

BMJ Open Models of care and associated targeted implementation strategies for cancer survivorship support in Europe: a scoping review protocol

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ABSTRACT

Introduction Cancer and its treatments can lead to a wide range of side-effects that can persist long after treatments have ended. Across Europe, survivorship care is traditionally hospital-based specialist-led follow-up, leading to gaps in supportive care. Improved screening, diagnosis and treatment increase survival rates. With more individuals living with, through and beyond cancer, the predominance of the hospital-based specialist model is unsustainable, costly and resource-intensive. An understanding of what alternative Models of Care are available and the barriers and facilitators to their implementation is a first step towards enhancing supportive care across the cancer journey. The aim of this scoping review is to source and synthesise information from studies evaluating patient-oriented models of cancer survivorship supportive care for adults in Europe.

Methods and analysis The scoping review will be reported in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses—Scoping Review Extension guidelines and will be guided by a six-stage methodological framework. A search strategy has been developed according to the Population, Concept and Context structure and will be applied to seven databases. A targeted search of grey literature will be completed. All identified records will be screened using predefined eligibility criteria by at least two researchers and undergo full-text review for inclusion. Data pertaining to the conceptualisation, evaluation and implementation of sourced Models of Care will be extracted.

Ethics and dissemination As there is no primary data, ethical approval is not required. This review will be conducted as part of the EU COST Action CA21152—Implementation Network Europe for Cancer Survivorship Care. The protocol and subsequent scoping review will be published in a peer-reviewed journal. The Action involves

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This scoping review will be the first to map the evaluation of models of supportive care and their implementation strategies across Europe, with evidence gained from the breadth and inclusivity of the proposed scoping review helping to signpost healthcare professionals in Europe.
- ⇒ A search strategy that includes both peer-reviewed journals and grey literature incorporating research, clinical and policy perspectives reduce potential publication bias.
- ⇒ The consortium will not limit the search to English language only which reduces the risk of missing relevant literature.
- ⇒ A limitation of this study is certain models of cancer survivorship care may be overlooked if they have not been formally evaluated or if the evaluations have not been published reflecting a form of publication bias.
- ⇒ While inclusive eligibility criteria will be applied; this will in turn lead to heterogeneity which facilitates mapping of the field but limits our ability to evaluate effectiveness of Models of Care potentially leading to a scoping review that is strong in breadth but limited in terms of ability to draw definitive conclusions.

representatives from most countries across Europe which will assist with the dissemination of the work to key stakeholders.

BACKGROUND

Recent years have seen progressive improvements in the early detection, diagnosis and

treatment of cancer. As a result, survival rates for certain cancers have increased, with the number of individuals living with, through and beyond cancer increasing year on year.¹ In 2020, over 23 million people, an estimated 5% of the European population have had a diagnosis or history of cancer.²⁻⁴ The US National Coalition for Cancer Survivorship define 'cancer survivorship' as the period beginning from the time an individual is diagnosed, throughout the balance of their life. This definition has been acknowledged and utilised by many authors.⁵⁻⁷

Some therapies used to treat cancer such as chemotherapy, hormone therapy and radiation treatment can be scheduled over several months. These therapies often lead to persistent side-effects that can last beyond the end of treatment, and even present as late effects, long after active treatment has finished. Sheikh-Wu *et al*, with their Cancer Survivorship Model, highlight the symptom burden experienced by patients across the acute, extended and long-term phases of cancer survivorship.⁷ On cancer treatment completion and during key disease transition phases, patients' frequent interactions and assistance from healthcare professionals taper off, leaving many individuals with unmet needs across many areas including physical, psychological, social, economic and spiritual domains.^{7,8} These needs are expansive and variable (eg, incontinence, pain, fatigue, cognitive dysfunction and delayed return to work).⁹⁻¹¹ The lives of cancer survivors can be further impacted by the onset of late and long-term consequences, symptoms and side-effects such as subsequent malignancies, cancer recurrence, cardiotoxicity and fertility issues, which can occur and persist years after the end of cancer therapy.¹²⁻¹⁵ While some needs are universal to all cancer types, such as need for support for cancer-related fatigue,¹⁶ others are unique to certain cancers, age groups and stages. For example, menopausal symptoms are more commonly reported by individuals with gynaecological and breast cancer influencing the needs of this group.^{17,18}

Cancer survivors' experience of healthcare can be fragmented due to the variety of symptoms they experience and the consequent healthcare services they require.¹⁹ Fragmented survivorship care can lead to suboptimal care and a subsequent reduction in quality of life.²⁰ There is therefore an urgent need for healthcare systems to develop Models of Care (MoC) which accommodate the growing requirement for long-term follow-up supportive care, focusing on quality of life, functionality, independent living and the prevention of cancer recurrence.

MoC in the oncology context should be comprehensive and designed to address the unique and evolving supportive care needs of adult cancer survivors. They should facilitate coordinated follow-up care, with the goal of ensuring continuity of care, optimising physical and psychological health, while enabling active patient participation in their own care. However, cancer follow-up care in most high-income countries has long been dominated by specialist-led follow-up underpinned by the medical MoC, which tends to focus more on the

detection of recurrence.^{2,21} Specialist-led follow-up is resource-intensive and typically involves little cross-sector collaboration or information exchange between acute care and primary care physicians and may lead to potential inattention to cancer survivors' psychosocial and non-oncological medical needs.²² As a result, general practitioners (GPs, also termed family physician), and other healthcare professionals (eg, community pharmacists and dieticians) may find it difficult to follow-up long-term complications, making comprehensive monitoring of long-term impacts of cancer challenging.^{15,21,23}

However, evidence from clinical trials over the past 25 years has shown that GP-led care models can be more effective, acceptable and cost-friendly for individuals living with and beyond cancer.²⁴ A recent umbrella review of models of survivorship care suggests that there was no difference in effectiveness in terms of physical and psychosocial outcomes for cancer survivors across various MoC, including nurse-led models, primary care led models and shared care models.²⁵ Furthermore, evidence suggests that nurse-led care models can be a resource friendly form of follow-up care while being as effective as traditional follow-up in terms of detection of cancer recurrence.²⁴⁻²⁶ Shared care models between specialists and non-specialists have also been proposed. These models have the benefit of combining specialist care with generalist care. While there are few randomised control trials comparing the effects of shared care to usual care on cancer-related outcomes; there is evidence from systematic reviews that shared care models are associated with greater patient satisfaction, cost less than usual care and result in enhanced care coordination across care providers.²⁷⁻³⁰ Another potential solution that could be resource and cost effective are (risk-)stratified care pathways as implemented in the UK.³¹ Risk stratification is a process for quantifying the probability of a harmful effect, for example, late effects of cancer.³² However, rigorous processes for risk stratification are lacking. Care pathways use stratification coupled with other parameters such as patient needs to personalise service delivery requirements.^{33,34} For optimal care (risk-)stratification strategies need to go beyond basic prognosis and risk of recurrence to include a multitude of complex factors including the individual's functionality; capacity for self-management; access to resources, among many more.^{35,36} According to Mayer and Alfano (2019),³⁷ low risk patients can be followed up predominantly in the primary care setting, while those with higher risk may be followed up using other models such as the shared care model. The method used to stratify patients must be robust for this alternative follow-up solution to be effective. Although an integrated survivorship and rehabilitation care model was supported by a consensus statement, with various elements of an efficient European organisational survivorship care model outlined, little is known about the real-world implementation of this model throughout Europe.³⁸

It is anticipated that the implementation of models of cancer survivorship care and associated implementation

strategies vary across Europe. Implementation strategies include methods and techniques which aim to ‘enhance the adoption, implementation, and sustainability’ of a programme or practice.^{39 40} Horizon Europe’s Cancer Mission also stresses the need to evaluate effectiveness of survivorship care models around Europe.² A comprehensive approach to understanding such differences is required. In fact, one of the European Society for Medical Oncology (ESMO)’s priorities are to implement coordinated survivorship care plans and programmes across Europe.⁴¹ To better understand the real-world European context, a scoping review is proposed.

Scoping review aim and questions

Aim: to perform a scoping review of studies reporting on the evaluation of patient-oriented models of cancer survivorship supportive care for adults in Europe. Authors have a particular focus on understanding how stratification strategies are used to underpin (risk-)stratified supportive care and how sourced MoC are conceptualised and implemented within Europe and associated European Cooperation in Science and Technology (COST Association) countries. The scoping review will address the following review questions when extracting data from included studies:

Q1. How are MoC in adult cancer survivorship supportive care conceptualised?

Q2. What are the components, comparative strengths, weaknesses and the general utility or effectiveness of the different MoC?

Q3. What components of the identified MoC map onto domains/indicators in Nekhlyudov *et al* (2019) Quality of Cancer Survivorship Framework?⁴²

Q4. What are the barriers and enablers to the implementation of the identified MoC and how do they map onto the Consolidated Framework for Implementation Research (CFIR)?⁴³

Q5. What implementation strategies did authors associate with improved or sustained implementation of the MoC and how do the identified implementation strategies map onto the CFIR?⁴³

Q6. What are the strategies and formal mechanisms used for (risk-)stratifying care according to need and/or risk within sourced MoC?

METHODS AND ANALYSIS

A scoping review methodology will be used to undertake this review.^{44–46} Scoping reviews are useful for systematically mapping the scope of current evidence. This scoping review will be reported according to the Preferred Reporting Items for Scoping reviews (PRISMA-ScR) checklist and guidelines⁴⁷ and will use the PRISMA reporting diagram templates (online supplemental file 1). While authors recognise that this is a scoping review and not a systematic review, we endeavour to be as systematic as possible in predefining the procedural elements of the review, providing rationale for decisions made

and being as systematic and as objective as possible in the application of procedural steps. Any deviations from the published protocol will be reported in the published review.

Eligibility criteria

A detailed outline of the eligibility criteria is presented in [table 1](#) in accordance with the Population, Concept, Context (PCC) structure.⁴⁸

Population

The population of interest is adults diagnosed with cancer. Adults will be as defined by the authors of the included paper.

Concept

The concepts under examination include the term ‘cancer survivorship’, which has many definitions, with some variations and overlapping elements (see [table 2](#) for definitions and associated references). These definitions highlight the temporal nature of survivorship, with its starting point usually considered to be at the time of diagnosis, and its ending point considered end of life. Thus, reflecting the timeline and population living with, through and beyond cancer. Some definitions offer more holistic perspectives on the elements of survivorship, outlining a focus on health, well-being and follow-up care. The contents of [table 2](#) have also informed the design of the search strategy with review authors taking a deliberate inclusive stance in their search of the literature. We will be using The US National Coalition for Cancer Survivorship definition which commonly defines survivorship as ‘beginning from the time an individual is diagnosed throughout the balance of their life’. However, we will be excluding MoC which exclusively focus on the ‘actively dying’ phase only⁴⁹ for this review. However, we acknowledge that there are difficulties with using the term cancer survivor, with its positive association with moving past a cancer diagnosis and treatment towards surviving cancer-free, to represent all those on the cancer journey. In this review, we use the term cancer survivorship and individuals living with and beyond cancer interchangeably to mean those individuals in the period beginning from the time of diagnosis to the end of life.

Similarly, many MoC exist within the literature, with the most common models summarised in [table 3](#). There is no clear taxonomy of MoC in a cancer survivorship context. However, the existing models can be categorised into three distinct domains synthesised as the 3Ps: provider, place or purpose. Models of follow-up defined by the provider include specialist led follow-up; GP/family physician led follow-up; nurse led follow-up and multidisciplinary follow-up. Models defined by the place or location include shared care models and long-term follow-up clinics. Models within the purpose category are defined by their predominant focus, for example these models include self-management models and rehabilitation focused models. While there are overlaps in 3Ps

Table 1 Criteria for inclusion/exclusion of studies organised by PCC framework

PCC	Inclusion criteria	Exclusion criteria
Population	Adults as defined by the authors. Diagnosed with cancer that includes diseases characterised by the development of abnormal cells that divide uncontrollably. Adults living with, through and beyond cancer. Adults who had cancer as a child or adolescent who have moved into the adult services.	Targets children and adolescents specifically, or mainly focused on family members or carers. Solely focused on healthcare professionals.
Concept(s)	<p>Patient-oriented MoC with a specific named focus on supporting cancer survivorship supportive care. These may also include formal methods of coordinating care, providing integrated or shared care.</p> <p>Authors must conceptualise their intervention or innovation as either an MoC or pathway or framework or care delivery structure or organisational/systems level intervention for the optimal organisation or management or coordination of adult cancer survivorship supportive care for example, survivorship care plans, survivorship care pathways, integrated care pathways, models of survivorship care.</p> <p>Can include mechanisms of (risk)stratification of care or stepped care or pyramid of care.</p> <p>The aim of such MoC ought to be to provide supportive care which addresses at least two or more of the indicators in (a) domains of cancer survivorship care pertaining to cancer and its treatment and/or (b) domains of cancer survivorship care pertaining to general healthcare and/or (c) contextual domains of healthcare delivery as described in Quality of Cancer Survivorship Framework.⁴² Indicators in these domains include:</p> <p>(A)</p> <ul style="list-style-type: none"> ▶ Surveillance and management of physical effects ▶ Surveillance and management of psychosocial effect ▶ Prevention and surveillance of new cancer/recurring cancers <p>(B)</p> <ul style="list-style-type: none"> ▶ Surveillance and management of chronic medical conditions ▶ Health promotion and disease prevention <p>(C)</p> <ul style="list-style-type: none"> ▶ Clinical structure ▶ Communication/decision-making ▶ Care coordination ▶ Patient experience <p>The US National Coalition of Cancer Survivors defines survivorship as beginning from the time an individual is diagnosed throughout the balance of their life. A deliberately inclusive stance on cancer survivorship is being taken for this review informed by table 2.</p> <p>Formal descriptions of the barriers and facilitators to implementation of an MoC with the above indicators as a focus.</p>	<p>Studies that do not specifically articulate their intervention as a model or a pathway of cancer survivorship care.</p> <p>Single intervention studies.</p> <p>Single discipline studies.</p> <p>Investigation/comparison of treatment strategies or therapeutic impact of treatments, for example, chemotherapy, immunotherapy, radiotherapy.</p> <p>Papers describing preferences for MoC or MoC components.</p> <p>Exclusively focused on the phase of terminal care otherwise termed as end of life or the 'actively dying' phase.⁴⁹</p>
Context	Europe and eligible countries included in COST Actions. Care provided in any care setting (primary, secondary, community, home, etc).	Studies outside of listed countries (online supplemental file 2).
Publication type, designs, other limits	<p>Design: empirical studies of any design. Within the included papers, there needs to be a clear evaluative aim or primary focus with the reporting of results as a description of formal feedback on, or experience of, or outcomes, barriers and facilitators or description of optimal approaches to the implementation of the MoC matching the indicators/outcomes detailed in this protocol (including case design studies, idiographic designs often used in psychology).</p> <p>Publications: peer-reviewed papers, including systematic reviews; or formal reports; government-level or health system level policy papers.</p> <p>Limits: as this is a scoping review, the decision was made to limit the search to publications from after 1 January 2013 given the rapid pace of change within the cancer treatments sphere.</p> <p>Language of publication: English and languages spoken in listed countries (see online supplemental file 2 for full listing) if expertise is available within the group to translate same.</p> <p>We approximate that there will be at least 15 languages based on the formal languages in the countries participating in the grey literature search, with the intent to include as many as possible. (If a paper is excluded on the basis of language, this will be explicitly noted in the findings.)</p>	<p>Thesis, conference proceedings.</p> <p>Descriptive papers without an evaluative focus.</p> <p>Studies evaluating vignettes or hypothetical Models of Care.</p> <p>Protocols.</p> <p>Single case study.</p> <p>Papers where details pertaining to included countries cannot be clearly extricated.</p>

MoC, Models of Care; PCC, Population, Concept, Context.

categorical perspective, it helps to differentiate between different MoC. In contrast, Jones *et al*,⁵⁰ in a systematic review, also noted that MoC can be operationalised at a disease-specific level (follow-up patients with particular disease(s) from diagnosis through primary, tertiary and community care); service level (can be focused on an individual service on a healthcare journey) or systems

level (describe organisational infrastructure and delivery of care on a wider scale). Such MoC⁵⁰ have six overarching central components: 'stakeholder engagement, supporting integrated care, evidence-based care, defined outcomes and evaluation, behaviour change methodology, and address adaptability' (p323). Some MoC incorporate a principles-based approach. Hegarty *et al*

Table 2 Definitions of cancer survivorship used to inform the protocol and the associated search strategy

Definition	Author (year) location
'Cancer survivorship is the experience to live with, through and beyond cancer'.	Centers for Disease Control and Prevention and Lance Armstrong Foundation (2004) (p4) USA ⁶⁶
'Acute cancer survivorship is still a time of intense emotion and medical activity surrounding the diagnosis, staging, and actual treatment. We then propose that after the intense initial therapy is completed, the survivors enter a 'season' that can be called 'transitional cancer survivorship' reflecting the transition from active treatment to careful observation and the emotional, social, and medical adaptations that occur. Next, there are a growing number of cancer survivors who are (1) alive and 'living with cancer' but requiring ongoing treatment for recurrent, active, and often advanced disease; (2) in a complete remission that requires ongoing therapy or (3) in a complete remission and with a favourable prognosis. Collectively, this is a diverse group in 'extended survivorship' and some later go on to obtain a permanent remission although others experience disease progression. Finally, there are millions of long-term or 'permanent survivors.' This group is also very heterogeneous and is comprised of 4 subgroups including (1) survivors who are 'cancer-free but not free of cancer,' (2) survivors who are cancer-free but continue to have significant 'fall-out' from cancer and its treatment including psychosocial, medical, financial, or legal sequelae, (3) survivors who go on to develop second cancers which may be unrelated to the first cancer or its treatment, or may be more likely due to genetic or environmental factors, and also (4) survivors who later develop cancers that are secondary to the initial treatment'.	Miller <i>et al</i> (2008) building on work by Dr Fitzhugh Mullan (1985) (p369) USA ^{67 68}
'It is a process, life-changing experience that begins at diagnosis and involves uncertainty with a duality of positive and negative aspects and is unique to the individual while also having some universal features. The consequences of cancer survivorship may be divided into four main themes: physical health, psychological health, social health, and spiritual health'.	Doyle (2008) (p507) UK ⁶⁹
'Proposed definitions differ primarily around the scope of populations covered; some refer only to those diagnosed with cancer, whereas others extend to family, friends, and caregivers. Complicating the picture is the distinction drawn between the terms cancer survivor and cancer survivorship. Although the former is used to encapsulate individuals throughout the cancer trajectory, the latter refers to a distinct phase in the cancer trajectory between primary treatment and cancer recurrence or end of life'.	Bell and Ristovski-Slijepcevic (2013) (p409) USA ⁷⁰
'An individual is considered a cancer survivor from the time of diagnosis through the balance of life. There are many types of survivors, including those living with cancer and those free of cancer. This term is meant to capture a population of those with a history of cancer rather than to provide a label that may or may not resonate with individuals'.	National Cancer Institute (2022) USA ^{71 72}
'(Survivorship) spans from cancer diagnosis until the end of life, where physical and psychosocial issues faced by patients need to be considered'.	Vaz-Luis <i>et al</i> European Society of Medical Oncology (2022) (p1120) Europe ⁴¹
'In cancer, survivorship focuses on the health and well-being of a person with cancer from the time of diagnosis until the end of life. This includes the physical, mental, emotional, social, and financial effects of cancer that begin at diagnosis and continue through treatment and beyond. The survivorship experience also includes issues related to follow-up care (including regular health and wellness checkups), late effects of treatment, cancer recurrence, second cancers, and quality of life. Family members, friends, and caregivers are also considered part of the survivorship experience'.	NCI Dictionary of Cancer terms (2023) USA ⁷³
The cancer survivorship 'continuum includes positive and negative life-changing events, which occur over three distinct cancer survivorship phases (eg, acute, extended, and long-term). Cancer survivorship is defined as the time between cancer diagnosis and the end of life that encompasses the totality of medical and psychosocial care, side-effects from treatments, development of secondary cancers, remission and, ultimately, death'.	Sheikh-Wu <i>et al</i> (2023) (p4) USA ⁷

noted that their ALLIES model of cancer survivorship was underpinned by essential principles (assess, link in and link out and onward, inform, empower and delivery of timely access to support and services), required (risk) stratification processes and a standardised roadmap for survivorship care delivery for patients and staff.⁵¹ Similarly, in an Australian context, a Model of Survivorship Care outlining the critical components of cancer survivorship care summarises the critical components of cancer survivorship.³⁶ MoC broadly fitting into these conceptualisations (table 3) of MoC will be included.^{50 51}

To be included in this review, the authors of included papers and reports need to explicitly conceptualise their intervention or innovation as either an MoC or pathway

or framework or organisational or systems level intervention for the organisation or management or coordination of interdisciplinary adult cancer survivorship supportive care. The MoC must involve more than one healthcare discipline and include communication about or coordination of care between healthcare disciplines. The MoC must be patient oriented and seek to improve health outcomes of patients and potentially reference patient preferences.

For this review, papers focused on one single service or a single intervention on a healthcare journey for example, solely focused on input of one discipline (physiotherapist, dietician and nurse) or papers focused on a single intervention, for example, complementary

Table 3 A summary of models of survivorship care outlined using three Ps perspective

Model of care	Definition	Sources
Provider		
Traditional specialist-led follow-up	Follow-up care led by specialist medical oncologists, usually with a strong focus on detecting recurrence or new cancers.	19 20 46
Primary care provider/general practitioner led model	A model where survivorship care is predominantly or solely provided in the primary care setting by the primary care provider. This model is often supported by the use of a (risk)-stratified care approach.	24 25 41 74
Nurse led model	A model of survivorship care led by specialist nurses in a variety of settings including in-person, over the phone and online. This model involves medical, educational and supportive care aspects.	24 25 41 74 75
Multidisciplinary care model	A model involving a dedicated team of healthcare professionals including ‘physicians, nurses, social workers, psychologists, counsellors, and other allied health practitioners’ who work to provide a broad range of survivorship services.	24 76
Place (or pathway)		
Shared care model	A cross-boundary model of care involving coordinated specialist and generalist care between the medical oncology team and the primary care provider.	24 25 75 76
Pathways including follow-up hybrid processes and clinics.	An MoC that includes longer follow-up, especially useful for individuals at greater risk of late effects. Usually involves the multidisciplinary team and can address a greater spectrum of issues faced by cancer survivors. Usually combined with other models of survivorship care.	24 41 51 75
Purpose		
Self-management model	A model focused on advancing the cancer survivor’s health autonomy, often combined with other care models.	24 74
Rehabilitation and surveillance focused model	Rehabilitation model addresses the complex and multifaceted impacts of cancer and its treatment. This model can include psychosocial care, exercise and physical therapy. Usually combined with other models of survivorship care.	24 74 76
MoC, Models of Care; Ps, provider, place and purpose.		

therapy intervention, nutritional intervention will be excluded.

Context

The context is care provided in any care setting (primary, secondary, community, etc) within European countries and countries included in the list of COST-associated countries (see online supplemental file 2 for full listing).

Search strategy and information sources

We will conduct a search of Medline, CINAHL, APA PsycInfo, APA PsychArticles, SocINDEX, Web of Science, ProQuest and Embase databases in addition to the Cochrane library for publications using keywords and associated search terms, for example: cancer, survivorship, framework and ‘model of care’. A detailed description of the search strategy is included in online supplemental file 3. Boolean operators will be used to combine keywords and proximity indicators will also be used where relevant. The initial search has been developed for Medline and translated to other databases bearing in mind their unique searching features; a subject librarian will inform this. The search terms were informed by the search strings outlined by Otieno *et al* (2023)⁵² in their review relating to chronic care models.

As part of this scoping review, we will search grey literature, which refers to electronic or print information that is not under the control of commercial

publishing, generated by organisations such as governments, academia, business and industry.⁵³ To conduct the grey literature search, we will use a multistage format⁵⁴ as described here. First, we will conduct a customised search using Google Scholar, OpenGrey, The National Institute for Health and Care Excellence (NICE) and the Health Management Information Consortium (HMIC) in accordance with the objectives of this scoping review. Second, we will search targeted country-specific websites for material relevant to cancer survivorship support; such websites will include the websites of the national centres/structures for coordinating cancer care; national health service and Ministry of Health; major charities and non-governmental organisations linked to cancer care in the listed countries. Third, members of the research team in each country/region will also search for additional potentially eligible literature in local languages using Google for inclusion in the grey literature search, such searches will be reported in detail. Two strategies will be used for this: first, a direct search of the targeted website and second, a search of the website using Advanced Google Search will be conducted. We will also screen forward citations that is, ‘cited by’ searches (Google Scholar and Web of Science) and backward citations by reviewing the reference lists of relevant included documents.

The search of the grey literature and websites uses an abbreviated set of search terms which are as follows:

'cancer' AND 'model'; 'cancer' AND 'pathway'; 'cancer' AND 'survivorship'. For searches in non-English language websites, these terms will be translated and reported as part of the review. In each country terminology used to reflect the translation of 'model' or 'pathway' or 'cancer survivorship' will vary, bilingual individuals in each country/region will inform such translations to reflect the intended meaning of the words in their search of the grey literature. Where many hits/citations are returned, citations will be organised according to a relevancy function, if available, and the first 50 citations screened/first five pages of each search hits. Where a relevancy function is not available; a function for organising citations chronologically will be used with most recent on top and the first 50 citations screened. Where neither are available, the first 50 citations will be screened. The review authors acknowledge that most publicly available database search functions were not designed for searching word combinations; search engines use unique algorithms to generate their search outputs, therefore making the creation of a uniform search strategy for grey literature searches difficult. Using a variety of these information sources is likely to lead to a broader return of citations and potentially more included papers. Members of the team with local knowledge and expertise will be able to search for specific documents, if relevant, and such searches will also be reported. The hits returned after search will be reviewed, using the title and short text underneath to assess potential eligibility. Potentially relevant hits will be 'bookmarked' in the web browser used at the time of searching (using Google Chrome) and also entering each web address link bookmarked or URL into an Excel spreadsheet.⁵⁴

Where there are multiple versions of a document, the most current version of the document will be moved to Covidence and then screened for inclusion. ChatGPT translate and DeepL translate will be used to translate the abstract of potentially eligible papers for the title abstract screening. The translations will be checked by team members with expertise in the relevant language, and the record of the translation will be added to the note function within Covidence.

The process of recording the Grey Literature Search is outlined within online supplemental file 4.

Study selection

Using Covidence software, all records identified by the search in each database and grey literature will be assembled and duplicates will be automatically removed. Title and abstract screening of the imported records will be carried out by pairs of independent researchers using the predefined eligibility criteria. Any record deemed potentially eligible will be retrieved in full and undergo full-text screening. First, a pilot process of application of the eligibility criteria within Covidence will be applied with all reviewers involved in group screening to aid the refinement of our collective interpretation of the eligibility criteria and their application. The description of

the eligibility criteria will be iteratively refined during this process. A pilot test will be run through which 100 randomly selected records will be screened by pairs of researchers and the results compared with establish interrater reliability (IRR). Substantial agreement for IRR is achieved by an average Cohen's K of 0.70.⁵⁵ If a level of substantial agreement is not reached, the process will be repeated until reviewers reach agreement. Disagreements will be resolved through discussion and a third author will be involved where necessary.

Grey literature will be screened by members of the COST Action who are fluent in English and the local language of relevant publications. The process of selection will be represented in a PRISMA flow diagram⁵⁶ (online supplemental file 1).

Data extraction

A number of review authors will be involved in extracting key information from included studies using a custom-made Google form. The number of authors involved in extracting data will be finalised based on the results of screening processes. Selected studies will be saved into a bibliography management programme.⁵⁷

Data collection will include items specific to individual studies such as study authors, publication year, study methodology, country, participant characteristics (sex, mean/median age, cancer type, stage of survivorship, etc).

Data items specific to the concept of interest will also be extracted such as description of the model of care, details of the three Ps: provider, place and purpose/aim of the model of care, components of the model of care, data on the domains of the Quality of Cancer Survivorship Framework encompassed by the Model of Care,⁴² delivery characteristics (contact method, frequency, setting, individual vs group care), follow-up time and clinical outcomes as reported in the publication, data on the experience or effectiveness of the model of care, implementation strategies identified and their perceived effectiveness, barriers to implementation and facilitators to implementation mentioned by authors. Details of the (risk-)stratification strategies will also be extracted. Such data will be presented in tables. Particular attention will be paid to mention of implementation strategies which are linked to implementation and sustainability of the MoC.

For publications in languages other than English, data will be extracted from the publications and translated into English. Forward translations will be done by one researcher, then the translation will be validated by second researcher to minimise any potential errors.

Quality appraisal

Quality assessment is an optional step in scoping reviews; however, we will take several steps to assess the methodological quality and risk of bias (RoB, as relevant) of the included studies. We will follow several guidelines in this endeavour to ensure the adequate interpretation and assessments of reliability, and validity of the included studies, transparency of evidence synthesis and

the certainty of the body of evidence. We will use Scottish Intercollegiate Guideline Network (SIGN)'s grading system to evaluate the level of evidence.⁵⁸

Furthermore, because we will be reviewing empirical data of various methodologies, we will use the Mixed Methods Appraisal Tool (MMAT), to appraise the methodological quality of included studies.⁵⁹ This tool is most suitable as it can be used for five different types of designs: qualitative research, randomised controlled trials, non-randomised studies, quantitative descriptive studies and mixed-methods studies.⁵⁹ Additionally, any randomised controlled trials identified for inclusion will be assessed for risk of bias using the RoB 2 tool for randomised studies⁶⁰ and the 'Risk of Bias in Non-randomised Studies—of Interventions' (ROBINS-I) tool for non-randomised studies.⁶¹

For grey literature, the AACODS (Authority, Accuracy, Coverage, Objectivity, Date, Significance) checklist will be used, which is aimed to evaluate the quality of grey information.⁶²

Data synthesis

The results will be organised and synthesised according to the review questions.

Data will be extracted using a predefined data-extraction form and data pieces will be presented in table format accompanied by a narrative summary. For data where multiple perspectives are presented, for example, barriers and facilitators to implementation of MoC, a thematic analysis will be completed. This involves the coding of data independently by two review authors to identify the codes, the creation of descriptive themes and the development of the final analytical themes which emerge from data from across the included papers.⁶³ It is proposed that the narrative summary and mapping processes will highlight any relationship between these MoC and the domains and associated indicators outlined in the Quality of Cancer Survivorship Framework.⁴²

Additionally, the CFIR will be used as a framework for synthesising findings relating to implementation barriers and facilitators. CFIR consists of 38 constructs across five domains: intervention characteristics, inner setting, outer setting, characteristics of individuals and implementation process.⁶⁴ Similar to the six-step process outlined by Chan *et al* (2021),⁶⁵ two independent reviewers will extract the barriers, facilitators and implementation strategies from each article and discuss any discrepancies. Subsequently, each extracted barrier, facilitator, implementation strategies will be coded under the CFIR domains. Any disagreements will be discussed to achieve agreement. The finalised coding will be reviewed independently and finally, presented in tables and figure format accompanied by a synthesised overview.

It is anticipated that substantial heterogeneity will exist across the sourced MoC, therefore a meta-analysis is not planned at this time. A narrative synthesis of the extracted data pertaining to the evaluation of MoC will

be completed and synthesis will be grouped according to both similar MoC and similar domains and indicators.⁴²

In addition, a mapping methodology with a visual depiction of the evidence linking outcomes studied within the included papers to the Quality of Cancer Survivorship Framework;⁴² and the barriers and enablers to the CFIR^{43 64} domains will be completed.

Public and patient involvement

There will be no direct patient involvement in this scoping review as it is a review of existing literature. Public involvement has been facilitated through the wide stakeholder representation in this EU COST Action through the Management Committee and relevant Working Groups (n=220 members across the EU) who oversaw and contributed to this work.

ETHICS AND DISSEMINATION

The proposed scoping review will focus on evidence available in published literature, from academic journals to grey literature thus ethical approval is not required.

It is anticipated that the review will be completed before March 2025. Dissemination of the review findings will be through COST Action and publication in an *Open Access Journal*, institutions and organisations associated with the authors and social media. In addition, the work will broadly inform activity within our COST Action.

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