttherapeut/in vorhanden?		
		Welche Ausbildung?		
		Durchschnittliche Dauer der Bewegungs- & Sporttherapie in Wochen		
		Durchschnittliche Anzahl Verordnungen		
		Anzahl Einheiten pro Verordnung		
		Dauer einer Einheit (in min)		
	Therapieform	Bewegungs- und Sporttherapie in der Gruppe (Gruppentherapie)		
		Bewegungs- und Sporttherapie als Einzeltherapie		
		Bewegungs- und Sporttherapie gemischt (Gruppen- & Einzeltherapie)		
		Andere		Freier Text
		Therapie		
		vorhanden?		
		Ernährungsberater/in vorhanden?		
		Welche Ausbildung?		
		Durchschnittliche Dauer der Ernährungsberatung in Wochen		
		Durchschnittliche Anzahl Verordnungen		
		Anzahl Einheiten pro Verordnung		
		Dauer einer Einheit (in min)		Zahlen
	Therapieform	Ernährungstherapie in der Gruppe (Gruppentherapie)		
		Ernährungstherapie als Einzeltherapie		
		Ernährungstherapie gemischt (Gruppen- & Einzeltherapie)		
		Anderes		Freier Text
		Therapie		
		vorhanden?		
		Psychoonkologe/-in vorhanden?		
		Psychiater/-in, Psychotherapeut/-in vorhanden?		
		Welche Ausbildung?		
		Durchschnittliche Dauer der Psychotherapie/ Psychoonkologie in Wochen		
		Durchschnittliche Anzahl Verordnungen		
		Anzahl Einheiten pro Verordnung		
		Dauer einer Einheit (in min)		Zahlen
	Therapieform	Psychotherapie in der Gruppe (Gruppentherapie)		
		Psychotherapie als Einzeltherapie		
		Psychotherapie Gemischt (Gruppen- & Einzeltherapie)		
		Andere		Freier Text

SOZIALBERATUNG	Therapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Team	Sozialberater/in vorhanden? Welche Ausbildung?	Ja = J, Nein= N, keine Ahnung=? Freier Text
	Dauer	Durchschnittliche Dauer der Sozialtherapie in Wochen Durchschnittliche Anzahl Verordnungen Einheiten pro Verordnung Dauer einer Einheit (in min)	Zahlen
	Therapieform	Sozialberatung mit der Familie/ Partner Sozialberatung als Einzeltherapie Sozialberatung Gemischt (Einzeltherapie und mit Familie/Partner) Anderes	Ja = J, Nein= N, keine Ahnung=? Freier Text
	Therapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Team	Ergotherapeut/in vorhanden? Welche Ausbildung?	Freier Text
ERGOTHERAPIE	Dauer	Durchschnittliche Dauer der Ergotherapie in Wochen Durchschnittliche Anzahl Verordnungen Einheiten pro Verordnung Dauer einer Einheit (in min)	Zahlen
	Therapieform	Ergotherapie in der Gruppe (Gruppentherapie) Ergotherapie als Einzeltherapie Ergotherapie gemischt (Einzel- & Gruppentherapie) Anderes	Ja = J, Nein= N, keine Ahnung=? Freier Text
	Gestaltungs- und Maltherapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Komplementärmedizin	vorhanden? welche Fachrichtung?	Ja = J, Nein= N, keine Ahnung=? Freier Text
SONSTIGE THERAPIEN	Schmerztherapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Sexualtherapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Musiktherapie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Logopädie	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Seelsorge	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Andere		Freier Text
SONSTIGE MITGLIEDER DES REHA-TEAMS	Besondere Anmerkungen zu den Therapien		Freier Text
	Gestaltungs- und Maltherapeut/in	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Facharzt / Fachärztin	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Komplementärmedizin (z.B.	welche Fachrichtung?	Freier Text
	Schmerztherapeut/in	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Sexualtherapeut/in (oder Sexualmedizin)	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Musiktherapeut/in	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Logopädin / Logopäde	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Seelsorger	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Oncologiepfleger/in (Stomatberatung, Prothetikerberatung etc.)	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
ZUWEISUNG/ANMELDUNG ZUR REHABILITATION	Facharzt / Fachärztin Onkologie, AIM, PMR, Sportmedizin andere medizinische Fachrichtung	vorhanden?	Ja = J, Nein= N, keine Ahnung=?
	Andere		Freier Text
	Besondere Anmerkungen zum Team		Freier Text
PROZESSE	Zuweisung/Anmeldung zur Rehabilitation	Facharzt Onkologie, AIM (Allgemeine Innere Medizin), Gynekologie oder andere medizinische Fachrichtung Hausarzt Patient selber	Ja = J, Nein= N, keine Ahnung=?
	Aufnahme/ Eintritt	andere Facharzt Onkologie, AIM oder andere medizinische Fachrichtung andere Fachdisziplin	Freier Text
	Wenn andere Fachdisziplin, welche?		Ja = J, Nein= N, keine Ahnung=?
	Planung der Behandlung/Intervention	Individuelle Planung der Behandlung/Intervention vorhanden? Facharzt Onkologie, AIM (Allgemeine Innere Medizin) oder andere medizinische Fachrichtung Reha-Koordinator/-in alle involvierten Fachpersonen gemeinsam im Reha-Rapport	Ja = J, Nein= N, keine Ahnung=?
	Wenn andere Fachpersonen, welche?		Freier Text
	anderes Gefäß		Ja = J, Nein= N, keine Ahnung=?
	Wenn anderes Gefäß, welches?		Freier Text
	Abschluss/Austritt	Facharzt Onkologie, AIM oder andere medizinische Fachrichtung andere Fachdisziplin Wenn andere Fachdisziplin, welche?	Ja = J, Nein= N, keine Ahnung=?
	Wird dem Zuweiser ein Abschlussbericht der Rehabilitation zugeschickt?		Ja = J, Nein= N, keine Ahnung=?
	Wenn ja, wer und welche?		Freier Text
WEITERBILDUNG	Weiterbildung	Hat jemand im Team eine Zusatzausbildung im Bereich Onkologie oder Rehabilitation gemacht? Wenn ja, wer und welche?	Ja = J, Nein= N, keine Ahnung=?
	Patientenzahl	Durchschnittliche Patientenzahl pro Jahr Patientenzahl in 2015 Patientenzahl in 2016 Patientenzahl 2017 Patientenzahl aktuell Maximale Anzahl Plätze in dem Programm	Zahlen
PATIENTEN	Prozentzahl der Patienten, die das Programm nicht beenden	0-20% 20-40% 40-60% 60-80% 80-100%	Ja = J, Nein= N, keine Ahnung=?
	Gründe für die Beendigung des Programms	Nebeneffekte der Krebstherapie Kosten Unzufriedenheit mit dem Programm Anderes	Ja = J, Nein= N, keine Ahnung=? Ja = J, Nein= N, keine Ahnung=? Ja = J, Nein= N, keine Ahnung=? Freier Text
	Patientenzufriedenheit	Falls erhoben Daten beilegen	Antwort als Beilage
	Finanzierung	Selbstkosten Patientenunterstützungsfond Krankenkassen: Obligatorisch Einzelabrechnung Krankenkassen: Zusatzversicherung Einzelabrechnung Andere (bitte möglichst detailliert) Sonstige Anmerkungen zu Finanzierung Reichen Sie ein Kostengutsprachegesuch für bestimmte Module bei der Krankenkasse ein? wenn ja, für welche	Ja = J, Nein= N, keine Ahnung=? Ja = J, Nein= N, keine Ahnung=? Freier Text Ja = J, Nein= N, keine Ahnung=? Freier Text
	Werbung & Verbreitung	Flyer, Broschüre Insetrate in Zeitschriften Webseite Anlässe Andere	Ja = J, Nein= N, keine Ahnung=? Freier Text
ZERTIFIZIERUNG	Zertifizierung	Alle Kriterien der Swiss Reha Zertifizierung sind bereits erfüllt Sonstige Kommentare zu den Kriterien Andere Zertifizierungen vorhanden? (z.B. ISO)	Ja = J, Nein= N, keine Ahnung=? Freier Text Freier Text
	Anschlussprogramm	Anschlussprogramm (z.B. Heimprogramm) Wenn ja, was?	Ja = J, Nein= N, keine Ahnung=? Freier Text
ANSCHLUSSPROGRAMM	Ist es möglich ein zweites Mal am Programm teilzunehmen?		Ja = J, Nein= N, keine Ahnung=?
	Programmwiederholung	Wenn ja, wie? (das gesamte Programm oder nur einzelne Module?)	Freier Text

French Questionnaire

		Programme	Variables
DIRECTION	Prestataire/entité responsable	Site internet	Texte libre
		Canton	Texte libre
		Lieu	Texte libre
		Clinique de réadaptation	
		Ligue contre le cancer	
	Partenariats & collaborations	Clinique spécialisée	
		Université/Hôpital universitaire	Oui = O, Non=N, Ne sait pas=?
		Hôpital cantonal	
		Hôpital régional	
		Autre	
GROUPE CIBLE & OBJECTIFS	Spécialité de la direction médicale	Partenariats & collaborations	Texte libre
		Clinique de réadaptation	Nom des institutions/personnes impliquées
		Ligue suisse contre le cancer (LSC)	
		Ligue cantonale contre le cancer (LCC)	
		Ligue régionale contre le cancer (LRC)	
	Coordination de la réadaptation	Thérapeutes	Oui = O, Non=N, Ne sait pas=?
		Clinique spécialisée	
		Université/Hôpital universitaire	
		Hôpital régional	
		Autre	
GROUPE CIBLE & OBJECTIFS	Spécialité de la coordination de la réadaptation	Direction médicale	Texte libre
		MIG (spécialiste en médecine interne générale)	Nom de l'expert
		Oncologue	Oui = O, Non=N, Ne sait pas=?
		MPR (spécialiste en médecine physique et réadaptation)	
		Autre	
	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	Organes de coordination existant ?	Oui = O, Non=N, Ne sait pas=?
		Coordonnateur/trice	Nom / institution
		Spécialiste en oncologie, MIG, MPR ou autre spécialité médicale	Oui = O, Non=N, Ne sait pas=?
		Soins (oncologiques)	
		Physiothérapie	
GROUPE CIBLE & OBJECTIFS	Groupe cible (diagnostic)	Autre	
		TOUS	
		C00-C14 Tumeurs malignes de la lèvre, de la cavité buccale et du pharynx	
		C15-C26 Tumeurs malignes des organes digestifs	
		C30-C39 Tumeurs malignes des organes respiratoires et intrathoraciques	
	Pronostic	C40-C41 Tumeurs malignes des os et du cartilage articulaire	
		C43-C44 Mélanome malin et autres tumeurs malignes de la peau	
		C45-C49 Tumeurs malignes du tissu mésothélial et des tissus mous	
		C50 Tumeur maligne du sein	
		C51-C58 Tumeurs malignes des organes génitaux de la femme	Oui = O, Non=N, Ne sait pas=?
GROUPE CIBLE & OBJECTIFS	Dépistage (instrument)	C60-C63 Tumeurs malignes des organes génitaux de l'homme	
		C64-C68 Tumeurs malignes des voies urinaires	
		C69-C72 Tumeurs malignes de l'œil, de l'encéphale et d'autres parties du système nerveux central	
		C73-C75 Tumeurs malignes de la thyroïde et d'autres glandes endocrines	
		C76-C80 Tumeurs malignes de sièges mal définis, secondaires et non précisés	
	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	C81-C96 Tumeurs malignes primitives ou présumées primitives des tissus lymphoïde, hématopoïétique et apparentés	
		C97 Tumeurs malignes de sièges multiples indépendants (primitifs)	
		Palliatif	Oui = O, Non=N, Ne sait pas=?
		Curatif	
		Termomètre de la détresse	Oui = O, Non=N, Ne sait pas=?
GROUPE CIBLE & OBJECTIFS	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	Pas d'instrument de dépistage disponible	
		Autre	
		Si autre, lequel :	Texte libre
		Aptitudes fonctionnelles/mobilité limitées dans la vie quotidienne (problèmes respiratoires, neuropathies, œdèmes lymphatique, incontinence, démarche mal assurée, problèmes d'articulations/musculaires, etc.)	
		Capacités physiques/activités quotidiennes limitées	
	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	Particularités concernant l'alimentation (dysfonctionnements au niveau ORL/gastrointestinal, dénutrition, perte/prise de poids etc.)	
		Problèmes au niveau émotionnel (peur, colère, tristesse, humeur dépressive, entre autres)	
		Questionnements sur la situation sociale, professionnelle ou financière	
		Capacité d'action limitée dans la sphère personnelle, à la maison et/ou au travail.	
		Qualité de vie limitée en conséquence de la maladie ou des traitements.	
GROUPE CIBLE & OBJECTIFS	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	Difficultés à gérer les séquelles de la maladie ou des traitements.	
		Douleurs	
		Fatigue	
		Questions/inquiétudes concernant la sexualité	
		Difficultés à s'exprimer ou à déglutir	
	Quels sont les indications concernant le patient ? (voir aussi journal de readaptation)	Soins particuliers (port, stoma, trachéostomie etc.)	
		Autre	Texte libre

	<p>Quelles sont les exigences minimales pour l'autorisation de participer à un programme de réadaptation oncologique ambulatoire ?</p>	Les symptômes consusent à une participation limitée dans les activités du quotidien et/ou au travail.	
		Des objectifs réalisistes sont fixés	
		La motivation du patient et de son entourage est attestée	
		La mobilité du patient n'est pas limitée	
		Un soutien ambulatoire d'ordre médical et thérapeutique est suffisant	
		L'offre de réadaptation ambulatoire est facilement accessible	
	<p>Quels sont les objectifs de la réadaptation ?</p>	L'intensité du traitement se prête à des modalités ambulatoires	
		Le patient ne souhaite pas s'éloigner de son entourage social	
		Autre	Texte libre
		Retrouver une participation active dans la vie quotidienne et sociale	
		Retourner au travail, ou en formation	
		Autonomie	
	<p>Localisation de la réadaptation</p>	Meilleure qualité de vie	Oui = O, Non=N, Ne sait pas=?
		Diminution des symptômes (fatigue, douleurs, etc.)	
		Amélioration des capacités physiques/de l'activité quotidienne	
		Echange d'informations/acquisition de nouvelles connaissances	
		Autre	Texte libre
		1 site (réadaptation sous un seul toit)	Oui = O, Non=N, Ne sait pas=?
	<p>Modalités du programme</p>	Plusieurs sites	
		Si plusieurs sites, lesquels ?	Texte libre
		Modulaire sur une base individuelle (différents modules sur une période d'un an au max.)	
		Programme standard (programme prédefini avec modules de base + modules supplémentaires si besoin)	
		Après le diagnostic & avant le traitement médical	
		Pendant la phase de traitement médical aigu	
	<p>Début de la réadaptation</p>	Après la fin du traitement médical aigu	
		Autre	Texte libre
		Oui = O, Non=N, Ne sait pas=?	
		Oui = O, Non=N, Ne sait pas=?	
		Oui = O, Non=N, Ne sait pas=?	
		Oui = O, Non=N, Ne sait pas=?	

PROGRAMME	Différents programmes en fonction du début de la réadaptation	Autre	Texte libre
		Les programmes peuvent-ils différer en fonction du MOMENT où la réadaptation débute (avant, pendant ou après le traitement contre le cancer) ?	Oui = O, Non=N, Ne sait pas=?
		Si oui, quelles sont les différences ?	Texte libre
	Durée du programme	Durée moyenne du programme en semaines	Chiffres
	Modules	Nombre moyen d'heures par semaine	Chiffres
	Communication durant la réadaptation	Nombre de modules (traitements) obligatoires qu'un patient doit suivre	Chiffres
		Journal de réadaptation	Texte libre
		Documents électroniques	Oui = O, Non=N, Ne sait pas=?
		Colloque de l'équipe de réadaptation	Texte libre
	Famille & partenaire	Si colloque de l'équipe de réadaptation, à quelle fréquence (tous les X jours)	Texte libre
		Autre	Oui = O, Non=N, Ne sait pas=?
		La famille/le partenaire peuvent-ils participer à la réadaptation ?	Texte libre
PHYSIOTHÉRAPIE	Famille & partenaire	Si oui, dans quelle mesure ? (participation à certains traitements etc.)	Oui = O, Non=N, Ne sait pas=?
	Traitement	Proposé ?	Texte libre
	Equipe	Présence d'un physiothérapeute ?	Oui = O, Non=N, Ne sait pas=?
	Durée	Quelle formation ?	Texte libre
		Durée moyenne de la physiothérapie en semaines	Chiffres
		Nombre moyen de séances prescrites	Chiffres
	Forme de traitement	Nombre d'unités par prescription	Chiffres
		Durée d'une unité (en min.)	Chiffres
		Physiothérapie en groupe (thérapie de groupe)	Texte libre
		Physiothérapie individuelle	Oui = O, Non=N, Ne sait pas=?
KINESITHÉRAPIE ET THÉRAPIE SPORTIVE	Forme de traitement	Physiothérapie mixte (thérapie individuelle et de groupe)	Texte libre
		Autre	Oui = O, Non=N, Ne sait pas=?
	Traitement	Proposé ?	Texte libre
	Equipe	Présence d'un kinésithérapeute et/ou thérapeute sportif ?	Oui = O, Non=N, Ne sait pas=?
	Durée	Quelle formation ?	Texte libre
		Durée moyenne de la kinésithérapie et de la thérapie sportive en semaines	Chiffres
		Nombre moyen de séances prescrites	Chiffres
	Forme de traitement	Nombre d'unités par prescription	Chiffres
		Durée d'une unité (en min.)	Chiffres
		Kinésithérapie et thérapie sportive en groupe (thérapie de groupe)	Texte libre
		Kinésithérapie et thérapie sportive individuelle	Oui = O, Non=N, Ne sait pas=?
CONSEIL DIÉTÉTIQUE	Forme de traitement	Kinésithérapie et thérapie sportive mixte (thérapie de groupe et individuelle)	Texte libre
		Autre	Oui = O, Non=N, Ne sait pas=?
	Traitement	Proposé ?	Texte libre
	Equipe	Présence d'un diététicien ?	Oui = O, Non=N, Ne sait pas=?
	Durée	Quelle formation ?	Oui = O, Non=N, Ne sait pas=?
		Durée moyenne du conseil diététique en semaines	Chiffres
		Nombre moyen de séances prescrites	Chiffres
	Forme de traitement	Nombre d'unités par prescription	Chiffres
		Durée d'une unité (en min.)	Chiffres
		Conseil diététique en groupe (thérapie de groupe)	Texte libre
		Conseil diététique individuel	Oui = O, Non=N, Ne sait pas=?
PSYCHOTHÉRAPIE & PSYCHO-ONCOLOGIE	Forme de traitement	Conseil diététique mixte (thérapie individuelle et de groupe)	Texte libre
		Autre	Oui = O, Non=N, Ne sait pas=?
	Traitement	Proposé ?	Texte libre
	Equipe	Présence d'un Psycho-oncologue ?	Oui = O, Non=N, Ne sait pas=?
	Durée	Présence d'un psychiatre, psychothérapeute ?	Oui = O, Non=N, Ne sait pas=?
		Quelle formation ?	Texte libre
		Durée moyenne de la psychothérapie / psycho-oncologie en semaines	Chiffres
	Forme de traitement	Nombre moyen de séances prescrites	Chiffres
		Nombre d'unités par prescription	Chiffres
		Durée d'une unité (en min.)	Chiffres
		Psychothérapie en groupe (thérapie de groupe)	Texte libre
CONSEIL SOCIAL	Forme de traitement	Psychothérapie individuelle	Oui = O, Non=N, Ne sait pas=?
		Psychothérapie mixte (thérapie individuelle et de groupe)	Texte libre
		Autre	Oui = O, Non=N, Ne sait pas=?
	Traitement	Proposé ?	Texte libre
	Equipe	Présence d'un assistant social ?	Oui = O, Non=N, Ne sait pas=?
	Durée	Quelle formation ?	Oui = O, Non=N, Ne sait pas=?
		Durée moyenne du conseil social en semaines	Chiffres
		Nombre moyen de séances prescrites	Chiffres
	Forme de traitement	Unités par prescription	Chiffres
		Durée d'une unité (en min.)	Chiffres
		Conseil social avec la famille/partenaire	Texte libre
		Conseil social individuel	Oui = O, Non=N, Ne sait pas=?
CONSEIL SOCIAL	Forme de traitement	Conseil social mixte (thérapie individuelle et avec la famille/partenaire)	Texte libre
		Autre	Texte libre

ERGOTHÉRAPIE	Traitement	Proposé ? Présence d'un ergothérapeute ? Quelle formation?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Durée	Durée moyenne de l'ergothérapie en semaines Nombre moyen de séances prescrites Unités par prescription Durée d'une unité (en min.)	Chiffres
	Forme de traitement	Ergothérapie en groupe (thérapie de groupe) Ergothérapie individuelle Ergothérapie mixte (thérapie de groupe et individuelle) Autre	Oui = O, Non=N, Ne sait pas=? Texte libre
	Thérapie à médiation plastique et visuelle	Proposé ?	Oui = O, Non=N, Ne sait pas=?
	Médecines complémentaires	Proposé ? Quelle spécialité ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Thérapie de la douleur	Proposé ?	Oui = O, Non=N, Ne sait pas=?
	Thérapie sexuelle	Proposé ?	Oui = O, Non=N, Ne sait pas=?
	Musicothérapie	Proposé ?	Oui = O, Non=N, Ne sait pas=?
	Logopédie	Proposé ?	Oui = O, Non=N, Ne sait pas=?
	Accompagnement spirituel	Proposé ?	Oui = O, Non=N, Ne sait pas=?
AUTRES THÉRAPIES	Autre		Texte libre
	Remarques particulières concernant les thérapies		Texte libre
	Thérapeute à médiation plastique et visuelle	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Spécialistes en médecines complémentaires (p. ex. homéopathie)	Disponible ? Quelle spécialité ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Thérapeute de la douleur	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Thérapeute sexuel (ou médecine sexuelle)	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Musicothérapeute	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Logopédiste	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Conseiller spirituel	Disponible ?	Oui = O, Non=N, Ne sait pas=?
	Soignant en oncologie (stomathérapie, conseil en matière de prothèses, etc.)	Disponible ?	Oui = O, Non=N, Ne sait pas=?
AUTRES MEMBRES DE L'ÉQUIPE DE RÉADAPTATION	Spécialiste en oncologie, MIG, MPR, médecine du sport ou autre spécialité médicale	Disponible ?	Oui = O, Non=N, Ne sait pas=?

PROCESSUS	Autre		Texte libre
	Remarques particulières concernant l'équipe		Texte libre
	Orientation/inscription à la réadaptation	Spécialiste en oncologie, MIG (médecine interne générale (MIG), gynécologie ou autre spécialité médicale) Médecin de famille Patient lui-même Autre	Oui = O, Non=N, Ne sait pas=? Texte libre
	Admission/entrée	Spécialiste en oncologie, MIG ou autre spécialité médicale Autre spécialité Si autre spécialité, laquelle ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Planification du traitement/de l'intervention	Planification individuelle du traitement/de l'intervention proposée ? Spécialiste en oncologie, MIG (médecine interne générale) ou autre spécialité médicale Coordinateur en réadaptation Toutes les personnes impliquées participent au colloque de réadaptation Autres spécialistes Si autres spécialistes, lesquels ? Autre instrument Si autre instrument, lequel ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Sortie	Spécialiste en oncologie, MIG ou autre spécialité médicale Autre spécialité Si autre spécialité, laquelle ? Le médecin référent recouit-il un rapport final sur la réadaptation ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Formation continue	Un des membres de l'équipe a-t-il suivi une formation complémentaire en oncologie ou en réadaptation ? Si oui, laquelle ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Nombre de patients	Nombre moyen de patients par année Nombre de patients en 2015 Nombre de patients en 2016 Nombre de patients en 2017 Nombre de patients à l'heure actuelle Nombre maximum de places dans le programme	Chiffres
	Pourcentage des patients qui ne terminent pas le programme	0-20% 20-40% 40-60% 60-80% 80-100%	Oui = O, Non=N, Ne sait pas=?
	Motifs d'interruption du programme	Effets secondaires du traitement contre le cancer Coûts Insatisfaction par rapport au programme Autre	Oui = O, Non=N, Ne sait pas=? Texte libre
PATIENTS	Satisfaction des patients	Jointre les données si disponibles Participation du patient Fonds de soutien pour les patients Caisses-maladie : décompte individuel assurance obligatoire Caisses-maladie : décompte individuel assurance complémentaire Autre Remarques particulières concernant le financement Soumettez-vous une demande de garantie de prise en charge à la caisse-maladie pour certains modules ? Si oui, pour lesquels ?	Réponse en annexe
	Financement	Flyers, brochures Annonces dans les journaux Site internet Manifestations Autre	Texte libre
	Publicité		Oui = O, Non=N, Ne sait pas=?
	Certification	Tous les critères de certification de Swiss Reha sont déjà remplis Autres commentaires concernant les critères Autres certifications ? (p. ex. ISO)	Oui = O, Non=N, Ne sait pas=? Texte libre
	Programme de suivi	Programme de suivi (p. ex. à domicile) Si oui, sous quelle forme ?	Oui = O, Non=N, Ne sait pas=? Texte libre
	Répétition du programme	Est-il possible de participer une deuxième fois au programme ? Si oui, comment ? (programme entier ou modules individuels ?)	Oui = O, Non=N, Ne sait pas=? Texte libre
PUBLICITÉ			
CERTIFICATION			
PROGRAMME DE SUIVI			

2.2 ASSESSMENT OF THE DESIRED SITUATION IN SWITZERLAND

2.2.1 ONKO-REHA WORKSHOP (WORLD CAFÉ) DISCUSSION GUIDE

Table 1: What does the ideal programme look like from the provider's point of view?

- What does the ideal programme look like from the point of view of the provider or the patient?
- Who should have access? How can this access be determined?
- What are core issues/contents?
- Duration, programme form, structure? How is the programme structured?
- Financing: Flat rate or individual fees or combination solution desired?
- What do those affected need? (put yourself in the position of the patients)

Table 2: What is the reality in the centres regarding the SWISS REHA?

1 Flip chart with the criteria c, d, e is needed. These criteria are not shown at the beginning, but in the course of the conversation].

- Are the criteria known?
- Are they applied? If so, which criteria? Which criteria are challenging in everyday life? Why?
- Are certain criteria or parts of them unclear? If so, which criteria?
- What does "multi-professional" mean to you?

(At least 4 different measures are offered, but if a patient only wants/needs 1 measure, is that also okay; each patient must take part in at least 4 measures? Or min. 2)

- Are the criteria practical? If not, why not? What adjustments do you propose?
- Would a quality certification be beneficial for you? What would be the minimum requirements for you?

Table 3: How would you rate your own program? How satisfied are you with it? What do you think others say about your program?

- What aspects of your programme are you satisfied with? Which aspects are you more likely to be dissatisfied with?
- Does your programme reach all patients in need of rehabilitation?
- Are you satisfied with the use of your program?
- What do you think should be changed? Which adjustments have you already made in your program?

- What do you think others say about your program? What do you hear from patients' side / relatives' side, what from doctors', specialists' side?

Table 4: What are beneficial / inhibitory factors for the implementation of an outpatient OnkoReha program?

- What are the first things that come to your mind about beneficial and inhibitory factors?

[first with group 1 quite openly; then from group 2 on the findings from the previous group and have them supplemented > focus in a spiral]

- What works well? Why does it work well? What helps with the implementation
- Challenges and difficulties (including financing)? What are the reasons and explanations? How is it dealt with (strategies)? How can these be overcome?
- What (un)used resources are there that would support the implementation of OR?
- How does the team communicate? How is it coordinated? Are there helpful tools? Do you use coordination and communication tools?
- What are the resistances? How do you deal with them? What unused resources are there?
- Ask specifically what would be beneficial/inhibiting from a user perspective

2.2.2 SURVEY INVITATION



krebsliga schweiz



**University of
Zurich^{UZH}**

Sehr geehrte Befragungsteilnehmerin

Sehr geehrter Befragungsteilnehmer

Ihre Meinung zur zukünftigen Auslegung der SWISS REHA-Kriterien sowie zur Finanzierung der ambulanten onkologischen Rehabilitationsprogramme (Onko-Reha) für ambulante onkologische Patienten und Patientinnen ist für uns und die onkologische Gemeinschaft in der Schweiz sehr wichtig.

Im vergangenen Jahr haben einige von Ihnen am ersten Teil der Studie zur ambulanten onkologischen Rehabilitation teilgenommen und die Umfrage zur aktuellen Situation in der Schweiz beantwortet. Dadurch haben wir jetzt einen klaren Überblick darüber, was zum jetzigen Zeitpunkt angeboten und umgesetzt wird. Vielen Dank dafür.

Ziel dieses zweiten Teils der Studie ist es, auf der Basis der ersten Ergebnisse die Grundlage für die Ausarbeitung von modifizierten Qualitäts- und Leistungskriterien sowie eine geregelte Finanzierung für die Schweiz zu schaffen. Dazu benötigen wir erneut Ihren Input als Expertin und Experte in Onkologie und onkologischer Rehabilitation, um Ihre Bedürfnisse bei der Gestaltung eines optimalen onkologischen Rehabilitationsprogramms für ambulante Patienten und Patientinnen zu erfassen.

Da wir beabsichtigen, eine quantitative Analyse aller an der ambulanten onkologischen Rehabilitation beteiligten Fachgebiete durchzuführen, ist es wichtig, dass wir möglichst viele vollständige Antworten erhalten. Wenn Sie sich bei der Beantwortung einer der Fragen für Ihr Fachgebiet nicht angesprochen fühlen oder keine Antwort wissen, kreuzen Sie bitte "Ich weiss es nicht" an.

Das Ausfüllen der Online-Befragung wird 20 bis 30 Minuten in Anspruch nehmen.

Sobald die Befragung ausgewertet ist, werden wir uns wieder mit Ihnen in Verbindung setzen, um Sie über die Ergebnisse und die nächsten Schritte im Prozess zu informieren.

Um die Umfrage zu starten, klicken Sie bitte auf den folgenden LINK:

<https://de.surveymonkey.com/r/2VYNLDH>

Wir bitten Sie, die Umfrage bis spätestens Freitag, den 12. April 2019 online auszufüllen.

Vielen Dank im Voraus für Ihre Unterstützung!

Für das EBPI der Universität Zürich

Prof. Dr. oec. troph. Sabine Rohrmann, MPH

Institut für Epidemiologie, Biostatistik und Prävention

Für die KLS:

Beate Schneider

Fachspezialistin Rehabilitation

D-Schweiz

Nicolas Sperisen

Fachspezialist Rehabilitation

Romandie & Tessin

2.2.3 ONLINE QUESTIONNAIRE

Fragebogen zur ambulanten onkologischen Rehabilitation

Fachgebiet der Teilnehmer/Teilnehmerin (zur Auswahl, abrufbar)

Ergotherapie
Ernährungsberatung
Komplementärmedizin
Leitung/Koordination/Administration
Onkologie
Pflege
Physiotherapie
Psychotherapie/Psychologie/Psychoonkologie
Schmerztherapie
Seelsorge
Sozialberatung
Sport-, Bewegungstherapie
Stomatotherapie
Andere

Zentrum der Teilnehmer/Teilnehmerin (zur Auswahl, abrufbar)

Leitung und Organisation

1. Wer sollte die medizinische Leitung der ambulanten onkologischen Rehabilitation haben?
(Mehrfach-Auswahl möglich)

- Onkologin/Onkologe
- AIM (Arzt/Ärztin für allgemeine innere Medizin)
- PMR (Arzt/Ärztin für physikalische und medizinische Rehabilitation)
- Andere Fachärzte/Fachärztinnen (freier Text) _____

- Ich weiss es nicht

2a. Wieviel Rehabilitations-Erfahrung ist notwendig, um die medizinische Leitung zu übernehmen, wenn nicht PMR? (Auswahl)

- Keine notwendig
- Bis 1 Jahr
- Zwischen 1 und 2 Jahre
- 2 Jahre oder mehr
- Ich weiss es nicht

2b. Bitte begründen Sie kurz Ihre Antwort (freier Text)

3a. Wer ist aus Ihrer Sicht am besten geeignet, die ambulante Onko-Reha zu koordinieren? (Auswahl)

- Arzt/Ärztin Onkologie, AIM, PMR oder andere medizinische Fachrichtung
 - Physiotherapeut/Physiotherapeutin
 - (Onkologie-)Pflege
 - Gemeinsam im multiprofessionellen Reha-Team
 - Andere (freier Text)
-

- Ich weiss es nicht

3b. Bitte begründen Sie kurz Ihre Antwort (freier Text)

4. Wie sieht der optimale Informationsfluss zwischen den Fachpersonen aus? (Mehrfach-Auswahl möglich)

- KLS Reha-Logbuch (Alle Informationen beim Patienten)
- Dokumente
 - Via E-Mail
 - Formalisierter Bericht
 - elektronisches Patienten-Dossier

- Andere (freier Text)
-

- Andere (freier Text)
-

- Ich weiss es nicht

5. Wie oft sollte eine Reha-Teambesprechung stattfinden? (Auswahl)

- Einmal pro Woche
 - Einmal pro Monat
 - Einmal pro Programm
 - Reha-Teambesprechung nicht notwendig
 - Andere (freier Text)
-

Zielgruppe und Screening Instrument

6. Patienten/Patientinnen mit welchen Indikationen (Defiziten/Problemen) brauchen nach Ihrer Einschätzung eine Rehabilitation? Bitte geben Sie aus Ihrer Sicht die **4 wichtigsten Indikationen an**, für die Aufnahme in eine interdisziplinäre ambulante onkologische Rehabilitation (**Voraussetzung**).

- Funktionalität/Mobilität im täglichen Leben eingeschränkt
- Körperliche Leistungsfähigkeit/Aktivität im Alltag eingeschränkt
- Besondere Ernährungssituation vorhanden
- Emotionale Probleme und eingeschränkte Lebensqualität
- soziale, berufliche oder finanzielle Situation eingeschränkt
- Handlungsfähigkeit im persönlichen, häuslichen und/oder beruflichen Umfeld eingeschränkt
- Lebensqualität als Folge der Krankheit oder Therapien eingeschränkt

- Störung des emotionalen/spirituellen Gleichgewichts
- Eine besondere Pflegesituation vorhanden
- Umgang mit Krankheits- oder Therapiefolgen erschwert
- Ausgeprägte Schmerzen vorhanden
- Müdigkeit beeinträchtigt den Alltag
- Fragen/Anliegen zur Sexualität vorhanden
- Sprach- oder Schluckprobleme vorhanden
- Andere (freier Text) _____
- Ich weiss es nicht

7. Wer sollte die Gesamt-Rehabilitationsziele mit dem Patienten/der Patientin festlegen?
(Auswahl)

- Arzt/Ärztin Onkologie, AIM, PMR oder andere medizinische Fachrichtung
- Physiotherapeut/ Physiotherapeutin
- Onkologie-Pflegefachperson
- Gemeinsam im multiprofessionellen Reha-Team
- Andere (freier Text)

- Ich weiss es nicht

8. Welche generischen Instrumente zur Erhebung des Reha-Bedarfs halten Sie für sinnvoll?
(Mehrfach-Auswahl möglich)

- ESAS-Score, allenfalls WHODAS II
- ECOG/Karnofsky oder adaptierter ECOG
- Evaluation der Funktionellen Leistungsfähigkeit (EFL)

- Distress-Thermometer
 - Weitere Assessments
 - Falls weitere, welche (freier Text)
-
- Ich weiss es nicht

9. Halten Sie fachspezifische Instrumente zur Messung von Verlauf und Zielerreichung in Ihrem Fachgebiet für sinnvoll z. B. 6-Minuten Gehtest, Timed get up and go, HADS, NRS, etc.

- Ja
- Nein
- Ich weiss es nicht

9b. Wenn ja, welche fachspezifischen Instrumente?
(freier Text)

Das Programm

10a. Wie sollte das Programm aufgebaut sein, wenn die Rehabilitation **während der akuten onkologischen** Behandlung beginnt? (Auswahl)

- Ein individuelles modulares Programm
(jeder Teilnehmer nach einem gemeinsam ermittelten Rehabilitationsbedarf)

Individuelle modulare Programme: Programme sind in der Regel länger, werden individuell festgelegt und die Reha-Massnahmen (Module) folgen meistens nacheinander

- Ein standardisiertes Programm (alle Teilnehmer machen dasselbe Programm)

Standardisierte Programme: Programme sind kürzer, alle Patienten und Patientinnen haben die gleichen Kernmodule (+ zusätzliche Massnahmen bei Bedarf) und die Reha-Massnahmen (Module) finden meistens gleichzeitig statt.

- Ein standardisiertes Programm mit Kernmodulen + weiteren Modulen nach individuellem Bedarf
 - Andere (freier Text)
-

- Ich weiss es nicht

10b. Wie sollte das Programm aufgebaut sein, wenn die Rehabilitation **nach Abschluss der akuten onkologischen** Behandlung beginnt? (Auswahl)

- Ein individuelles modulares Programm (jeder Teilnehmer nach einem gemeinsam ermittelten Rehabilitationsbedarf)
 - Ein standardisiertes Programm (alle Teilnehmer machen dasselbe Programm)
 - Ein standardisiertes Programm mit Kernmodulen + weiteren Modulen nach individuellem Bedarf
 - Andere (freier Text)
-
- Ich weiss es nicht

11. Welche (Kern-)Module sollten in einem standardisierten ambulanten onkologischen Rehabilitationsprogramm immer enthalten sein bzw. welche Module sollten ergänzend dazu nach individuellem Bedarf des Patienten/der Patientinnen „wählbar“ sein (nur eine Antwort pro Zeile)

	Standardisiertes Programm (Kernmodule)	Module nach individuellem Bedarf	Ich weiss es nicht
Physiotherapie			
Bewegungs- & Sporttherapie			
Ernährungsberatung			
Psychotherapie & Psychoonkologie			
Soziale Beratung & Unterstützung			
Komplementärmedizin			
Ergotherapie			
Sexualberatung			
Gestalterische Therapie, Maltherapie, Musiktherapie			
Logopädie, Schlucktherapie			
Seelsorge			
Pflege			
<u>Andere (freier Text):</u>			

12. Wie viele Module (verschiedene Fachbereiche) pro Woche sind **insgesamt** für Patienten/Patientinnen **machbar**?

- während der akuten onkologischen Behandlung _ Module/Woche
- nach Abschluss der akuten onkologischen Behandlung _ Module/Woche

13. Wie viele Minuten pro Woche sind **insgesamt** für Patienten/Patientinnen **machbar**?

- während der akuten onkologischen Behandlung _ Minuten/Woche
- nach Abschluss der akuten onkologischen Behandlung _ Minuten/Woche

14. Wie lange sollte das gesamte ambulante Reha-Programm aus Ihrer Sicht durchschnittlich in Wochen dauern, um wirksam zu sein?

- Für ein individuelles modulares Programm _ Wochen
- Für ein standardisiertes Programm _ Wochen

15. Wie viele Module (verschiedene Fachbereiche) müssen mindestens angeboten werden für ein ambulantes interdisziplinäres onkologisches Rehabilitationsprogramm?

- mindestens _ (Anzahl)

16. Wie viele Module (verschiedene Fachbereiche) muss ein Patient/eine Patientin mindestens belegen für ein ambulantes interdisziplinäres onkologisches Rehabilitationsprogramm?

- mindestens _ (Anzahl)

Prozesse

17. Wer sollten die Zuweiser sein? (Mehrfach-Auswahl möglich)

- Hausarzt/Hausärztin
 - Gynäkologe/Gynäkologin
 - Arzt/Ärztin Onkologie, AIM, PMR
 - Arzt/Ärztin anderer medizinische Fachrichtung
 - Patient/Patientin selbst
 - Kantonale Krebsliga (KKL)
 - Andere (freier Text)
-

- Ich weiss es nicht

18. Wer sollte über die Aufnahme und den Eintritt in ein ambulantes onkologisches Rehabilitations-programm entscheiden? (Auswahl)

- Arzt/Ärztin Onkologie, AIM, PMR oder andere medizinische Fachrichtung

- Onko-Reha-Team
- Andere nicht ärztliche Fachdisziplin
- Wenn andere nicht ärztliche Fachdisziplin,
dann welche? (freier
Text)_____
- Ich weiss es nicht

19. Was sind aus Ihrer Sicht förderliche Faktoren für die Umsetzung eines ambulanten onkologischen Rehabilitationsprogramms? (freier Text)

Finanzierung

20a. Wie sollte die Abrechnung der Leistungen aussehen? (Auswahl)

- Einzelabrechnungen
- Pauschale Abrechnung
 - Wenn ja, welche Module sollten
enthalten sein (freier Text)
- Kombination der beiden oben
- Andere (freier
Text)_____
- Ich weiss es nicht

20b. Bitte begründen Sie kurz Ihre Antwort (freier Text)

Zertifizierung

21. Was wäre der Vorteil einer Zertifizierung? (Mehrfach-Auswahl möglich)

- Anerkennung (Patienten/Patientinnen,
Behörden, Kostenträger, Fachpersonen
usw.)
- Qualitätssicherung
- Standardisierung der Leistungen und der
Programme
- Kein Vorteil

- Andere (freier Text) _____
- Ich weiss nicht

22. Haben Sie weitere Bemerkungen oder Kommentare zu dem Thema oder dem Fragebogen?

VIELEN HERZLICHEN DANK FÜR IHRE TEILNAHME AN DER BEFRAGUNG!

2.2.4 ONLINE QUESTIONNAIRE RESPONSE RATES

Table 3: Online survey responder list/ recipient list/ response rate by specialty.

Specialty	Responders	Recipients	Response rate (%)
Occupational therapy	2	5	40.0
Nutrition consultation	5	17	29.4
Complementary medicine	0	7	0.0
Management/Coordination/Administration	4	15	26.7
Oncology	13	14	92.9
Care/ nursing	2	5	40.0
Physiotherapy	23	35	65.7
Psychotherapy/Psychology/Psychooncolgy	3	13	23.1
Pain therapy	0	2	0.0
Pastoral care	1	2	50.0
Social counselling	6	11	54.5
Sports, exercise therapy	7	5	140.0
Stomatotherapy	0	1	0.0
Other	5	13	38.5
Grand Total	71	145	49.0