
Guideline for planning cancer in the 21st century

A plan of cancer: a plan of life



Bristol-Myers Squibb sponsored the development of this project.

The Institute for Health and Strategy (SI-Health) prepared this document with input from a multidisciplinary group of experts and patients in the field of oncology.

An analysis of cancer plans and a guideline to planning for cancer in the 21st century.

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Note

This analysis and guideline was prepared prior to the SARS-CoV-2 crisis.

The crisis and its negative impact on cancer prevention, diagnosis, and treatment reaffirms the need to speed up the preparation of plans to fight cancer in Spain.

It is worth highlighting, however, that care organisations and healthcare professionals in the field of oncology have managed to partially palliate the negative effect of the pandemic on cancer patients.

Despite these efforts, the impact on preventive programmes and oncology services is likely to be severe in the upcoming months, as the pandemic crisis is ongoing and it is still difficult to envisage its impact on all cancer-related areas.

The hope is that this document will prove even more useful from a strategic point of view for that very reason. It has a checklist format and is designed for those wanting to plan for cancer, considering it a self-administered tool.

Furthermore, it is possible to see that it is based on clinical participation, with the aim of helping to strengthen clinical leadership when planning and managing cancer, and not simply during clinical excellence and activity.

This guideline complements and helps the implementation of the new update of the National Health System Cancer Strategy, published in 2021.



The multidisciplinary group of experts and patients in the field of oncology.

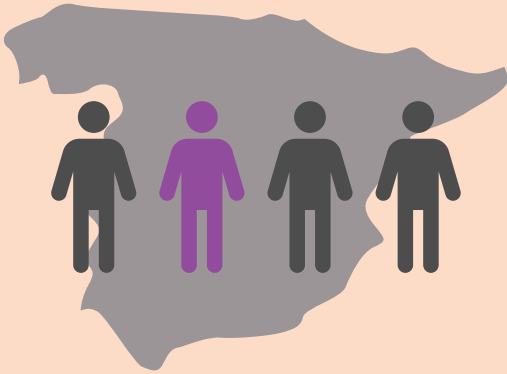
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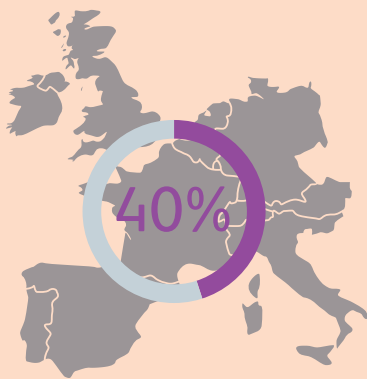
1. Cancer snapshot



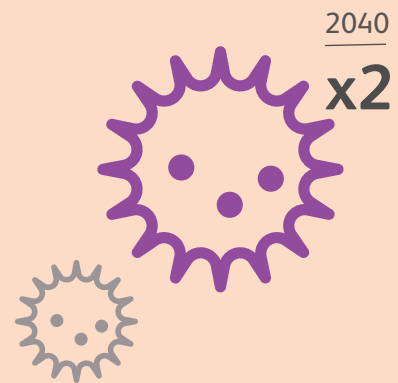
1 of every 4 deaths in Spain is from cancer¹



760 new cancer cases are diagnosed in Spain every day²



40% of Europeans are estimated to have to face cancer at some point in their lives²



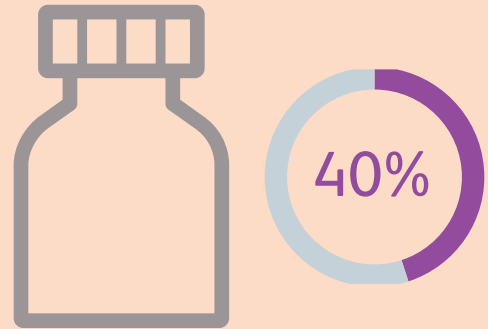
The number of cancer cases will be practically double in 2040²

AROUND THE WORLD

+ 38MM



2 of every 5 people manage to live longer than 5 years²



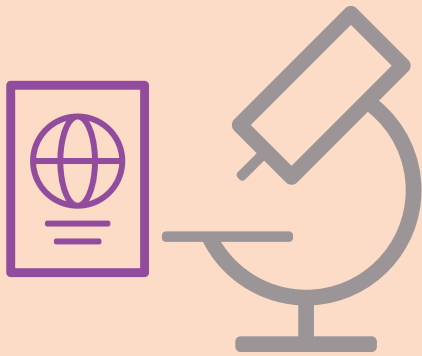
40% of cancers could be prevented³



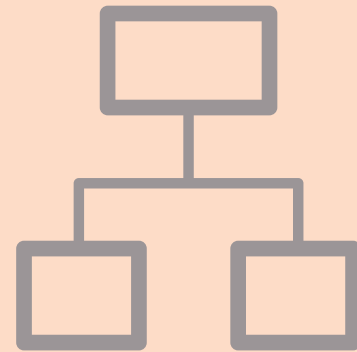
10% of healthcare spend is allocated to cancer⁴



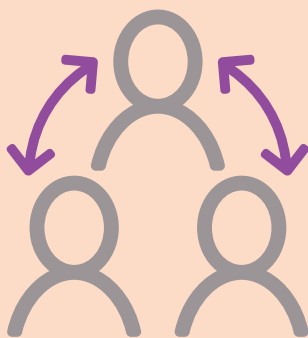
The number of funding sources for cancer research **doubled** in the past decade⁵



There have been over 775,000 cancer publications **in the past decade**⁵



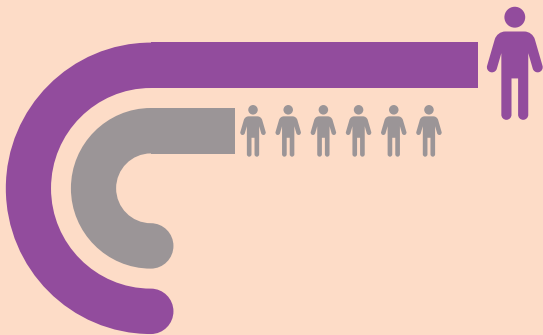
Over **150 new indications** approved by the FDA since 2006⁶



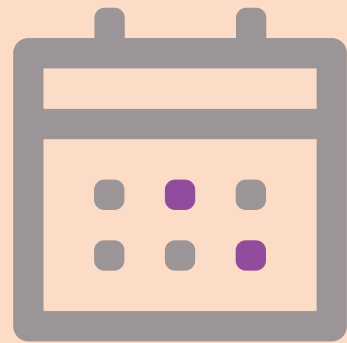
Over **70 specialties** and professional roles involved in cancer⁷



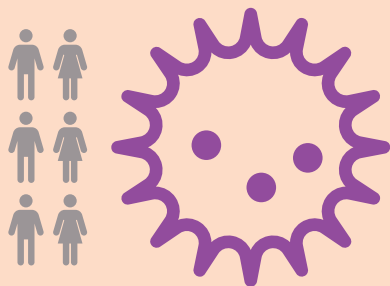
Variability in the quality of care by cancer type and region⁸



Inequalities in access to innovations and quality care⁸



A paradigm shift in cancer care



The organisation and management of care services impact on cancer outcomes⁹



Only one third of autonomous communities have a current cancer plan

2. A cancer plan, but why is one needed?

Cancer is the second most common cause of death around the world, representing 26% of all deaths. However, in countries with developed economies, cancer deaths have already surpassed those from cardiovascular diseases, and now represent the primary cause of death. This same pattern is likely to be reproduced worldwide, given that cardiovascular disease rates are decreasing, so cancer could become the primary cause of death throughout the world in just a few decades^[9].

In Spain, 2018 saw 113,584 recorded deaths from cancer, data that indicates a change in trend compared to previous years, given that deaths from tumours decreased by 1.3%. All the same, the pattern of recent years is unchanged, where cancer remains the primary and secondary cause of death among men and women respectively^{[10][11]}.

The number of new recorded cancer cases around the world is 18,078,957 people [1], with 277,234 of those in Spain during 2019, representing 12% growth compared to 2015 [2]. This increasing trend is expected to grow further, with the total number of cancer diagnoses around the world increasing by 63.1% during the upcoming decades.

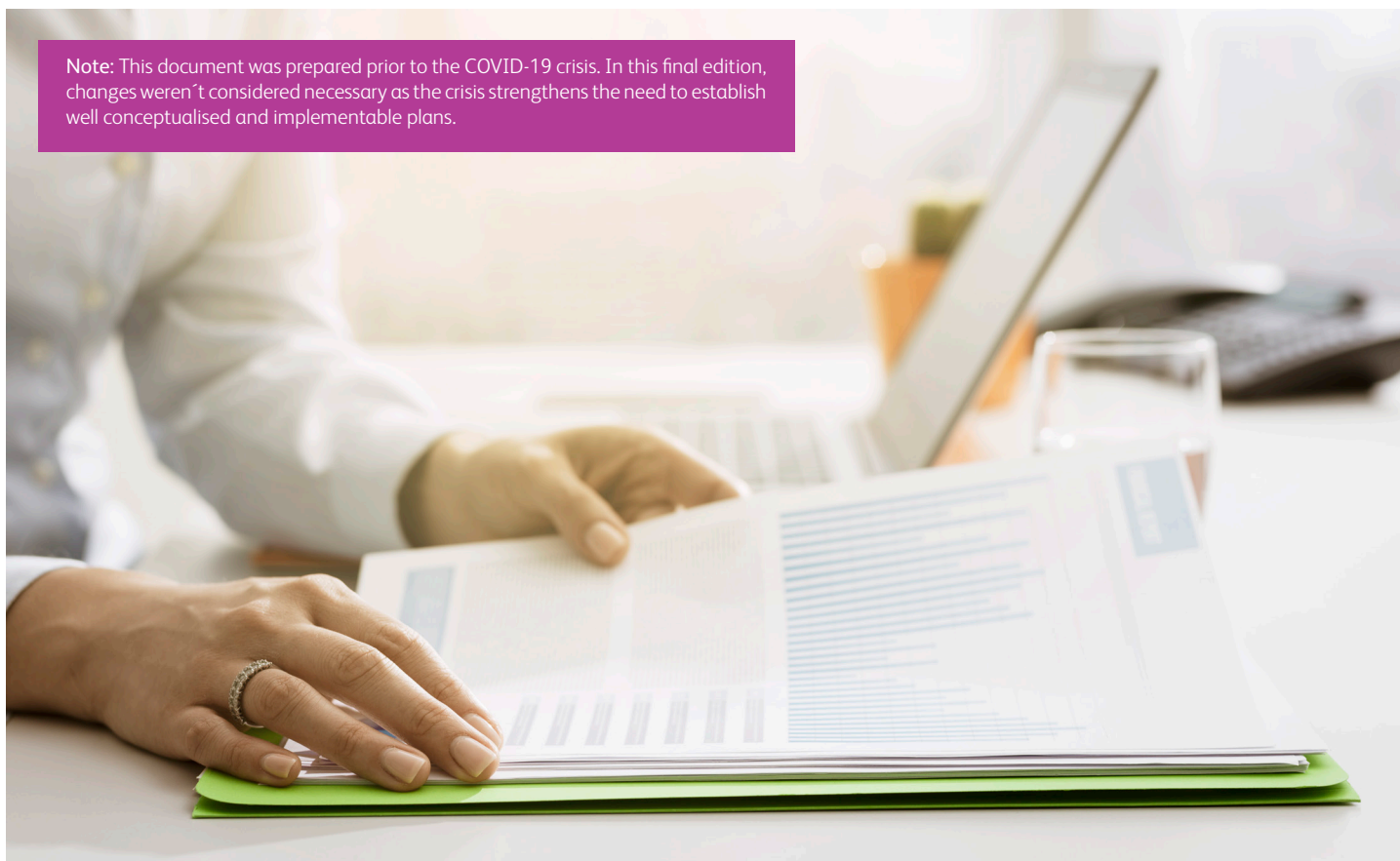
This increased incidence is associated with several factors. One is the ageing population, as the risk of getting cancer doubles in people aged over 65 years old^[2]. Additionally, the presence of risk factors, like smoking, obesity, sun exposure among others, which increase the risk of cancer. It is estimated that 40% of cancers could be prevented by addressing these risk factors^[3].

Despite this, survival data at 5 years have increased across the board worldwide since 2000. The trend in Spain reveals the same pattern. For some cancers, such as breast or prostate cancer, survival figures of 85% and 90% are achieved respectively. For others, such as colon cancer, despite lower survival rates than with breast or prostate cancer, recent years have seen considerable improvement (from 56% to 63%)^[12].

The improvement in survival rates partly derives from very significant advances occurring in cancer. In a study involving the analysis of investment into cancer research, Schmutz et al identified over 4,500 cancer research funding bodies^[5]. The research results are very encouraging, given that despite there still being a long way to go to understand the molecular bases of cancer, advances are now occurring at a previously unseen rate. This results in the emergence of numerous innovations, some of which are disruptive in nature, such as immunotherapy, representing both a landmark and a paradigm shift in cancer treatment.

However, innovation in cancer management and organisation is not occurring at the same rate as scientific-technical innovation, meaning it provides a significant barrier to the incorporation of any other type of innovation or the transfer of the latest available evidence to care practice^[13].

Note: This document was prepared prior to the COVID-19 crisis. In this final edition, changes weren't considered necessary as the crisis strengthens the need to establish well conceptualised and implementable plans.



The inherent complexity of fighting cancer and the burden of the disease itself makes cancer one of the most serious threats to governments in Europe and throughout the world. That was the opinion of the health commissioner, Stella Kyriakides, when she set out defining a strategy against cancer as a priority in the European health agenda. Prevention, early detection, and treatment only go so far when addressing the issue. There is a need to look deeper into organisational aspects, the mechanisms to incorporate innovations, and the allocation of resources among others, to improve the holistic response to cancer.

Epidemiological data confirms that cancer is one of the health problems with the greatest social, healthcare, and financial impact. This is why an organised strategy is required to enable a planned and ordered response to cancer. Leading countries in cancer, such as Australia, Canada and others, have a strategy, and therefore, a plan used as an alignment and management tool.

In Spain, the first Cancer Plan was defined in 2003, borne of a consensus reached between scientific societies, autonomous communities, patients, and the Ministry of Health, with the strategy updated in 2010, being the last one in 2021. The experience was very positive in terms of establishing priorities, aligning autonomous communities and players, but failed on implementation-related aspects. “The Economist” in the study, “Index for cancer preparedness”, places Spain in seventh position based on its capacity to provide a national response to cancer. The lowest scores are obtained precisely in aspects relating to healthcare planning and politics [14]. The motive for a new Cancer Plan is to create a culture of cancer prevention and control within a community.

A plan must function on multiple levels: individual, organisational, community/public, and public policies/guidelines.

This initiative, “**An analysis of cancer plans and a guideline to planning for cancer in the 21st century**”, arose with the aim of supporting autonomous communities and the Ministry of Health in planning an ordered response against cancer. It references current trends in planning and implementing measures for tackling cancer and the current challenges it poses. The aim is to prepare a guideline document to support planners and managers to obtain better cancer outcomes.

As a **first step** and in order to understand the aspects addressed by current cancer plans, this document presents an **analysis of current cancer plans** from a sample of leading countries when it comes to tackling cancer. Current cancer plans from the autonomous communities in Spain are also included.

A **second phase of the project** delves into the **innovative aspects that a cancer plan should contain and the aspects that require addressing during its implementation process**, provided by a group of multidisciplinary experts including the players, roles, and functions with an active role in cancer planning and care.

3. Key aspects when providing a planned response to cancer

Cancer plans have been analysed to identify the key aspects when preparing and implementing a plan for cancer, referencing current autonomous community plans and plans from leading countries in tackling cancer, based on The index of cancer preparedness from The Economist ^[14]. Annex I details the criteria applied when selecting the cancer plans.

Plans were analysed from Australia ^[15], Canada ^[16], the United Kingdom^[17], France ^[18], Aragon ^[19], Castille and León ^[20], Catalonia ^[21], The Basque Country^[22], and Extremadura ^[23].

The relevant aspects to consider both during the definition and implementation of a cancer plan based on the analysis are detailed below:



1. Autonomous communities with a current plan are referred to as a REGION throughout the document.

A. Which aspects are used to establish a diagnosis of the cancer situation?

On analysing the plans, regions and countries are identified to use the following information sources to perform a robust diagnosis to establish the bases for defining the cancer plan:

1 . Multidisciplinary qualitative analysis

It enables identification of the barriers, areas of improvement when tackling cancer, and supports the prioritisation of responses.

2 . Data: epidemiological

It provides information on the size and dimension of the problem.

3 . Mechanisms to identify/ incorporate evidence

It enables quick identification of the latest current evidence on cancer and enables it to be communicated in the same way throughout the system.

4 . Integration/incorporation of patient opinion

It enables identification of new needs or currently unmet needs, and triggers the mechanism to search for an evidence-based response to those needs. A proactive approach and anticipation.

5 . Data: health outcomes (results) results during cancer care

It can provide objective evidence of the impact of the policies and interventions applied, and can objectively and more accurately identify the aspects requiring improvement when tackling cancer.

The analysis of the plans shows that the large majority of plans incorporate several aspects for diagnosing the cancer situation in their region. The most common aspects are multidisciplinary qualitative analysis, epidemiological data, an analysis of the evidence applied in the region, and to a lesser extent, the plans that steadfastly incorporate patient opinion and data from care in terms of health (and patient) outcomes, quality, and efficiency. The international trend is more towards incorporating every aspect, placing particular emphasis on analysing data derived from care and a thorough examination of patient needs.

The plans show that the more aspects added, the greater the diagnostic robustness about the cancer situation. Furthermore, some cases confirm that the incorporation of patient opinions adds an “extra” proactive approach, as it enables the identification of unmet care needs.

This is possible at present, as there is a known method for measuring patient “opinions”. (Patient Activation Measures; Proms; Prems).

2. It is worth highlighting that most plans contemplate patient involvement, but that this participation is often symbolic. Accepting the integration of the opinions contained in this document means that the most suitable methodologies for collecting the stated unmet needs of patients with cancer must be used.

B. Are the plans result-oriented?

Another aspect when analysing plans aims to identify the importance given to results, i.e. what are the aims of preventing and controlling cancer over a 3-10 year period.

Being result-oriented prepares for a value-based future for cancer. For example, the targeted results in secondary prevention could be formulated in the following way:

- Increase the number of adults requiring screening for colorectal, cervical, and breast cancer by 25% based on the established guidelines.
 - Increase the percentage of young people that complete the HPV vaccination schedule to prevent cervical cancer.
 - Increase the number of clinical trials by 15% for 2025.
-

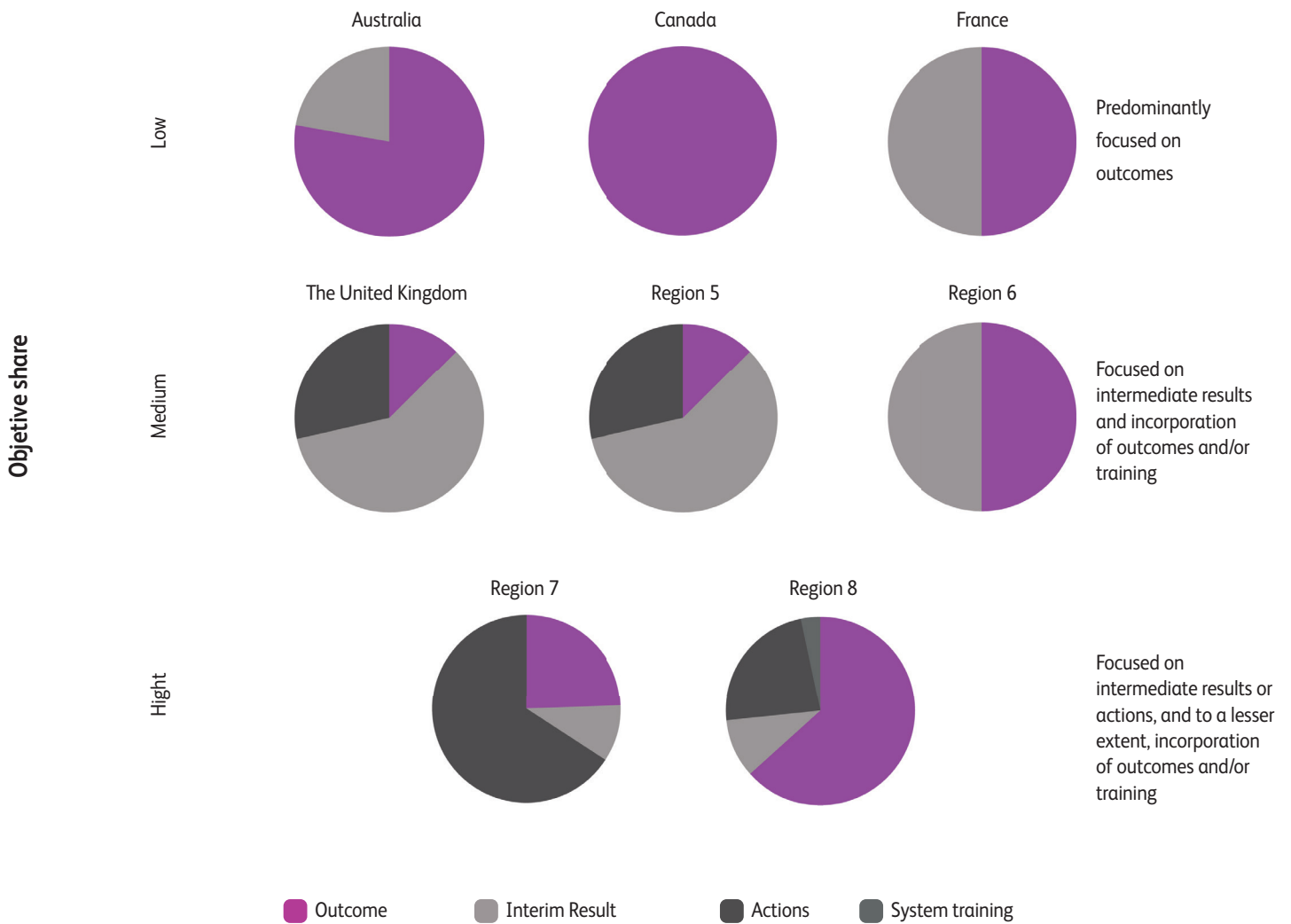
B.1. The type of results included in the plans

3 types of results are identified based on their formulation:

- **Outcomes:** This refers to achieving the desired outcomes for a health system (outcomes for public health, quality, safety, care experiences, and efficiency).
- **Interim outcomes:** This refers to ongoing clinical results, focused on ongoing cancer care, but with a direct or indirect effect on cancer health outcomes.
- **System training results:** It encompasses the results of training healthcare professionals, investigation, innovation, information systems, and organisation among others, to implement tumour committees; reorganising care, etc.



Outcome analysis: type



- Although most plans show outcomes targeting improving the health of the population with cancer in terms of incidence, survival, and/or mortality, international plans (Australia, Canada, France) are more outcome oriented than regional plans in Spain and England.

- Almost every plan incorporates interventions aimed at improving care quality and safety. On the other hand, plans that incorporate interventions to improve patient quality of life or experience are notably fewer in number.

- Lastly, few plans contemplate interventions aimed at improving cancer care efficiency.

C. Which operational framework to use when preparing a plan?

This section describes two general frameworks when designing a cancer plan:

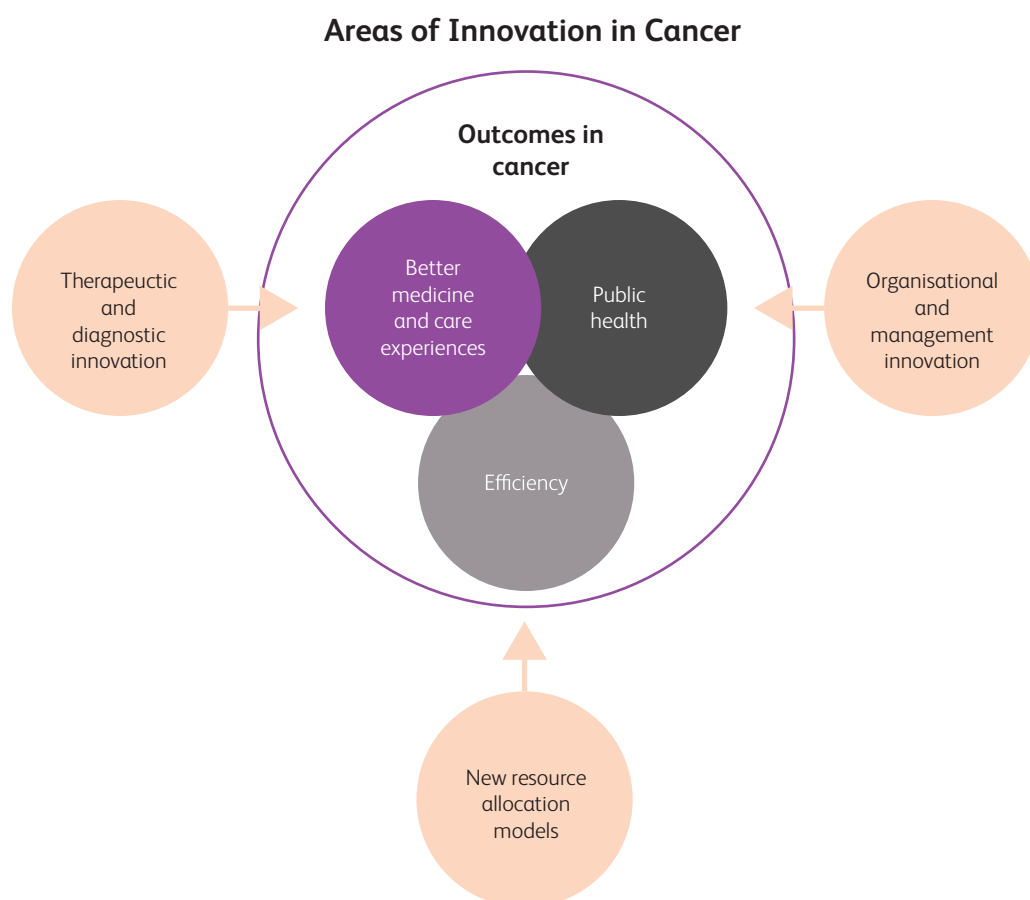
- C.1. An innovation and outcomes framework
 - C.2. The continuum of disease
-

C.1. An innovation and outcomes framework

A plan to tackle cancer should be holistic and thorough. It should attempt to align interventions in three domains:

- the domain of therapeutic and diagnostic innovations.
- the domain of innovations in care organisation and management.
- the domain of new models for allocating resources/funding.

The following diagram shows the three domains.



Source: prepared by SI-Health. 3rd Seminar, SI-Health Insights. 2019.

Those three domains are not aligned in general. A plan should contemplate improvements to those three domains at the same time. In other words, the plan should ensure that interventions occur in the three domains; that the action occurs in the three domains of innovation in order to obtain the highest possible impact against cancer in a country. These are the circumstances that will provide the highest **value**, obtaining the best **outcomes**.

This working framework also opens up a perspective that other frameworks can't. **It FORCES thinking in terms of the desired outcomes from a plan.**

Interest in a new strategy grows exponentially among the health sector; **achieving better results for a lower cost, and as such, maximising the value provided to patients.** In this value-based strategy, outcomes are the most important quality measurements. When those outcomes are measured and reported, better practices are achieved and evaluation is promoted, using quick learning cycles, managing to progressively improve the outcomes.

Healthcare professionals are innovators. They should play a key strategic role in the design and implementation of a new cancer plan. This framework reasons in terms of innovation and outcomes, and can address a relationship between planning and cancer healthcare professionals in terms of innovation, an area of interest to them.

Given the nature of their work, it is logical to think that doctors are more interested in therapeutic and diagnostic innovations than organisational innovations and resource allocations - the other aspects of this framework. However, by simultaneously progressing in the three aspects, doctors can appreciate the importance of those other aspects in obtaining the best possible cancer results in their organisations.

On analysing the contents addressed by the cancer plans under this value-based framework, the following lines of action are identified:

a. The therapeutic and diagnostic innovations that will provide better results

Examples from the analysed plans:

- Current plans detail mechanisms to ensure the identification of pharmacological, technological, and clinical innovations, and their quick adoption by the organisation. To manage that, they propose creating observatories or archives of innovations accessible for the entire medical community.
- They promote investigation, with a particular focus on clinical, translational, and epidemiological investigation in health services, and

implementation. By promoting investigation, they manage to shorten the times from investigation to care practice. It is also a continuous evaluation mechanism to identify the impact of the interventions proposed in the plan and the areas of improvements that need addressing.

b. The organisational and management innovations that will provide better results

Examples from the analysed plans:

- The plans address issues such as the **standardisation of care pathways** for the main tumour types and their implementation.
- They establish lines of action for the **organisation as a network** between hospitals in order to ensure quality, equity, and accessibility, whether for access to innovative treatments going through the clinical investigation phase, rare tumours, tumours in children, or rather for regional hospitals where limited case numbers mean quality standards cannot be assured.
- They identify the need to find new care models for **long-term cancer survivors that can be implemented in the near future.**
- They establish lines of action to identify new models of action, incorporating **precision medicine.**
- They address lines of work for improving a **multidisciplinary approach to cancer.**
- They propose lines of action to systematically incorporate patient opinions at different levels:
 - By implementing **PREMs and PROs** throughout the continuous care for patients with cancer.
 - By introducing mechanisms to promote patient participation in **redesigning processes.**
 - By empowering patients during the management of their cancer and the decision-making that affects their health.
- They prioritise the **implementation of systems to record data that can be exploited** that enable the traceability of care and its impact in terms of interim and final health outcomes.
- They establish **continuous monitoring and evaluation** mechanisms from care data to identify areas of improvement along the care pathway for patients with cancer.

c. The resource allocation innovations that will provide better outcomes

Examples from the analysed plans:

- They propose targeted actions for promoting the implementation of **value-based payments with therapeutic innovations**. Cancer plans clearly acknowledge that this trend in value-based resource allocation will become essential sooner rather than later.
- To explore **new resource allocation and funding models for cancer care**.
- **To align the purchasing of services** to ensure the plan's interventions are implemented.

C.2. The continuum of disease

Described in several of the analysed plans, this framework **does not require** reasoning in terms of the desired outcomes, **but it is useful for organising** interventions during the continuum of care that runs through primary prevention, secondary detection, clinical intervention, and follow-up. It is a traditional framework and is used in the new EU cancer plan proposal.

This means that the plans **ensure that every defined intervention covers the entire spectrum of the framework of continuum of care for the disease**.

The evidence shows that addressing cancer throughout the continuum of care (from prevention and promotion, through early detection, diagnostic suspicion, confirmation and definition of treatment, treatment, follow-up, relapse management, care for long-term survivors, and end of life care) is essential for improving results among people with cancer in a region. However, these aspects of continuum of care are not generally managed by the same entity in healthcare administrations. If this framework is used, the organisational structure in which the administration has to implement it must also be considered in terms of continuity of care.

The following table describes examples of the indicated interventions in cancer plans during each phase of the continuum.

Interventions organised under the framework of continuum of cancer care

Prevention and promotion	Early detection/ diagnostic suspicion	Diagnosis, evaluation, and treatment planning	Treatment	Care after initial treatment, recovery, and relapse management	End of life
Promotion of healthy habits (exercise, diet). Fighting risk factors (obesity, smoking, alcohol). Promoting genetic counselling. A focus on specific prevention and promotion programs: obesity or smoking. ...	Expanding coverage, reducing inequality, and ensuring access to screening for: <ul style="list-style-type: none"> • Breast cancer. • Colon cancer. • Cervical cancer. Identifying and validating new screening programmes (lung and ovarian cancer). Screening of people exposed to carcinogenic agents. ...	Shorter diagnostic times. Shorter times to treatment initiation. A tumours committee and a multidisciplinary approach. Standardisation of care pathways for cancer. ...	Deployment of evidence-based aspects (coordinator nurse, etc.). Organisation of a network to access innovations. The addressing of psychological and social aspects. Improvement of the approach with older patients (frailty and comorbid conditions). ...	Follow-up and management of relapses. New care models for long-term survivors. Standardisation of care pathways for cancer. ...	Coordination with palliative care. Incorporation of early palliative care (not only during the end of life stage). Standardisation of care pathways for cancer. ...

D. Which leadership model is worth adopting to design and implement a plan?

Different types of approaches for implementing the interventions are observed within cancer plans. The manner in which lines of action are addressed provides information about the type of leadership predominating in the region or country.

On the one hand, a group of plans with a strong “**top down**” tendency are identified, specified as:

- **Leadership** from above.

- A marked **focus** on projects that can be led from a **macro domain, with a tendency to centralisation**. By way of example, public prevention and promotion interventions, screening programmes, the acquisition of technology, development of data records, etc.

- The lines of action or interventions targeted at promoting changes in the service and in the organisational and management model (organisational changes, incorporation of new roles, etc.) are transferred based on **instructions or recommendations**.

- **No** lines of action targeting **capacity building for implementation and management** are identified.

- Identifying initiatives targeting **seeking out a response from below** is rare. **The solution is provided from above**.

Centralised planning is likely in these cases, an approach which causes operational disconnection.

Avoiding **operational disconnection** is important. This is the disconnect between the organisation's ideas in the centre and what the care network thinks, or healthcare professionals in this case. A major operational disconnect will prove a barrier to change.

On the other hand, another group of plans present a much more **distributed, inclusive, and capacitive** approach for implementing lines of action or projects.

The core idea of those plans is to identify a leadership model that balances the top-down with the bottom-up. That reasoning involves health professionals in the strategic design of a plan in order to seek out their commitment and ideas for improvement.

In other words:

- **Leadership is spread out much more** among the levels of the organisation to enable greater participation, more input, and a margin of decision to meso and micro levels, particularly among the lines of action concerning organising care.

- They focus on a **mix of technical projects, adaptive projects, and on creating a receptive scenario for continuous implementation and evaluation**.

- The lines of work targeting promoting changes in the organisation are managed by promoting **local innovation or rather by different levels collaborating and working** in order to define the frameworks or standards for the entire region.

- **Searching for responses among services predominates**, particularly for complex interventions (new care models), compared to a solution imposed from above.

- This form of planning implies increased involvement of healthcare professionals in the service, and as such, avoids a higher level of operational disconnect.

E. What capabilities are needed for the implementation?

The capabilities and functions incorporated by the studied regions and countries have also been analysed in terms of addressing the implementation of the a cancer plan. In this sense, a significant disparity between regions and countries is observed in terms of the functions and capabilities contemplated for supporting the implementation of the measures defined in the plans. The main capabilities identified were:

1. Governance of the plan and coordination of the players involved in cancer care. In this sense, the most developed countries have dedicated capacity to that end, incorporating all or part of the functions described below.

2. Monitoring, follow-up of the implementation of the plan and detection of the areas of improvement and/or corrective measures:

- In terms of outcomes.
- In terms of the implementation process.

Both approaches are complementary and necessary, as they provide information on how the implementation is advancing , and most importantly, the results being obtained. This point is essential as it enables redirecting or incorporating additional changes not originally contemplated in the plan, which are necessary to achieve the defined cancer results.

3. Constant updating of innovations and evidence relating to cancer, and mechanisms for promoting its transfer to care practice:

- Internationally, with the aim of making the latest available evidence accessible to the region.
- Locally, by identifying innovations, evaluating their efficacy and efficiency, and promoting their transfer and/or scalability.

4. Funding and plan-related resources:

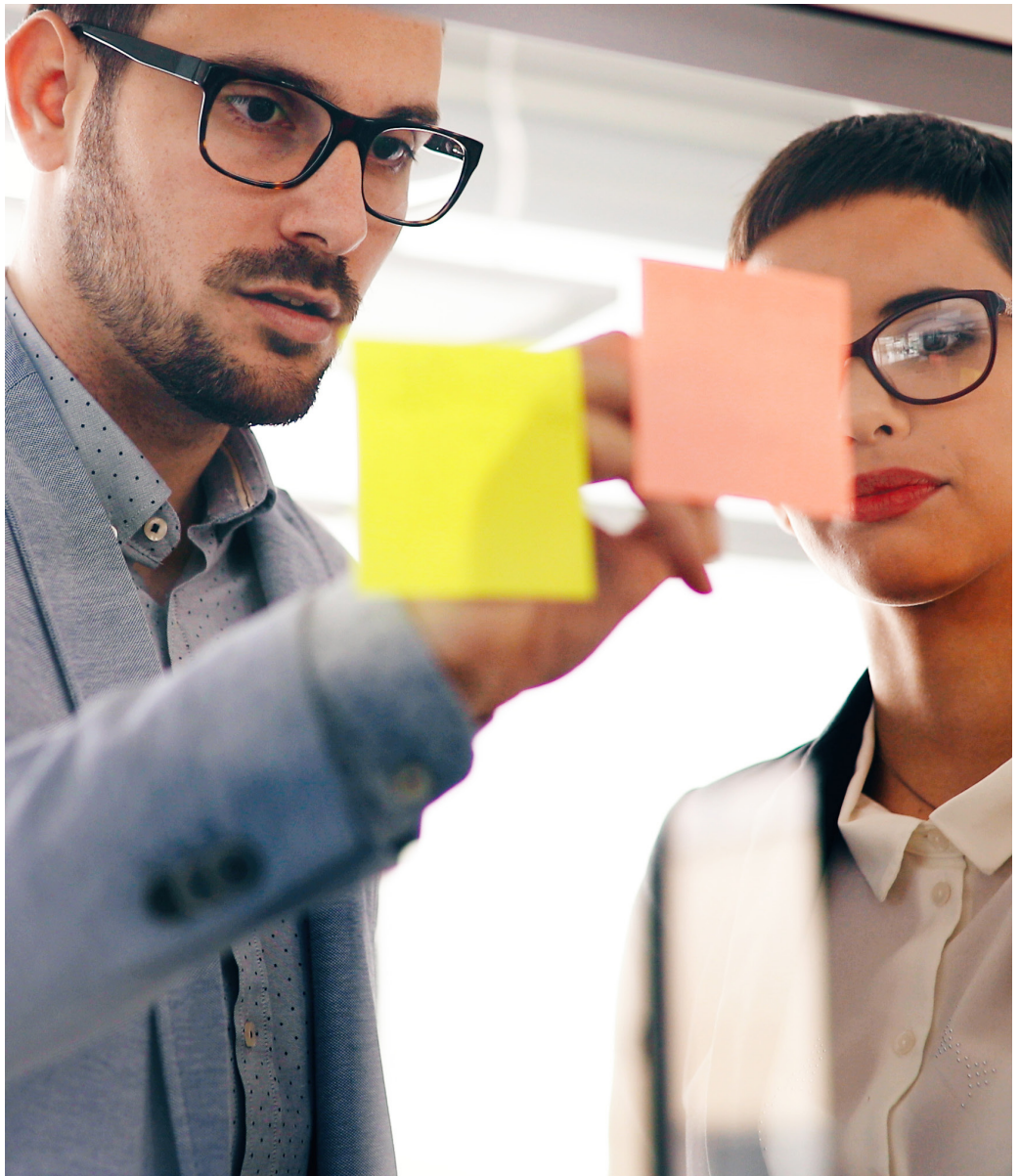
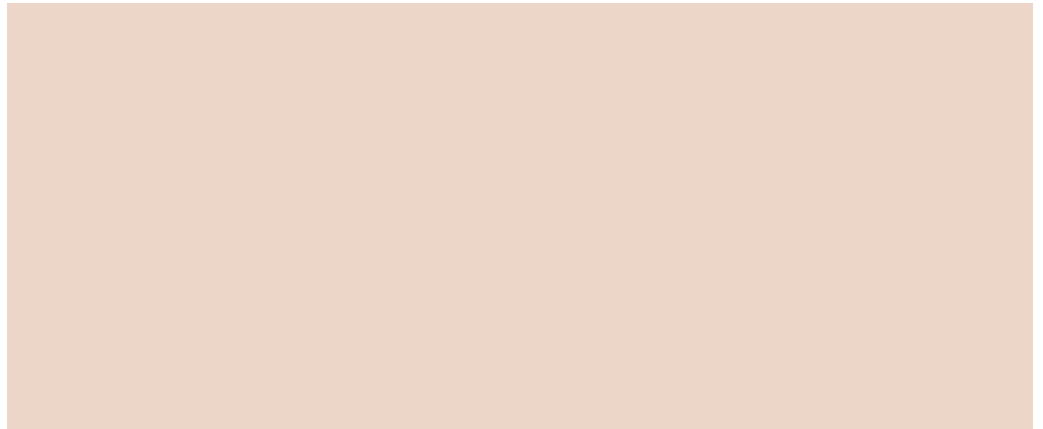
- This contemplates the plan-related funding for developing the defined interventions and investments it contemplates (technology, care resources, etc.).
- A particular emphasis on ensuring financial investment to give the system the additional capacity required for continual improvement in cancer care (new roles, functions, training, etc.).

5. Support for implementation through:

- Facilitation and guidance: the creation and development of frameworks, standards, or tools.
- Interventions for creating a positive context for implementation.
- Regular feedback on the results achieved as the implementation of the plan progresses.

6. As can be seen in all these points, “adaptive” planning over time is required the approach.

- Quick continuous evaluations of changes in the treatment domain, the organisational domain, and in the resource allocation domain inform the planning team so that they can “adapt” the interventions as they progress.



4. Guideline to cancer planning in the 21st century

This section details the recommendations identified by the group of experts after analysing and discussing the critical aspects that condition the definition and contribute to minimising the risks of implementation from the plan's definition phase.

1

INVOLVE EVERY PLAYER WITH A ROLE IN CANCER CARE IN THE PROCESS TO DEFINE AND IMPLEMENT THE PLAN.

This means balanced involvement of professionals from both the clinical and social domain, professionals from the management and planning domain, from associations, and patients that represent the actual situation in the country.

Involving all players with cancer in the definition of the plan ensures a better response to cancer and minimises one of the risks of implementation, namely the acceptance and involvement of the players in the response.

2

USE PATIENT OPINIONS, SHARED DECISION-MAKING PROCESSES AND CARE DATA AS ADDITIONAL INFORMATION SOURCES, IN TERMS OF THE PROCESS AND RESULTS.

Using all the aforementioned information sources enables the provision of a more robust diagnosis and a focus on the aspects with greater improvement in terms of the impact on cancer care results.

Including patient opinions provides very valuable information about unmet needs, a fact that promotes the search for responses, and as such, promotes innovation.

Care data in terms of the process and results enable the identification, objective analysis, and sizing of specific areas that can be improved before specifically targeting them.

3

EVERY CANCER PLAN SHOULD TARGET OUTCOMES FOR THE SYSTEM AND SPECIFY ITS GOALS.

Outcomes for the system are **public health results** (incidence, survival, and mortality), **individual care outcomes** in terms of care quality and safety, quality of life, or health outcomes and/or the experience perceived by the patients, and **efficiency**.

The strength of targeting a cancer plan based on outcomes for the system, rather than interventions, provides a series of characteristics to the plan:

- It ensures that the response to the plan is targeting improving cancer care results among the public and on an individual level, safeguarding care sustainability.
- It provides flexibility and dynamism to the plan on having to promote the response or that the proposed interventions are achieving the expected results.
- It promotes constant monitoring of the extent to which results are achieved.

4

THE PLAN MUST ENSURE THAT THE EXISTING RESOURCES ARE ACHIEVING THE BEST RESULTS.

Healthcare spend on oncology has doubled in the past decade. A significant part of resources target the clinical management of the patient, leaving public interventions and new diagnostic techniques under-resourced.

Strengthening a cancer plan requires a financial effort. It is worth evaluating what resources are currently allocated to cancer, which ones are allocated to diagnosis and treatment, which ones to specific interventions during prevention, and how current resources can be reallocated to achieve better results.

5

THE PLAN SHOULD INCORPORATE AND ALIGN DIAGNOSTIC AND THERAPEUTIC INNOVATIONS, ORGANISATIONAL AND MANAGEMENT INNOVATIONS, AND NEW MODELS TO ALLOCATE RESOURCES AND INCENTIVES.

Planning has traditionally focused on identifying interventions required for the continuum of care. This approach identifies “what” needs doing, which is generally evidence-based, but does not address other necessary aspects for improving cancer results, such as the incorporation of therapeutic diagnostic innovations, organisational and management aspects, or rather the way in which resources and incentives are allocated. All these aspects influence cancer care results.

Diagnostic and therapeutic innovation has developed most and has the most incentives. This means that awareness is high and many stakeholders want the entire armamentarium to be incorporated into healthcare systems. However, the same level of awareness and development does not exist for organisational and management tools, which are evidence-based and take on significant relevance when contributing to improving care results.

Furthermore, more and more initiatives are looking into new models for funding, resource allocation, and the alignment of incentives with results. Most have been explored in terms of pharmacological innovations, with care process-related initiatives very much in their infancy.

If the three areas (diagnostic and therapeutic armamentarium, the organisation and management of care, and the allocation of resources and incentives) are not addressed and aligned, maximising the impact on cancer results will be tough.

6

THERE IS AN URGENT NEED TO EFFECTIVELY DEVELOP THE PREVENTIVE POTENTIAL FOR CANCER AS THE PRIMARY MEASURE TO COUNTERACT INCIDENCE AND IMPROVE THE CANCER PROGNOSIS.

The IARC Global Cancer Report; Research for Cancer Prevention, shows how certain cancer types, such as lung, melanoma, cervical, oropharyngeal, or anal **could reduce significantly** with the elimination of trigger factors, while the incidence of most cancers would decrease on addressing obesity, alcohol consumption, and by eating the correct diet.

42% of cancer cases could be prevented by acting on risk factors, such as smoking, obesity, a balanced diet, unsuitable sun exposure, human papillomavirus, alcohol consumption, among others [3].

Furthermore, early detection is the best tool for improving cancer prognosis.

On viewing the potential impact of prevention and early diagnosis on the epidemiological profile of cancer, it is worth highlighting that there isn't the funding, resources, investigation, and innovation to find effective formulae that will have a preventive impact among the public.

7

PROMOTE THE USE OF INTERDISCIPLINARY TEAMS THAT PROVIDE A COORDINATED RESPONSE TO THE CLINICAL, PSYCHOLOGICAL, AND SOCIAL NEEDS OF PATIENTS WITH CANCER AND THEIR FAMILY MEMBERS.

The benefits of an interdisciplinary approach to cancer are now undeniable. The challenge is to coordinate the incorporation of the points of view of the disciplines that the patient needs throughout their care journey and adapt them to the changing situations they experience.

Current care organisation, in separate entities, promotes fragmented care and makes it difficult for patients to benefit from the best care, causing a negative impact on their healing, survival, or quality of life. Some of the symptoms manifest in the patients themselves in the form of treatment failures, adverse events, diagnostic delays, or delays in the initiation of surgery, radiotherapy, or pharmacological treatment, late detection of relapses, or a poor care experience for the patient and their family members, among others. Others are less perceptible to patients, but not to the system, such as unnecessary practices that add no value, unnecessary referrals that extend waiting lists, among others, which raise the cost of the care process when examined as a whole.

The response to this challenge is found in organisational and management innovation, and its correct implementation.

8

EXPLORE NEW EFFECTIVE AND SUSTAINABLE MODELS FOR LONG-TERM SURVIVORS.

The number of cancer survivors are estimated to increase by 30% in 2030 [24]. A long-term cancer survivor is any person with a history of cancer from its diagnosis to the end of their life. This designation includes a significant range of types, including patients that managed to overcome a cancer, patients that live with a chronic cancer condition, or patients that have exhausted all therapeutic options and are in the transitional period to end of life [24].

As such, there are very heterogeneous groups in terms of healthcare and social needs, and the improvement in survival percentages will derive in many more unmet needs that will become more relevant as the years go by. Some of these involve work placement or financial issues faced by patients and families after having cancer. Others refer to the healthcare and social needs deriving from the consequences left by cancer or long-term side effects, or psychological consequences, among many others.

The current response offered by the healthcare system is typically close and homogeneous follow-up in a hospital domain, which does not respond to the heterogeneity of current needs, and is also unsustainable. To mitigate this, many countries are already exploring new care organisation models for long-term survivors that adapt to the needs of each long-term survivor.

In this context, it is worth recalling another guideline developed for Europe by a wide-ranging partnership of European Union countries: The CanCon guideline, which focuses on improving quality. The official title is the “European Guide on Quality Improvement in Comprehensive Cancer Control”. [25]

9

PRIORITISE THE IMPLEMENTATION OF INTEROPERABLE INFORMATION SYSTEMS THAT CAN COLLECT CARE DATA, IN TERMS OF CARE PROCESS TRACEABILITY, CLINICAL RESULTS, AND INDIVIDUAL PATIENTS.

Having information systems capable of recording, sharing, and analysing data from care practice is becoming a core and critical aspect when progressing towards measuring health results.

Most healthcare systems are not prepared to make use of this information. Some of the reasons derive from the required operations not being available, in other cases it derives from an interoperability issue between systems, whereas others are down to a lack of data quality or non-systematic collection.

Healthcare systems and organisations that have targeted continuous improvement have prioritised the development of information systems that enable the transparent measurement and monitoring of the entire care process, incorporating patient metrics and providing constant feedback to managers, doctors, and patients to establish a culture of continuous improvement based on objective data. Canada or Australia are examples, as they operate along these lines.

10

UNJUSTIFIED CLINICAL VARIABILITY BY CANCER TYPES NEEDS TO BE HALTED CORRECTED TO ENSURE THAT EVERY PATIENT HAS ACCESS TO QUALITY CARE, IRRESPECTIVE OF THEIR PLACE OF RESIDENCE.

Clinical variability among cancer is a characteristic occurring in every country. Some countries are aware of this and are implementing management and organisational tools to ensure that patients with similar care needs receive the ideal sequences with interventions, milestones, and expected results.

To that end, healthcare systems such as in Denmark, Canada, and Australia, have worked on standardising “clinical pathways” by types of patients with cancer.

In the same way as for other diseases, this approach aims to reduce clinical variability and improve the pathway for patients in hospitals. Causal relationships between the use of pathways and better results is growing as a way of managing patients with cancer. For example, in Great Britain and Scotland, a radical rethink of the way that a patient with cancer uses the pathways is considered necessary, particularly TDPs - Timed Diagnostic Pathways. Clinical leaders have prepared and obtained evidence (with patient involvement) of three pathways for colorectal, lung, and prostate cancer, with their use compulsory in the United Kingdom. Each pathway is included in a manual, which indicates how the diagnosis can be achieved in 28 days with organisational innovations. Oesophageal cancer is going to be added to that list. [26]

11

ORGANISATION IN THE FORM OF A NETWORK (BETWEEN CENTRES) SHOULD BE PROMOTED TO ENSURE CARE QUALITY IN CENTRES WITH FEW CASES WHERE A HIGH LEVEL OF SPECIALISATION IS REQUIRED.

The reorganisation and concentration of services, treatments, or functions in reference centres that provide coverage for other centres, acting as a network, is the evidence-based response to ensure the best clinical and care quality results for cases when the minimum required/ideal volume of cases per centre and/or surgeon is not achieved [27].

More and more countries are reorganising complex operations, rare tumours, tumours in children, or to in order to provide innovative treatments such as CAR-T treatments, among others. Countries such as England, Holland, France, or Germany are progressing in this direction, involving professionals in the reorganisation process and using process indicator data and the outcome as tools to show this need exists [28].

12

PROMOTE THE INCORPORATION OF PATIENT VOICE ON ALL LEVELS.

Patients have traditionally been viewed as passive subjects by the healthcare system. A change of approach has recently occurred, as patients want to adopt a more active role in everything involved with their care. At the same time, healthcare systems are seeing the potential of integrating patient opinions in the form of very powerful tools for continuous improvement.

The evidence is pointing that way. Involving patients in decision making impacts on satisfaction and health results [29]. Empowering patients and involvement in self-care improves their clinical results and proves cheaper for the system [30]. Co-creation with patients, both in terms of innovations that respond to their needs and the care process, are very powerful tools when it comes to improving the care experience and quality [31].

The TDPs or Timed Diagnostic Pathways explained in point 10 of this document are an example of active patient participation in redesigning services. Clinical leaders and patients develop them together. [26]

Obtaining patient opinions does not mean interacting with associations from time to time or including a patient in a working group. It goes much further than that. It involves a significant change in culture. Healthcare systems must make great strides in this direction to ensure that opinions are systematically integrated, as opposed to isolated initiatives.

13

ANALYSE AND COMBAT WASTEFULNESS IN CANCER.

Studies undertaken in the United Kingdom estimated that 20% of expenditure on oncology could be linked to ineffective interventions without sufficient evidence to support them [6]. At the same time, the WHO estimates that the elimination of cancer interventions with no proven supporting evidence could provide health savings of 20-40% in Europe [32].

In 2012, ASCO created a list of low value tests and procedures in cancer [33]. The plan should analyse the relevance of including targeted interventions for evaluating practices that don't provide value and eliminate them from care practice.

In Spain, both the Ministry of Health and the Catalonia Health Evaluation and Quality Agency (AQuAS) identify clinical practices of limited value in cancer and promote activities to avoid their use.

14

DEVELOP THE INCORPORATION OF PAYMENT INITIATIVES FOR HEALTH RESULTS IN ALL TYPES OF INNOVATION (PHARMACOLOGICAL, TECHNOLOGICAL, AND/OR ORGANISATIONAL)

The current funding model, allocation of resources and/or incentives, focuses on activity, the number of actions, and/or on reducing costs. This model promotes fragmented care, is inefficient, and does not manage to respond to patient needs, given that it does not target results for both health and the patient.

Health result-based payment initiatives in our domain currently occur with therapeutic innovations and they are starting to occur with technology.

The international trend expands their spectrum of action to include healthcare result-based payments. The United States of America, France, and the United Kingdom are making efforts to look into new value-based care payment models.

15

ESTABLISH PROCESSES AND MECHANISMS TO QUICKLY IDENTIFY, EVALUATE, AND TRANSFER THE LATEST AVAILABLE EVIDENCE TO CARE PRACTICE.

Constantly updating healthcare professional knowledge is essential for improving care and ensuring that patients benefit from the latest available evidence. Healthcare professionals currently have this responsibility, who by way of their curiosity and interests, search for information and their own training, or seek out help from third parties (scientific societies, the pharmaceutical industry, etc.).

This practice is one of the reasons behind the current clinical variability. Countries such as Australia or the United Kingdom understand this role is also the competency and responsibility of the healthcare system, because it has to ensure that it responds to the latest available evidence. This involves providing the systemic capacity to identify and evaluate evidence-based technological and clinical innovations and establish training and education mechanisms for healthcare professionals to ensure it correctly transfers to care practice.

16

DEVELOP RESEARCH POTENTIAL ALIGNED WITH CANCER PRIORITIES IN EACH AUTONOMOUS COMMUNITY.

In terms of results measured by scientific publications, cancer investigation in Spain is positive given the huge limitations that investigators face. Spain receives less than half the funding of their counterparts in France and Germany^[34].

A significant part of the investigation, particularly clinical investigation, is linked to third parties, a fact that could condition the type and contents of the investigation, not necessarily responding to the capabilities and opportunities of the clinical and academic ecosystem for investigation, nor the epidemiological situation of cancer in Spain^[34].

France is a leading country in public interest clinical investigation. The strategy followed has revolved around providing public funding to direct the investigation based on the strengths, realities, and needs for cancer in France. Establishing the priorities in investigation and providing/developing the capacity required for the investigation to serve the needs of a country or region is one of the most important drivers to improving care quality.

17

FOCUS ON FEW, HIGHER IMPACT INTERVENTIONS.

The predominant behavioural pattern in Spain when defining and implementing plans revolves around describing a significant volume of interventions and monitoring their progress during implementation instead of evaluating the impact being obtained by results. In the best case scenario, this scatter gun approach manages to implement some interventions, but generally doesn't have an impact in terms of improved results.

The current trend with planning involves focusing on few interventions, selected based on the impact in terms of results, knowing full well that the impact will be medium-long term. This approach responds to a criterion of efficiency and targeting.

18

THE PLAN SHOULD BALANCE “TOP DOWN” AND “BOTTOM UP” INTERVENTIONS.

Most plans fail during the implementation of interventions to the service. One such example is the effective and fully operational implementation of tumour committees in every hospital, among others. This intervention is extensively included in most plans and remains a pending task for many hospitals today. On the other hand, more global interventions that can be centralised, such as implementing a record or analysing the sizing of services, etc. have a lower risk of failure during implementation.

Evidence is growing that will support that interventions in services do not respond correctly to instructions from the planning and management domain with respect to implementation, rather that they need a more complex response. They work better if a response is sought with the involvement of healthcare professionals.

As such, cancer plans should contemplate a balance of interventions led by the planning domain and others that develop during service. To that end, the macro level should create sufficient conditions so that the local domain can be the centre of innovation during the implementation.

Presuming that plans are automatically adopted is a common fault in most countries. There are studies that indicate that most plans don't achieve the desired impact. This gap between expectation and achievement is largely attributed to implementation-related aspects, such as type of the leadership applied, the operational disconnect between the clinical and management domains, or the organisation's lack of capacity to carry out the plan.

19

CREATING A SPECIALISED CANCER UNIT IS RECOMMENDED FOR GOVERNANCE OF THE PLAN, WHICH ASSUMES THE ROLE OF COORDINATING WITH OTHER PLAYERS, MONITORING RESULTS, SUPPORTING IMPLEMENTATION, AND MANAGING KNOWLEDGE AND INNOVATIONS.

A limited number of countries have a cancer-specific capability that assumes the role of safeguarding that the plan is fulfilled in terms of results, proposing changes to the planning to ensure an impact in terms of results, managing and generating knowledge about cancer, and ensuring that it is transferred to care practice, supporting implementation by creating the right conditions, and supporting evidence-based decision-making in the planning domain.

These roles are identified to be separate and carried out by different players in Spain. By way of example, the management of cancer knowledge is usually placed with scientific societies, evaluation and investigation into healthcare policies is often misaligned with political needs and trends, etc. However, the key aspect resides in all these functions being assumed by the healthcare system in collaboration with the other players.

20

THE PLAN SHOULD INCORPORATE THE RELEVANT FUNDING FOR THE INTERVENTIONS DETAILED IN THE PLAN AND THEIR IMPLEMENTATION.

Every plan or strategy needs resources for implementation.

A very common practice when designing plans and strategies is not clearly stating the associated funding, and when it is included, it tends to be investment-related. This is one of the main reasons behind plans failing.

The funding required to effect a plan's implementation should specify the funding associated with investments, provide an estimation of the necessary resources (funding and/or reallocation) for developing some interventions, and the capacity required for its implementation.

At the same time, a balance between preventive and curative interventions or clinical treatment and management should be ensured. Lastly, it should include funding for cancer research.

The following table is to enable self-evaluation of a plan based on the recommendations and aspects described in this document.

Recommendation summary table:

Aspects	Recommendations	Yes	No
Which aspects are used to establish a diagnosis of the cancer situation?	1 Has every player with a role in cancer care been involved in the process to define and implement the plan?	<input type="checkbox"/>	<input type="checkbox"/>
	2 Have patient opinions, shared decision-making processes and care data been used as additional information sources, in terms of the process and results?	<input type="checkbox"/>	<input type="checkbox"/>
Are the plans result-oriented?	3 Is the cancer plan oriented towards outcomes for the system and has it set out its goals?	<input type="checkbox"/>	<input type="checkbox"/>
	4 Has the plan ensured that the current resources are achieving the best results?	<input type="checkbox"/>	<input type="checkbox"/>
Which operational framework to use when preparing a plan?	5 Does the plan incorporate and align diagnostic and therapeutic innovations, organisational and management innovations, and new models to allocate resources and incentives?	<input type="checkbox"/>	<input type="checkbox"/>
	6 Does the plan show an urgent need to effectively develop the preventive potential for cancer as the primary measure to counteract incidence and improve the cancer prognosis?	<input type="checkbox"/>	<input type="checkbox"/>
	7 Does the plan promote the use of interdisciplinary teams that provide a coordinated response to the clinical, psychological, and social needs of patients with cancer and their family members?	<input type="checkbox"/>	<input type="checkbox"/>
	8 Does the plan explore new effective and sustainable models for long-term survivors?	<input type="checkbox"/>	<input type="checkbox"/>
	9 Does it prioritise the implementation of interoperable information systems that can collect care data in terms of care process traceability, clinical results, and individual patients?	<input type="checkbox"/>	<input type="checkbox"/>
	10 Does the plan correct unjustified clinical variability by cancer types to ensure that every patient has access to quality care, irrespective of their place of residence?	<input type="checkbox"/>	<input type="checkbox"/>
	11 Should the plan promote organisation in the form of a network (between centres) to ensure care quality in centres with few cases where a high level of specialisation is required?	<input type="checkbox"/>	<input type="checkbox"/>
	12 Does it promote the incorporation of patient voice on all levels?	<input type="checkbox"/>	<input type="checkbox"/>
	13 Does it analyse and combat wastefulness in cancer?	<input type="checkbox"/>	<input type="checkbox"/>
	14 Does it develop the incorporation of payment initiatives for health results in all types of innovation (pharmacological, technological, and/or organisational)?	<input type="checkbox"/>	<input type="checkbox"/>
Which leadership model is worth adopting to design and implement the plan?	15 Does it establish processes and mechanisms to quickly identify, evaluate, and transfer the latest available evidence to care practice?	<input type="checkbox"/>	<input type="checkbox"/>
	16 Does it develop research potential aligned with cancer priorities in each autonomous community?	<input type="checkbox"/>	<input type="checkbox"/>
	17 Does it focus on few, higher impact interventions?	<input type="checkbox"/>	<input type="checkbox"/>
	18 Does the plan balance “top down” and “bottom up” interventions?	<input type="checkbox"/>	<input type="checkbox"/>
What capabilities are needed for the implementation?	19 Has creating a specialised cancer unit for governance of the plan, which assumes the role of coordinating with other players, monitoring results, supporting implementation, and managing knowledge and innovations, been evaluated?	<input type="checkbox"/>	<input type="checkbox"/>
	20 Does it incorporate funding relevant to the plan's interventions and its implementation?	<input type="checkbox"/>	<input type="checkbox"/>

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Annex I. Criteria used when selecting plans for this analysis

The methodology used to analyse the plans focused on:

1. Identifying and selecting current cancer plans.

A sample of international cancer plans were selected for the analysis, and every current cancer plan in the 17 autonomous communities in Spain was also analysed.

The following criteria were used for their selection:

a. International cancer plans:

- That it is a current cancer plan.
- The plan's availability in English or Spanish.
- The top positions in the "Index of cancer preparedness" ranking. In the case of the same ranking, countries with a high score in the "policy & planning" category were prioritised.

The following countries were analysed: Australia, the United Kingdom, France, and Canada.

b. Autonomous community cancer plans:

- That it is a current cancer plan.
- Online access to the plan.

The autonomous communities included in the analysis were: Aragon, Castilla y León, Catalonia, The Basque Country, and Extremadura.

Guideline for planning cancer in the 21st century

A plan of cancer: a plan of life

