



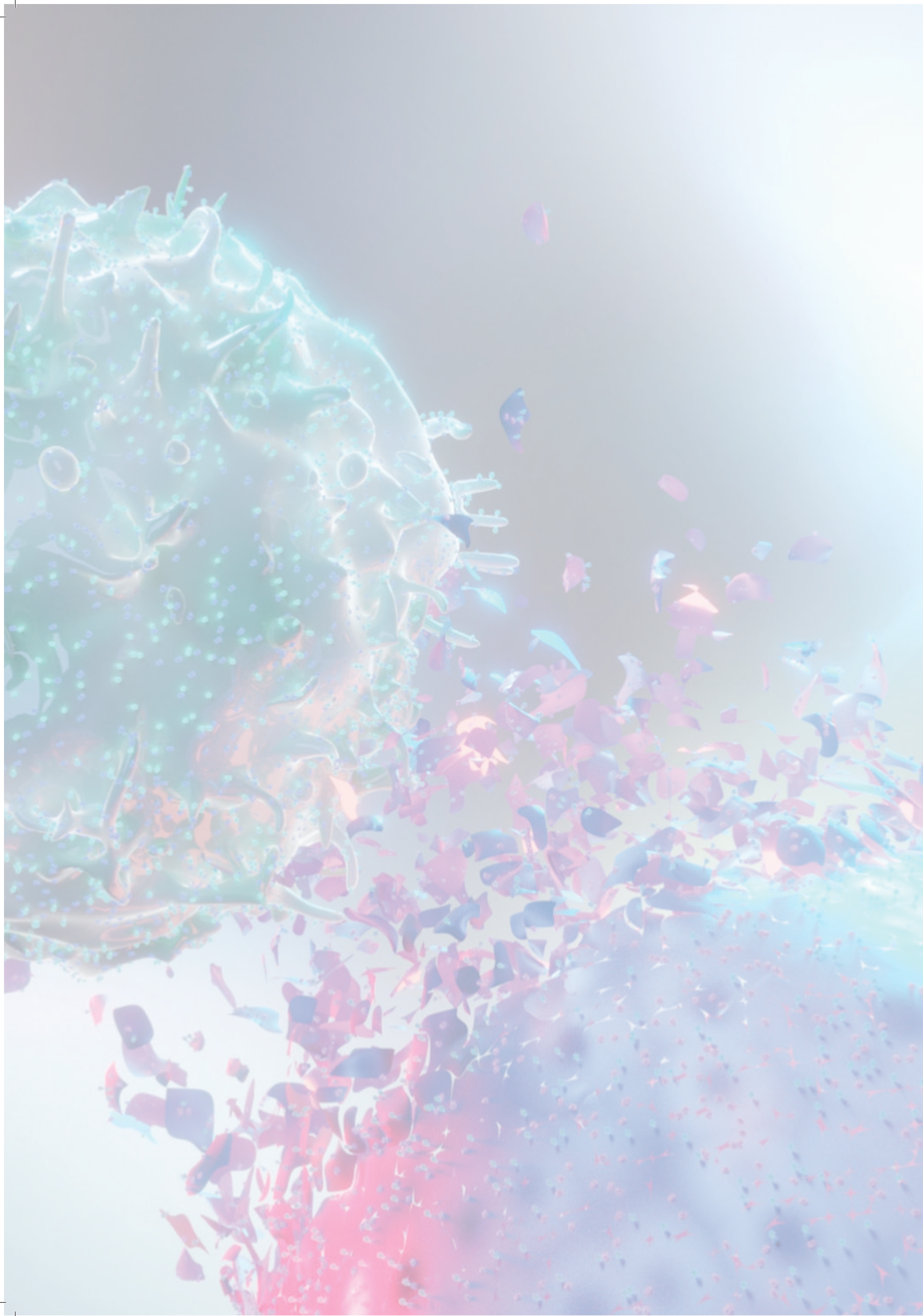
وزارة الصحة العامة  
Ministry of Public Health  
دولة قطر • State of Qatar

# QATAR CANCER PLAN

2023 - 2026

Excellence for All







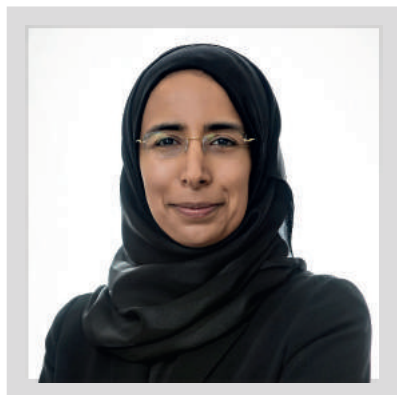


# Contents

Foreword from Her Excellency, Dr. Hanan Al Kuwari, Minister of Public Health – State of Qatar .....	2
Foreword from Professor The Lord Ara Darzi, Chair of the National Cancer Governance Board .....	3
Foreword from Dr. Mohamed Salem Al Hassan, Chair of Cancer Services .....	4
Executive Summary .....	6
Background .....	9
Developing the Qatar Cancer Plan .....	11
Chapter 1: Prevention and Public Education .....	21
Chapter 2: Early Detection and Screening .....	29
Chapter 3: Quality Treatment and Ongoing Care .....	35
Chapter 4: Holistic Support .....	41
Chapter 5: Childhood Cancers .....	49
Chapter 6: Surveillance and Research .....	53
Chapter 7: Strategic Enablers .....	57
References .....	63
List of Figures and Tables .....	67
Appendix 1- Strategic Objectives and Deliverables .....	69
Appendix 2- Acknowledgements .....	75



## Foreword from Her Excellency, Dr. Hanan Al Kuwari, Minister of Public Health – State of Qatar



Cancer is something that touches upon all our lives, everyone has a friend or family member who has been impacted by cancer. This is why it is so important that we continue to focus our efforts to improve the care we provide to not just cancer patients, but their families and communities.

This was recognized when Qatar developed the National Cancer Strategy in 2011, the first in the Gulf region. Following on from this strong foundation came the National Cancer Framework in 2016, which sought to continue Qatar's journey towards excellence in cancer care. The Qatar Cancer Plan 2023-2026 (QCP) seeks to further build upon and expand this legacy. This ambitious plan seeks to ensure that cancer services in Qatar continue to be at the cutting edge of both quality of care and support to the people of Qatar.

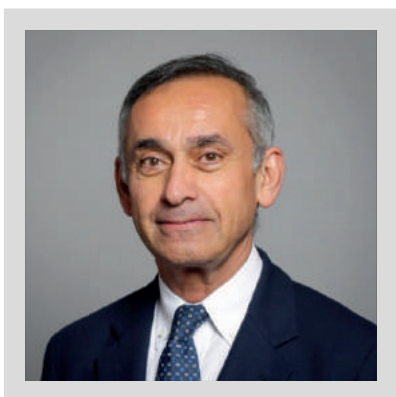
I would like to commend the National Cancer Governance Board and all those who have assisted in the development of the NCP, and indeed all of those who are working in the front lines of cancer care. There have been great strides to improve cancer services, and the NCP represents another stage in this development. A renewed focus on addressing the holistic needs of the individual, their families, carers and community will see a great improvement in how we care for our patients, not just clinically but in all aspects of their lives.

The COVID-19 pandemic has taught us much about the value of robust public health measures and interventions. The Ministry of Public Health, through the NCP and Public Health Strategy are putting in great efforts to improve the health and lifestyles of the people of Qatar, we know that many cancers can be prevented, and that where possible it is better to prevent is better than cure.

Qatar already delivers a wide range of cancer services at the highest possible level. The NCP sets out to improve the capacity and capability of the system even further, ensuring that the people of Qatar have access to the best possible care in their communities, and to ensure that Qatar is rightly recognized as a regional leader in cancer care.

With the vision and guidance of our country's leadership and the participation of all stakeholders, I am confident that we will truly deliver Excellence for All.

## Foreword from Professor the Lord Ara Darzi Chair of the National Cancer Governance Board



It has been a truly remarkable privilege to be involved in supporting Qatar's cancer services for more than a decade. From the early days of the first National Cancer Strategy, the State of Qatar, the health system and cancer services have undergone an incredible transformation. The Qatar Cancer Plan 2023-2026 (QCP) represents the next phase in the development and evolution of cancer care in Qatar. The QCP is perhaps the most innovative and visionary plan to date, which has been made possible by the strong foundations which have been laid over the last decade.

I would like to thank all members of the National Cancer Governance Board, and Chapter Authors across the health system for their unwavering support and commitment to improving cancer service for the people of Qatar. Their ongoing guidance has enabled us to move towards delivering world class care in Qatar and achieving our vision of 'Excellence for All'. I have been involved in many cancer strategies and can proudly say that Qatar's have been the most rewarding, supported by incredible leadership, implementation of the previous cancer plan and framework has delivered tangible improvements to care. None of the remarkable achievements in cancer care over the last decade would have been possible without the enduring passion, commitment, pragmatism and hard work that has been demonstrated by so many leaders across the system.

The QCP sets out strategic objectives and deliverables that will fundamentally alter how cancer care is delivered, introducing new services, facilities and models of care that will have direct impacts on the quality of care for those with cancer, and the support provided to patients, survivors and carers and the wider community across Qatar.

It has taken many years of hard work to reach this point, and as Qatar hosts the greatest sporting event in the world, the FIFA World Cup, it is right that we think about all the work that has been undertaken thus far, and how we will build a successful legacy for all the people of Qatar. We know that Qatar's healthcare providers deliver extremely high-quality services, using state-of-the-art technologies. The QCP seeks to build on this foundation and extend new, innovative services, with increased accessibility, and in a more joined-up manner.

The inclusion of a new model of holistic support will represent a step-change in how we care for all aspects of cancer patient's needs, extending support across families, carers and communities, and truly placing the individual at the heart of their care. The QCP represents the next stage of development and evolution of cancer services in Qatar and will further the range and quality of care available to all in Qatar.

On behalf of the National Cancer Governance Board, I would again like to thanks all those who have been with us on this journey, and for having the opportunity to continue to support Excellence for All in cancer care for the State of Qatar.



## Foreword from Dr. Mohamed Salem Al Hassan, Chair of Corporate Cancer Services, Medical Director & CEO of the National Center for Cancer Care and Research



The State of Qatar has made significant progress in cancer services over the past number of years with improvements in access to care, rapid diagnostics and providing high standards of patient care, thus improving outcomes and survivorship.

The Qatar Cancer Plan 2023-2026 sets out clear strategic objectives and deliverables to be accomplished over the next three years. These include a focus in key areas such as the development of palliative homecare services and precision medicine in cancer care. The establishment of a survivorship program over the coming years will also be of importance to the cancer program in the State of Qatar.

Teamwork is an essential element of any cancer program, and the collaboration and co-operation of stakeholders in the healthcare sector will be essential to the successful implementation of the QCP. On this note, I would like to take this opportunity to sincerely thank everyone working across the healthcare system in the State of Qatar for their contributions to cancer services and I look forward to working with them once again on the implementation of the QCP.

Finally, I would like to pay tribute to HH The Emir, Sheikh Tamim Bin Hamad Al Thani for his steadfast support and encouragement as we continue our journey to ensure Excellence for All in cancer care in the State of Qatar.





## Executive Summary

The Qatar Cancer Plan 2023-2026 (QCP) builds upon a decade of improvements to cancer services in Qatar. Preceding plans have laid a strong foundation, allowing services to offer increased scope at high quality for all the people of Qatar. The QCP will continue this journey, seeking to deliver the ambition of “Excellence for All”.

The QCP sets out the fundamental importance of improving cancer care, and the intertwined legacy of the QCP and the FIFA World Cup. The QCP also outlines the importance of investing in cancer services, not just for the health and wellbeing benefits these bring to the people of Qatar, but because investment in cancer services can be demonstrated to save lives and money in the long run. Simply put, every 1 Qatari Riyal (QAR) invested in cancer interventions will have a 4-10 QAR return on investment over a decade.

Fundamental to the successful delivery of cancer care is a joined up, collaborative approach across the entire patient pathway; the QCP has been developed collaboratively with key stakeholders from across the continuum of care and has been supported by expertise from the World Health Organization. The QCP sets out clear, tangible, and measurable deliverables, to be managed and monitored by organizations within a robust governance framework.

These 87 Deliverables are organized under 23 Strategic Objectives across Seven chapters, represent different aspects of care:

- **Chapter 1: Prevention and Public Education.** This Chapter sets out alignment with the Qatar Public Health Strategy and builds upon common goals across cancer and public health, including healthy lifestyles, raising awareness to common cancer risk factors and reducing stigma. Among other deliverables this chapter proposes establishment of a National HPV vaccination program.
- **Chapter 2: Early Detection and Screening.** This Chapter seeks to increase early detection of cancers, furthering the work of well-established national screening programs. Focused on increasing quality and access of current services, introduction of patient friendly and innovative technologies and bringing new national cancer screening programs to Qatar.
- **Chapter 3: Quality Treatment and Ongoing Care.** Chapter 3 recognizes the remarkable progress that has been made in cancer care in Qatar over the last decade. In order to maintain this progress and establish Qatar as a regional and international leader in cancer care, this Chapter sets out the need for a new comprehensive cancer center, supported by a world class workforce, working collaboratively across the patient pathway, including the introduction of enhanced palliative home care services.
- **Chapter 4: Holistic Support.** As cancer care has improved across Qatar, so have the number of cancer survivors, and the need to enhance services beyond those clinically provided in hospital settings. Chapter 4 seeks to establish a program of holistic support for cancer patients, survivors and their families and communities. This novel program has the potential, over time, to revolutionize how cancer is managed in the country.
- **Chapter 5: Childhood Cancers.** The opening of Sidra Medicine has extended the very best of tertiary and highly specialized cancer services in Qatar. A world class facility provides world class opportunities. This Chapter sets out how these services can grow and mature, combining cutting edge innovations with service delivery, it also seeks to ensure smooth transitions and management of patients across settings of care and organizational boundaries.
- **Chapter 6: Surveillance and Research.** This Chapter seeks to optimize and organize cancer research activities across Qatar, that will have a direct and tangible impact on patient care. The Chapter outlines support required to further Qatar’s cancer research activities, and management of cancer research at a national level.
- **Chapter 7: Strategic Enablers.** This chapter outlines the importance of a dynamic governance structure in conjunction with appropriate systems to monitor implementation. The chapter also places an emphasis on investment in the cancer workforce and infrastructure in addition to explaining how E-Health and data digitalization will benefit cancer services across the State of Qatar in the coming years.



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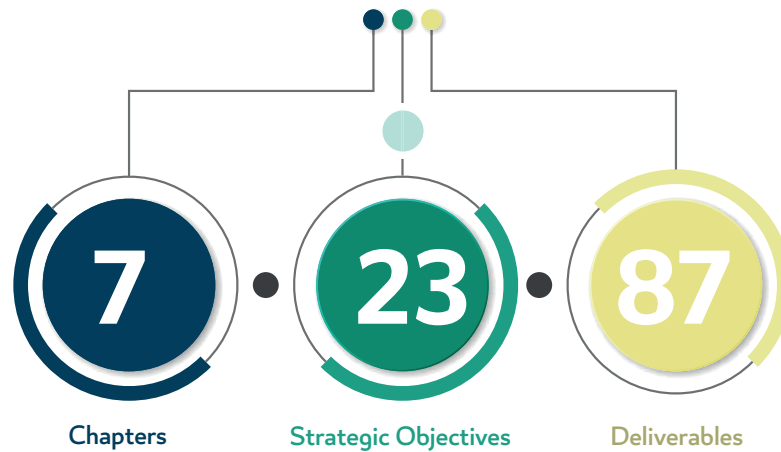
This achievement has been, and continues to be, possible thanks to the continuous collaboration across all stakeholders in health and non-health sectors

*Shk Dr. Mohammad Bin Hamad Al Thani*  
-Director of Public Health

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## QATAR CANCER PLAN



Across all these seven Chapters, overarching goals were developed:

- Excellence in cancer care
- Holistic patient care, encompassing clinical, spiritual, social and financial wellbeing
- Surveillance and data driven planning and evaluation
- Innovation in cancer research
- Cutting-edge technologies

The QCP sets out the next phase of development of cancer services in Qatar, based on an increasingly mature and robust foundation, this exciting next phase of development will truly see cancer care in Qatar become recognized as amongst the best available globally, and ensure that Qatar delivers on its promise of Excellence for All.

## Background

### National Cancer Strategy 2011-2016: The Path to Excellence

When the National Cancer Strategy (NCS) was launched in 2011, it was a first in the Gulf Region. The Strategy set out with the ultimate aim of significantly reducing the burden of cancer in Qatar, and to provide cancer care at a standard of excellence. Outstanding progress was made towards this aim, building a durable foundation on which further improvements could be made.

The Strategy was based on three core principles: international best practice, providing care tailored to the unique needs of the State of Qatar and working in partnership with patients and wider public.

Following a review to understand the approach different countries were taking to cancer, a National Cancer Committee was established to guide development of the strategy, ensuring that the end product was fit for the context of Qatar.

Taking into consideration Qatar's growing and aging population, a tenfold increase in the number of Qatari nationals over the age of 60 has been predicted by 2050 – this meant that it was important to provide “strategic clarity, involving all levels of healthcare provision and the people of Qatar”, a theme that clearly emerged from deliberative events run to support development of the strategy. That is why the strategy took a comprehensive approach to improving cancer care, starting with prevention, through to all aspects necessary to provide high quality treatment.

The strategy identified nine areas that would meet this overarching goal:

1. Education & understanding
2. Prevention
3. Early detection
4. Rapid & definitive diagnosis
5. Treatment
6. Ongoing care
7. Measuring performance
8. Workforce
9. Research

To support this complex array of activities, and to ensure there was robust governance to confirm progress was made against delivery, a National Cancer Program team was established within the Ministry of Public Health (MOPH), to support and monitor delivery, with Primary Health Care Corporation (PHCC) and Hamad Medical Corporation (HMC) taking forward the recommendations. As the provider of most of care in Qatar, the majority of the responsibility for delivering improvements fell to HMC. However, both PHCC and the MOPH, and other organizations such as the Qatar Red Crescent and Qatar Cancer Society, still had essential roles to play; in the case of PHCC this was in relation to early detection and referral, and MOPH had responsibility for enhancing policies and procedures, and leading on education, awareness, and prevention.

As a result of this strategy the World Health Organization (WHO) inaugurated Qatar into the International Agency for Research on Cancer (IARC), the first Gulf Cooperation Council (GCC) country to do so. And, most importantly, provides real-life examples of how patients now receive better standards of care over the lifespan of the strategy.

In recognition of the achievements of the previous five years and to mark the publication of the NCS Five-Year Review, a forum was held for the health care professional community working in cancer. The event marked the transition between acknowledging the successes of the past strategy and focusing on the future landscape of cancer care. The participants were asked to vote on key areas of focus along the patient pathway to inform the next six years and the results led to the development of the National Cancer Framework.

The achievements of the NCS made cancer care in Qatar among the best in the region, but these foundations must be further built upon. The burden of cancer will rise as Qatar's population ages, and awareness and identification of cancer improves. Cancer services are at the forefront of medical research and development; innovative technologies, procedures or treatments are being developed at a rapid pace. To develop and face these challenges, following the successes of the NCS, a cancer framework was developed to continue on the path to excellence.

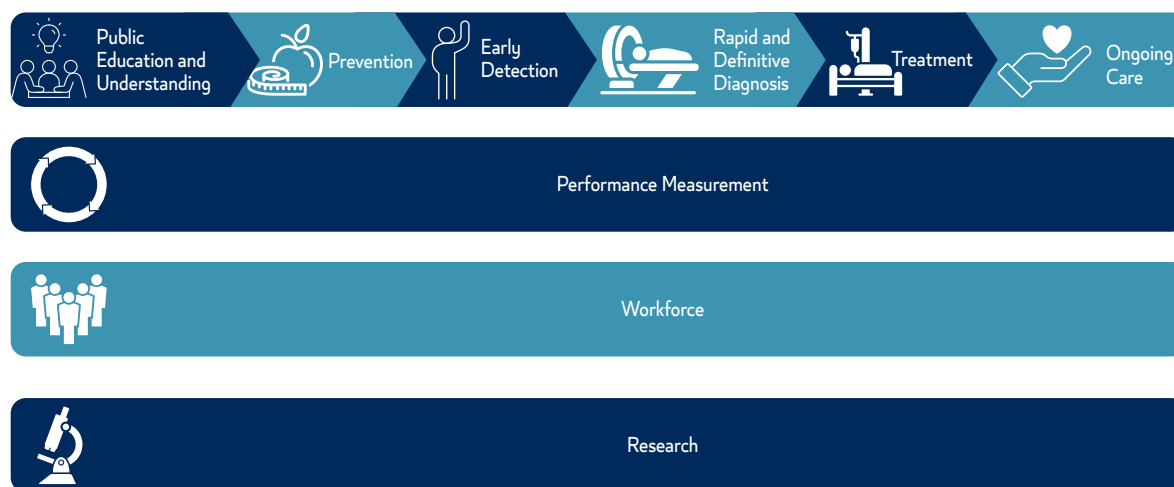
## The National Cancer Framework 2017-2022: Continuing on the Path to Excellence

The 2017 - 2022 National Cancer Framework (NCF) confirmed the core principles of the vision for the future of cancer care in Qatar:

- Qatar will continue to pursue excellence in cancer care
- The development of complex specialty services and innovative treatments will increase
- New, evidence-based drugs and technologies with proven impacts on patient care will be developed
- Improvements in the patient experience will be achieved

To support this vision the Framework set out nine domains. These Domains represented the complete Patient Pathway for cancer care and the relevant enablers. Each domain of the Framework had Success Measures, and associated program activities:

Figure 1. The National Cancer Framework Patient Pathway



The NCGB directed that a NCF Mid-Term Review Committee be established. The committee included members from the MOPH, HMC, PHCC, , Sidra Medicine and other key stakeholders.

The NCF Mid Term Review Committee identified that, of the 65 Program Activities and 25 Success measures, 21 had already been fully completed, with another 26 being on track or nearly completed. It was identified that a number of the activities were best to be moved to the subsequent Qatar Cancer Plan. During the review, the impact of COVID-19 pandemic had not been fully realized across the health sector, and cancer services in Qatar, like those around the world, were impacted by the pandemic. This reinforces the need for robust, multi-year planning, to ensure long-term projects and priorities can be realized. It also highlights the benefits of regular review of progress, and this is something that will be built into this plan.

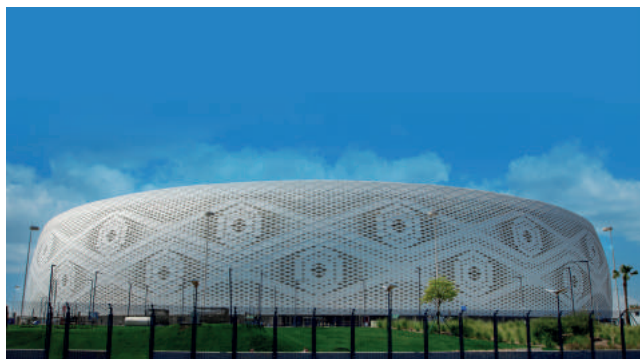
## Developing the Qatar Cancer Plan


Qatar has delivered remarkable change in the last decade in relation to cancer, with thanks to the incredible hard work and dedication of leaders across the system. As the National Cancer Framework 2017-2022 draws to a close, the Ministry of Public Health and National Cancer Governance Board (formerly National Cancer Committee) are privileged to develop the next iteration of plans for cancer care in Qatar through the development of the Qatar Cancer Plan (QCP) 2023-2026.

### Legacy – Excellence for all

Much as cancer services have seen significant developments and improvements over the last decade, so too has the wider health system and the State of Qatar in general. The FIFA World Cup hosted by Qatar in 2022 represents the culmination of decades of work by the entire population of Qatar and beyond. The country has been transformed to deliver a spectacle worthy of the world's greatest sporting event.

As Qatar rightly takes its place in the spotlight, it is important to reflect on the work that has been undertaken to reach this achievement, and on how to move forward and what the legacy of such an event will be. The improvements in Qatar's cancer services mirror this journey precisely.





Sport and a healthy lifestyle are vitally important to health, and have significant impact in reducing risk of cancer. Sport is not enjoyed just for its own sake, but for the improvements it brings to health (including mental health), lifestyle, and society more broadly. Just so the QCP is not about treating those with cancer, but in building a legacy of improved health, care and society. Investing in prevention, including sport, is a key element of the QCP, as is ensuring that patients are supported along every step of their journey, with as much care as possible provided in convenient settings, such as the home or other community settings.

Qatar's success in treating cancer has led to an ever-growing population of cancer survivors, but our duty of care for these people does not end with treatment, hence the QCP proposes taking a holistic approach to cancer care, ensuring that all aspects of an individual's wellbeing are taken into account, be it spiritual, psychological, financial or social.



The World Cup leaves Qatar with an important legacy, world-class facilities, an indelible place on the global stage and generations of children inspired to live healthier, more active, lives. The QCP seeks to have a similar legacy, impacting care across the entire spectrum, and maximizing on the benefits of the World Cup. However, this cannot be achieved without investment. The ambitions of the QCP, and indeed the entire health system, will only be fully realized with the development of a new Comprehensive Cancer Center, bringing together all modalities of care, alongside world-class translational research, and a foundation of national infrastructure for the integration of holistic support across the entire cancer patient pathway.

### The Case for Investment

The evidence shows that prevention can be cost-effective, provide value for money and give returns on investment in both the short and longer terms. Vaccinations and screening programs have repeatedly been shown around the world to be largely cost-effective. Population-level approaches are estimated to cost on average five times less than individual interventions. It should be noted that multi-sectoral engagement is critical to support prevention efforts.

The QCP includes a range of interventions with both early returns on investment and with longer-term gains. Investing in cost-effective interventions to reduce costs to the health sector, and indeed other sectors, can help create sustainable health systems and economies for the future.

Cancer continues to pose a significant cost to patients and health systems alike, with estimates suggesting that globally the annual economic cost of cancer is likely to exceed US\$1.2 trillion. This would mean that more healthcare costs are attributed to cancers than all 15 leading causes of death worldwide, placing health systems under significant strain.

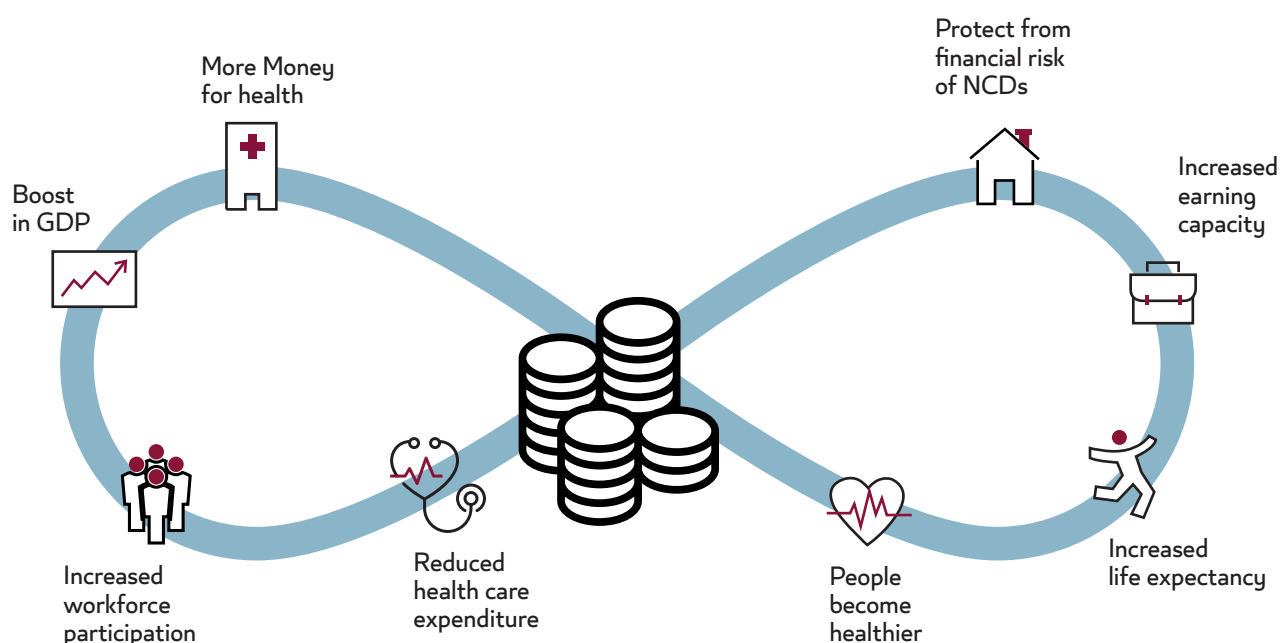
Globally, modelling suggests that implementing an efficient package of interventions to tackle non-communicable diseases (NCDs), including cancer, in each world region would require, on average, an additional US\$18 billion annually over 2023–30. The returns on this investment for governments are high in terms of lives saved and economic gains: it would avert 39 million deaths and generate an average net economic benefit of US\$2.7 trillion, or US\$390 per capita. Globally for cancer alone, this has the potential to save 7.3 million lives by 2030. These investments could add an additional US\$325 billion in direct productivity gains and a further US\$990 billion in societal gains by averting preventable cancer mortality.

A 2018 study by the WHO demonstrated that every US\$1 invested in a range of interventions for NCDs would yield a return of at least US\$7 by 2030, alongside a 15% reduction in premature mortality. Specifically, it has been demonstrated that a US\$1

investment in cervical cancer prevention and screening returns US\$2.74. Beyond prevention, a 2021 study showed that scaling up access to nuclear medicine and medical imaging services would avert nearly 2.5 million cancer deaths worldwide by 2030 and yield global lifetime productivity gains of US\$1.41 trillion – a net return of over US\$200 per US\$1 invested.

Investing in cancer prevention and control not only improves health and saves lives, but can also improve a country's economic productivity, improve workforce participation and productivity.

Figure 2. WHO - The Value of Preventing Non-Communicable Diseases



The situation in Qatar is further compounded by the remarkable support the country provides to its citizens to seek healthcare abroad. Whilst in a small number of cases, access to international expertise may be beneficial, the significant majority of cancer patients could be better treated in Qatar, both in terms of clinical care, and with regards to support services, timeliness and convenience. Treatment abroad represents a significant cost to Qatar, which could be ameliorated by investment in, and publicity of, quality services in Qatar, as set out in the QCP. Beyond care for the local population of course, Qatar has potential to attract international patients from the region, and further afield. Sidra Medicine has demonstrated the potential viability of attracting international patients, and Qatar's cancer services, once internationally recognized to be of the excellent quality they are, have significant potential to similarly attract patients from abroad, providing a further financial incentive to invest in improvements outlined in the QCP.

The deliverables set out in the QCP are designed, first and foremost, to save lives, improve the care and support provided to the people of Qatar. Alongside this these deliverables will have the added benefits of giving a positive return on investment (financial benefits outweighing initial investment) and/or deliver lower costs both in the short and longer terms. The QCP sets out deliverables for improvements in prevention and care, provided in and for the people of Qatar, that can demonstrably be shown to save lives, and to save money; supporting a sustainable health service for generations to come.

## Governance

Cancer services in Qatar have benefited from stable long term governance arrangements that bring together government, public, private and third sector providers around the shared vision of delivering excellent cancer services for all in Qatar. Building upon the existing Cancer Governance Structure a temporary structure was proposed to support the development of the QCP 2023-26:

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Cancer is something that touches upon all our lives, everyone has a friend or family member who has been impacted by cancer. This is why it's so important that we continue to focus our efforts to improve the care we provide to, not just cancer patients, but their families and communities.

- Her Excellency, Dr. Hanan Al Kuwari,  
Minister of Public Health – State of Qatar

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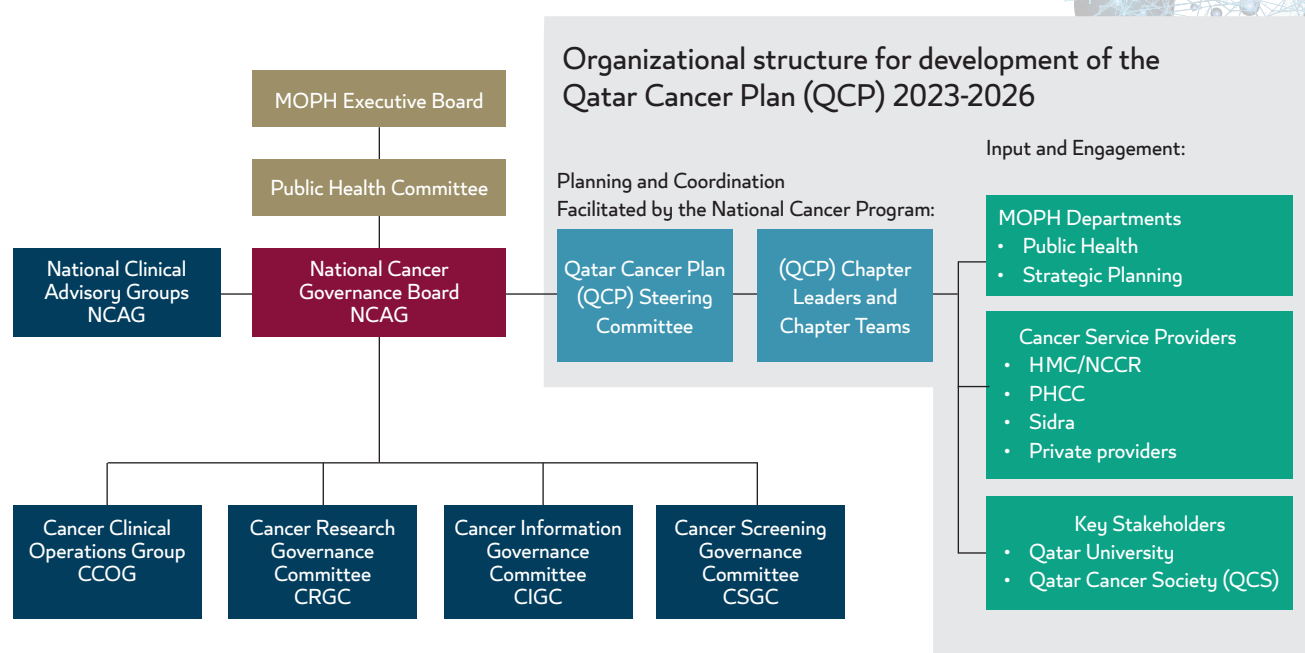
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Figure 3. Cancer Governance Structure



## Support from the World Health Organization (WHO)

During the 70th World Health Assembly the WHO 2017 Cancer Resolution (WHA 70.12) was unanimously adopted by WHO Member States from across all regions. Building on established relationships with the WHO Eastern Mediterranean Regional Office (EMRO), the MOPH National Cancer Program team worked together with experts from the WHO to codesign, adopt and adapt international best practice and the WHO/EMRO stepwise methodology for cancer control planning. The WHO EMR Cancer Framework for Action (2019) provided overarching guidance on key strategic interventions to be addressed.

Working with this framework and methodology, an overarching plan of work was developed, including:


- Webinar on strategic cancer control planning
- WHO Situation Analysis Assessment Tool – tailored to Qatar’s context
- Chapter specific webinars focused on:
  - Reviewing strategic priorities
  - Identifying content gaps and overlap with other chapters
  - Setting SMART Objectives
  - Alignment with international targets, frameworks, and initiatives
- Support with development of monitoring & evaluation framework

## Chapter Development

Based on this design work, chapter themes were agreed by the National Cancer Governance Board (NCGB). To ensure that Qatar’s Cancer Plan is as effective as possible, ‘Chapter Authors’ were appointed from across the health system to inform the content of each chapter.

The authors established teams to support the content development and the QCP planning process. These teams were multi-institutional and comprised of all chapter relevant stakeholders from across Qatar’s cancer community.

The MOPH’s Cancer Program facilitated the development of the QCP and the work of the Chapter Authors in this endeavor. The QCP Steering Committee had final authority on setting strategic priorities, activities and KPIs under the overarching authority of the National Cancer Governance Board, which endorsed the final product.



Whilst each chapter of the QCP has been designed to address a particular aspect of cancer services, it is important to note that to deliver world class patient care and experience these services must be integrated across the patient pathway. The QCP aims to ensure that quality is delivered across the entire continuum of care, and managing transitions between settings and systems of care, be it primary to secondary, pediatric to adult or community and palliative care. These transitions can, historically, be challenging and accordingly attention will be paid to ensure these transitions are as seamless as possible, and patients are supported throughout their journey.

The content areas covered in each chapter is structured in a similar manner. The following content areas were considered by each chapter author as they developed their chapter:

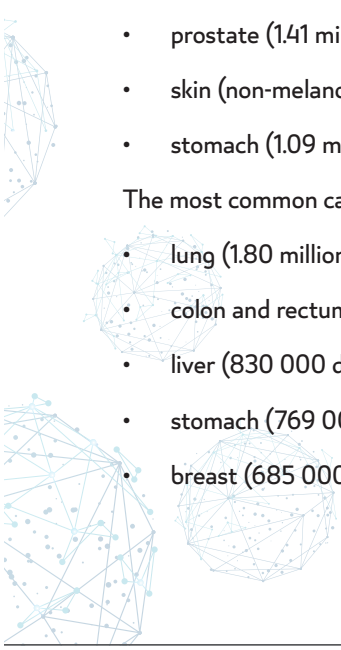
- Description of the background and environment – a summary of progress that has been made in this area under the Cancer Strategy and Cancer Framework. Including operating context, key achievements, and current services.
- Challenges – complementing the operating context is a concise summary of some of the current challenges that should be overcome through implementation of the QCP, or those challenges which are likely to impact delivery over the life of the QCP.
- Strategic Objectives – the overarching objectives of each chapter. These are generally qualitative, long-term objectives, describing how services should evolve and operate in the future. Whilst they intend to be achieved within the timescale of the QCP, some objectives require many years, even generations to be realized. Whilst progress will be made and outcomes delivered, these tasks may be ongoing, without clearly defined end points (e.g. reduce stigma about cancer).
- Deliverables – these represent tangible activities, projects and deliverables that will be achieved over the course of the QCP. Progress against these deliverables will be monitored on a quarterly basis by the NCGB. They are time-bound and unequivocal in whether they have been achieved (e.g. roll-out of teleradiology reading service for breast cancer screening by Q4 2023).
- Priority populations – where applicable a summary of key population groups to be prioritized when it comes to planning and implementation of the QCP.


## Operating Context

Globally, there were an estimated 19.3 million cases of cancer were diagnosed in 2020. Of these, 10.1 million cases were in men and 9.2 million in women. Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country of the world, accounting for nearly 10 million deaths in 2020. The most common in 2020 (in terms of new cases of cancer) were:

- breast (2.26 million cases)
- lung (2.21 million cases)
- colorectal (1.93 million cases)
- prostate (1.41 million cases)
- skin (non-melanoma) (1.20 million cases)
- stomach (1.09 million cases)

The most common causes of cancer death in 2020 were:

- lung (1.80 million deaths)
  - colon and rectum (916 000 deaths)
  - liver (830 000 deaths)
  - stomach (769 000 deaths)
  - breast (685 000 deaths)
- 



Each year, approximately 400,000 children develop cancer. The most common cancers vary between countries. For men, prostate cancer is the most frequently diagnosed cancer in 112 countries, followed by lung cancer (36 countries), and colorectal cancer and liver cancer each in 11 countries. Lung cancer is the leading cause of cancer death in men in 93 countries, in part because of its high fatality rate, followed by prostate cancer (48 countries) and liver cancer (23 countries). The most commonly diagnosed cancer in women is breast cancer (159 countries) and cervical cancer (23 of 26 remaining countries), with mortality following accordingly.

Worldwide, the incidence rate for all cancers combined was 19% higher in men (222.0 per 100,000) than in women (186 per 100,000) in 2020. The gender gap for overall cancer mortality worldwide is even starker, with death rates 43% higher in men than in women. Female breast cancer has now surpassed lung cancer as the leading cause of global cancer incidence in 2020. For women, breast cancer accounts for one in four cancer cases and for one in six cancer deaths. Breast cancer incidence increased rapidly throughout the 1980s and 90s, having stabilized in the 2000s, globally the trend is again showing a slow update in breast cancer incidence rates.

Overall, the burden of cancer incidence and mortality is rapidly growing worldwide; this reflects both aging and growth of the population as well as changes in the prevalence and distribution of the main risk factors for cancer.

Overall, the number of cancer cases and the age-standardized cancer rate is higher in more developed countries. There were an estimated 295.3 cases of cancer per 100,000 people in areas with very high human development, compared with 115.7 in areas with low human development in 2020.

There are also more deaths from cancer in more developed areas. There were an estimated 98.7 deaths from cancer per 100,000 people in areas with very high human development, compared with 82.7 in areas with low human development in 2020.

Tobacco use, alcohol consumption, unhealthy diet, physical inactivity and air pollution are risk factors for cancer and other noncommunicable diseases. Some chronic infections are risk factors for cancer; this is a particular issue in low- and middle-income countries. Approximately 13% of cancers diagnosed in 2018 globally were attributed to carcinogenic infections, including *Helicobacter pylori*, human papillomavirus (HPV), hepatitis B virus, hepatitis C virus, and Epstein-Barr virus.

Roughly 40% of cancers can be prevented by avoiding risk factors and implementing prevention strategies. The cancer burden can also be reduced through early detection of cancer and appropriate treatment and care of patients who develop cancer. Many cancers have a high chance of cure if diagnosed early and treated appropriately.

Globally, based on current trends, an estimated 28.4 million new cancer are projected to occur in 2040, a 47% increase from the corresponding 19.3 million cases in 2020.

Cancer in Qatar broadly mirrors global trends, although incidence is relatively lower than regional neighbors. Qatar's young, but aging population and high prevalence of risk factors including lifestyle and occupational risks indicate that there is significant potential for high numbers of cancer cases in the next 10-20 years, which require investment now to prevent, and ensure there will be sufficient capacity and capability to manage future volumes.

When look at incidence of cancer in Qataris, rates steadily declined from 25.08 per 100,000 in 2000 to 11.28 per 100,000 in 2015. Since 2015 there has been a slow but steady increase in incidence, likely linked to a lifestyle factors, increased life expectancy and an aging population. In 2019 incidence rates were up to 17.97 per 100,000.

Modelling predicts that cancer incidence is expected to raise up to 26.24 (95% CI 17.55 - 34.93) per 100,000 by 2025, and up to 33.55 (95%CI 19.26 - 47.84) per 100,000 by 2030. These figures demonstrate the strong need for further investment in both preventative and clinical services to keep pace with and continue to provide excellent care for cancer patients in Qatar.

The achievements and progress made in the last decade has had a direct impact on cancer survivorship in Qatar. Overall cancer survival has increased over time, with the 3-year survival rate increasing from 65.6% in 2018 to 89.3% in 2020, and 5-year survival rate increasing from 59.7% in 2016 to 80.2% in 2020. 3- and 5-year survival for all cancer groups has either stayed relatively constant (I, II and III) or has increased over time (IV, Not applicable and Unstaged). The largest increases were seen for change for group IV, which has seen increases in 3- and 5-year survival from 31.3% and 18.8% in 2000 to 77.3% (2018) and 50.8% (2016) respectively.

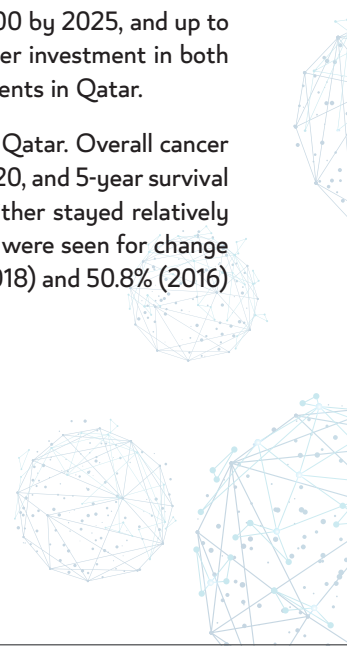


Figure 4: Cancer Incidence Rates - Qataris

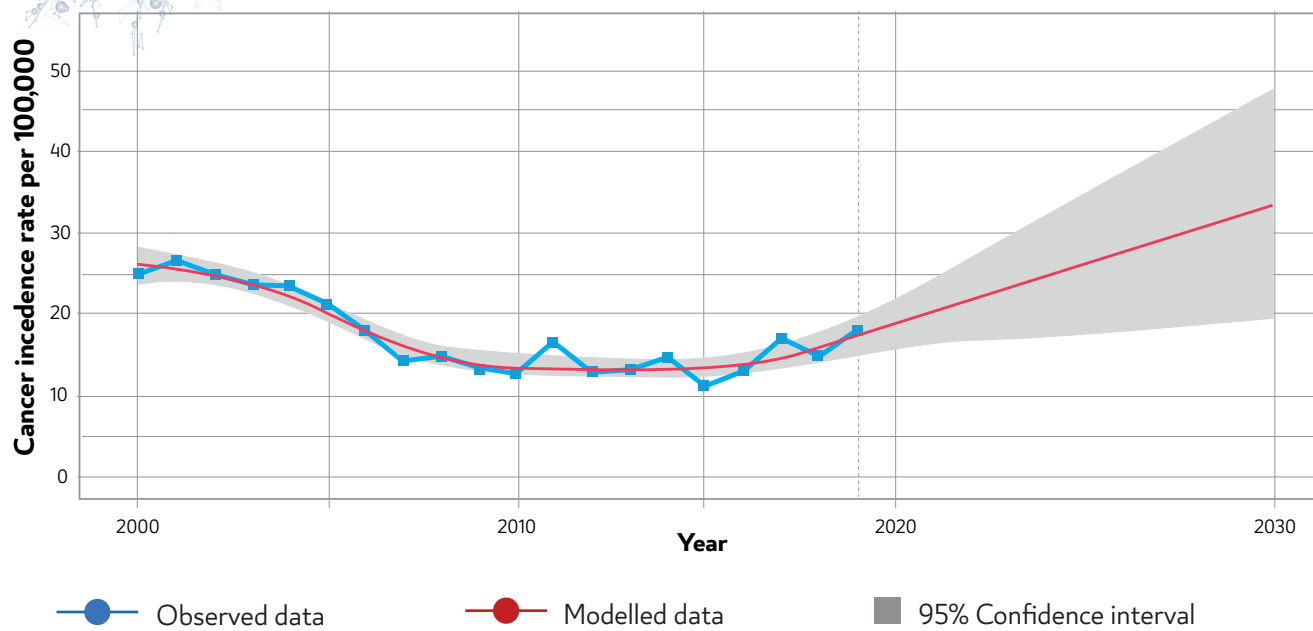


Figure 5. Three and Five Year Survivorship for All Cancers

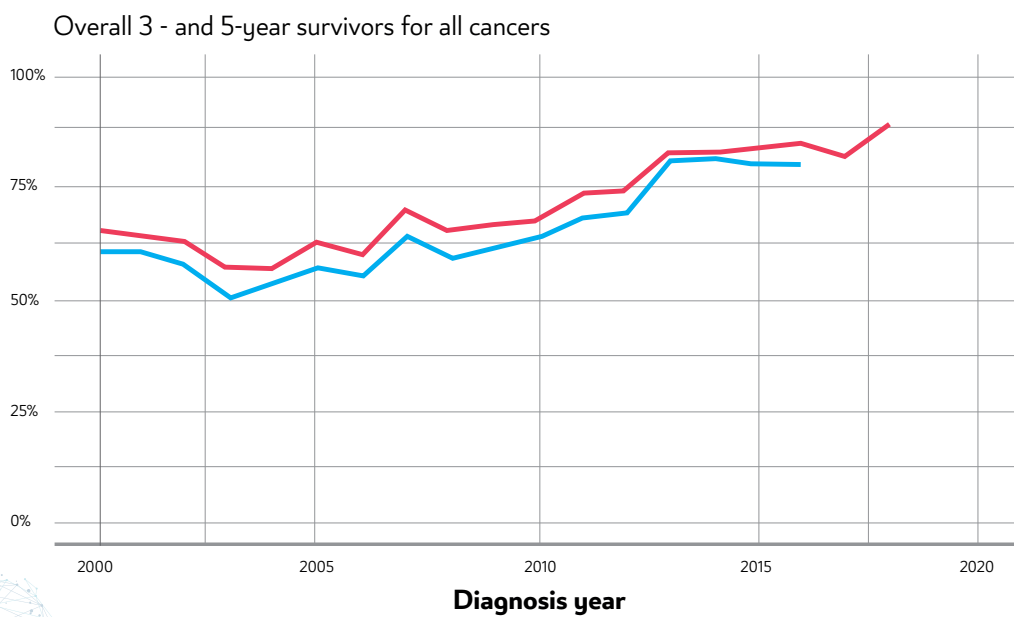


Table 1. Summary of Cancer Incidence - Qatar 2020

Total Number of new cancer cases [2020]	2024
Age-standardized rate (ASR) per 100 000 (WHO population)	150.67
Crude incidence rate per 100 000	71.43
Cumulative risk of incidence [0-74]	14.10

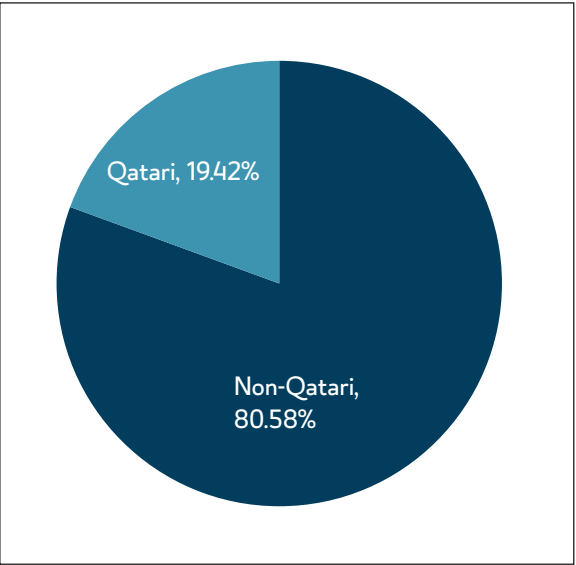
Source: Qatar National Cancer Registry - MoPH

Table 2. Most Common Cancers Newly Diagnosed in Qatar During 2020

Primary Site	N	%
Breast	326	16.1%
Colorectal	182	9.0%
Thyroid gland	165	8.2%
Leukemia	139	6.9%
Prostate	83	4.1%
Trachea, bronchus and lung	80	4.0%
Brain & CNS	79	3.9%
Non-Hodgkin Lymphoma	79	3.9%
Non-Melanoma skin cancer	73	3.6%
Liver and intrahepatic bile ducts	71	3.5%

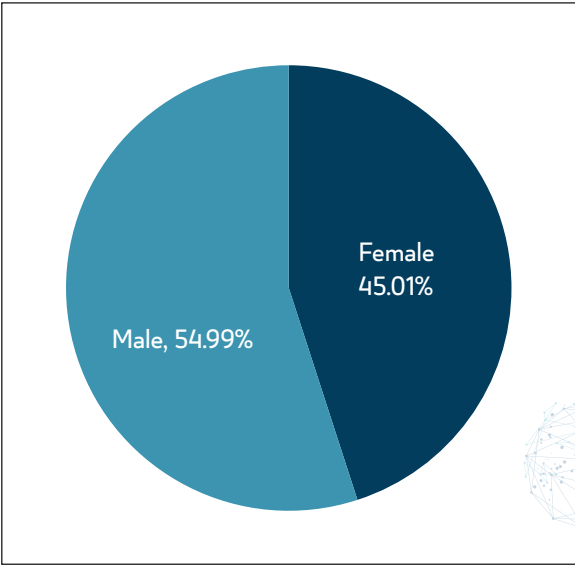
Source: Qatar National Cancer Registry - MOPH

Figure 6. Cancer Incidence By Nationality – Qatar 2020



Source: Qatar National Cancer Registry - MOPH

Figure 7. Cancer Incidence By Gender – Qatar 2020



Source: Qatar National Cancer Registry - MOPH



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# Chapter 1

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# PREVENTION AND PUBLIC EDUCATION

**Chapter Author: Dr. Amani El Khatim**



## Introduction

Poor lifestyle and environmental factors may be contributing factors in 40% of cancer cases, accordingly, the top five risk factors for non-communicable diseases (NCDs) in Qatar are:

1. High body-mass index
2. High blood pressure
3. High fasting plasma glucose
4. Ambient particulate matter
5. Low whole grain intake

Further risk factors include smoking, poor diet, high cholesterol, and low physical activity can greatly increase the likelihood of developing an NCD. Qatar ranks 15<sup>th</sup> in the world in obesity rates, predicting significant future NCD and cancer rates. Tobacco use in the State of Qatar has seen a significant decrease (15%) between 2000 and 2019, the same survey indicates that approximately the use of tobacco is prevalent for 25% of the population. It should be noted however that this rate is significantly higher than that identified by the Global Adult Tobacco Survey (GATS), as globally, tobacco use amongst men is significantly higher than among women. Public health measures to decrease these risk factors in the population will have an equivalent effect on the incidence of all NCDs, including cancer. In addition a number of cases (5 - 10%) are linked to a strong family history of cancer. These cancers may be the result of identifiable gene mutations. The continued need to develop capacity for genetic testing for gene mutations that have been identified by Qatar Biobank and the Qatar Genome Project as significantly increasing the risk of developing cancer is discussed in Chapter 3.

Public messaging regarding the signs, symptoms and understanding of cancer continue to form an integral part of awareness campaigns operated by the MOPH and partners. Various successful campaigns, supported by the Cancer Calendar, have indicated, according to the Cancer Awareness Measure (CAM) tool, that the population of Qatar has developed an improved understanding of cancer. More importantly, this has resulted in improved awareness that cancer can be cured, if detected early. The groundwork has been laid, but more needs to be done with prioritized, targeted and culturally sensitive and specific awareness campaigns to ensure the population further develops an improved understanding, to refute myths, embrace the benefits of leading a healthier lifestyle and recognizes and acts upon the signs and symptoms of cancer.

## Qatar Public Health Strategy

Work is underway to develop the next iteration of Qatar's Public Health Strategy (PHS). Through the National Public Health Committee, the MOPH Public Health team works closely with the National Cancer Governance Board (NCGB) to ensure alignment of work across these intricately linked work programs.

The PHS included several health goals related to cancer:

- Organizing national campaigns to dispel misconceptions about cancer
- Conducting educational courses on cancer prevention in academic educational institutions
- Organizing integrated national activities to raise awareness of cancer, including all relevant parties
- Establish a national cancer observatory and integrate it into the public health observatory, allowing the collection of information, and the preparation of reports and information necessary to improve planning and evaluation processes
- Continue to provide and develop integrated cancer detection programs

## Operating Context

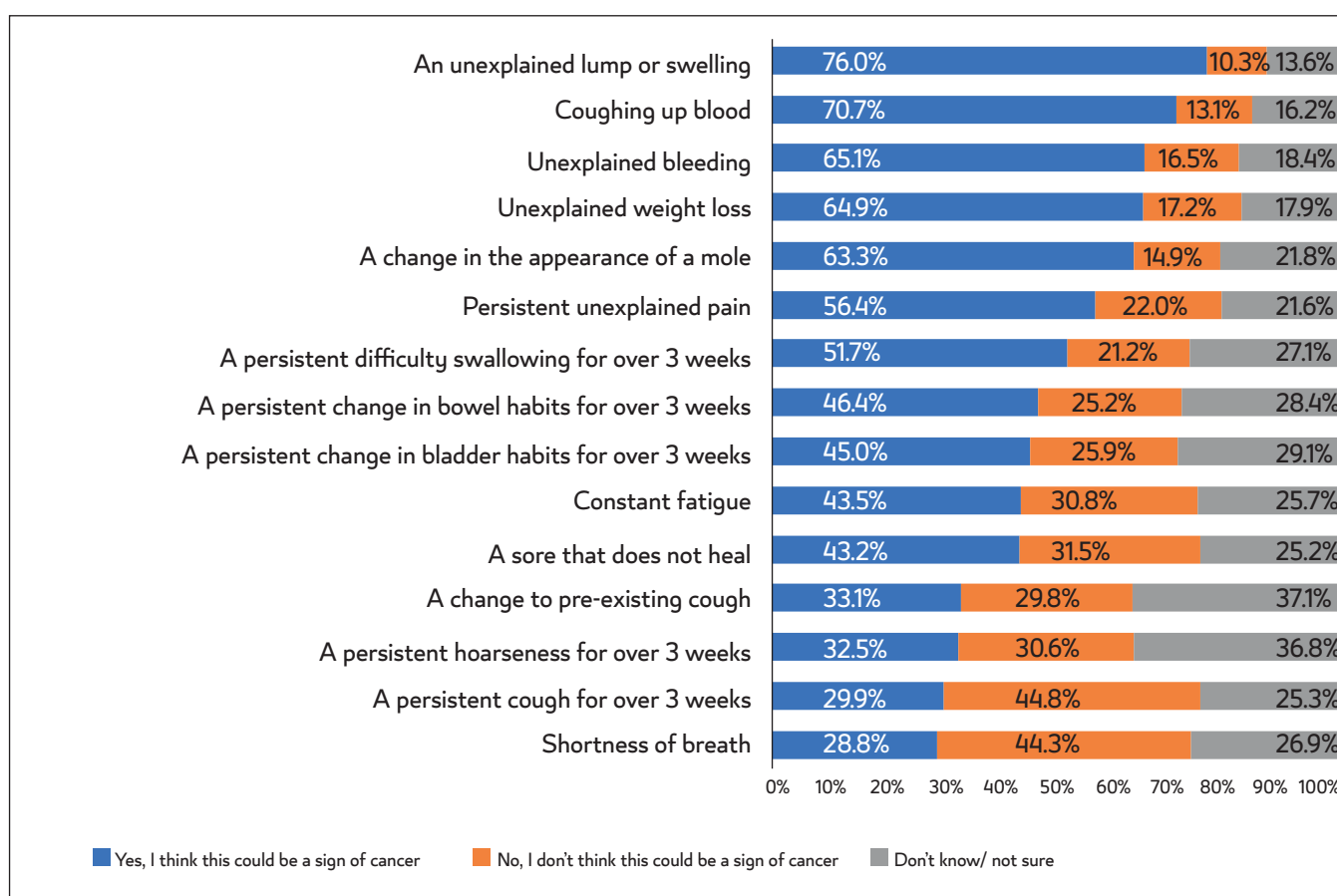
There has been a continued focus on prevention and education initiatives from the first Cancer Strategy, through National Health Strategies, the Cancer Framework and the PHS. This includes achievements in smoking cessation, combating obesity and unhealthy diets, addressing lack of exercise, undertaking studies on exposure to carcinogens, a world leading program for genetic testing and delivery of the Human Papillomaviruses (HPV) vaccine. The National Cancer Program website and Cancer

Communication Hub has further strengthened education and awareness, supported by award winning branding. The Cancer Awareness Calendar highlights 15 types of cancer a year, supported by essential fact sheets and public engagement campaigns.

The health sector has continued to deepen and broaden its partnership and collaboration with the voluntary sector, including the Qatar Cancer Society, delivering awareness campaigns to schools, developing influential Cancer Champions, e-learning courses, and battling stigma and myths with a joint awareness task force. A Cancer Communication Working Group has been established across all key stakeholders to coordinate and integrate activities across the sector

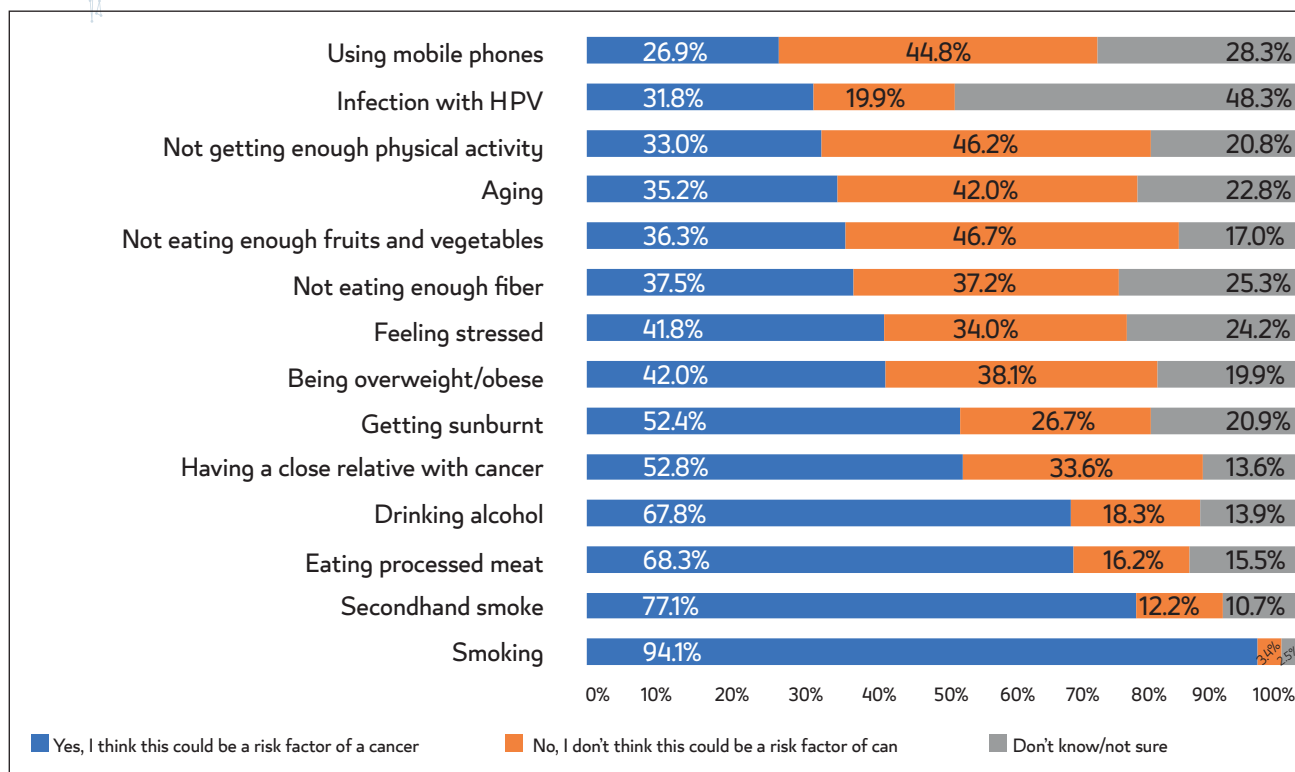
The CAM 2022 survey identified some common misinformation people have towards cancer, this includes: cancer can be cured (88.2%), cancer is very painful (82.2%), chemotherapy makes people very sick (73%), the word cancer makes people scared (70%), cancer is almost always fatal (62.2%), some treatments for cancer are worse than the disease itself (62.1%), and that a cancer patient can go back to the way they were once treatment is finished (57.3%). On the other hand, the majority (72.4%) disagreed about cancer as a punishment from God, while more than half did not believe that a person will not be fit for marriage if cancer runs in one's family (68.5%), cancer always requires surgery (56.6%), and some types of cancer are contagious (54%).

Figure 8. Percentage of Participant's Awareness on the Signs and Symptoms of Cancer



Source: Cancer Awareness Measure CAM 2022 - MOPH

Figure 9. Percentage of Participant's Awareness About the Risk Factors of Cancer



Source: Cancer Awareness Measure CAM 2022 - MOPH

Figure 10. Percentage of Participants Who Agreed and Disagreed on Myths and Beliefs About Cancer

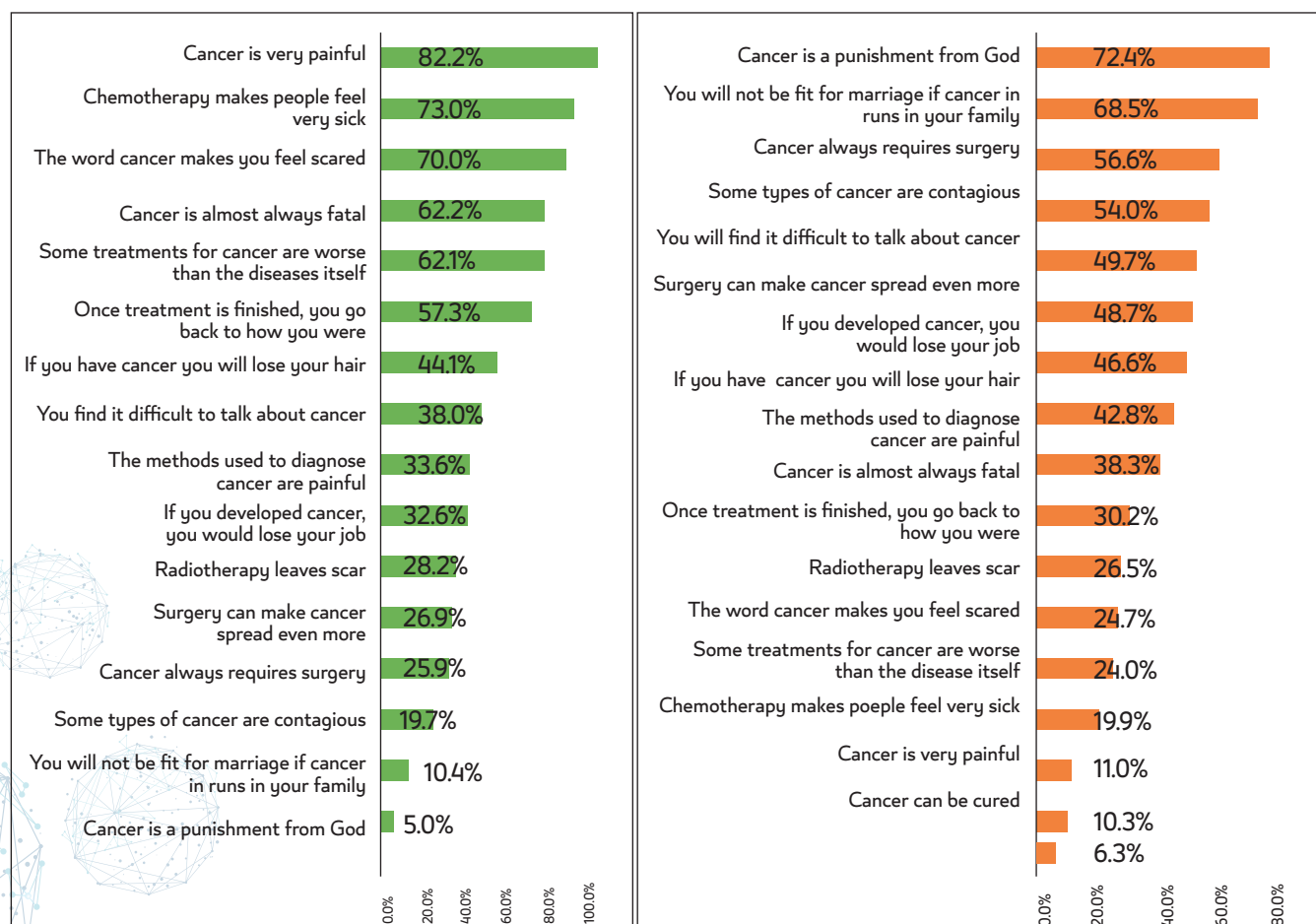


Table 3. Participant's Agreement/ Disagreement on Myths and Misconceptions About Cancer by Nationality

MYTHS and MISCONCEPTIONS about CANCER	AGREE		DISAGREE		Prefer not to say/ Don't Know	
	Qatari	Non-Qatari	Qatari	Non-Qatari	Qatari	Non-Qatari
Cancer is almost always fatal	61.1%	62.3%	28.1%	30.4%	10.8%	7.2%
Cancer is very painful	73.7%	83.0%	11.0%	10.2%	15.4%	6.8%
Some types of cancer are contagious	4.9%	21.2%	59.9%	53.4%	35.2%	25.5%
Surgery can make cancer spread even more	39.1%	25.7%	38.1%	49.7%	22.9%	24.6%
The methods used to diagnose cancer are painful	45.1%	22.3%	22.3%	39.9%	32.6%	27.6%
If you have cancer you will lose your hair	51.5%	43.3%	31.5%	44.0%	17.0%	12.7%
Some treatments for cancer are worse than the diseases itself	78.5%	60.5%	6.6%	21.3%	14.9%	18.2%
You will not be fit for marriage if cancer runs in your family	14.3%	10.0%	58.4%	69.5%	27.4%	20.5%
Cancer can be cured	84.3%	88.6%	7.0%	6.2%	8.9%	5.3%
Cancer always requires surgery	39.1%	25.0%	38.1%	58.0%	22.9%	17.0%
Chemotherapy makes people feel very sick	77.7%	72.5%	3.3%	11.8%	19.0%	15.8%
Radiotherapy leaves scar	20.4%	29.0%	12.3%	26.0%	67.3%	45.0%
If you developed cancer, you would lose your job	34.3%	32.9%	40.6%	47.3%	25.2%	20.3%
Once treatment is finished, you go back to how you were	57.4%	57.3%	21.8%	27.0%	20.8%	15.7%
You find it difficult to talk about cancer	32.9%	38.6%	41.9%	50.5%	25.2%	10.9%
The word cancer makes you feel scared	73.2%	69.7%	19.0%	24.5%	7.8%	5.9%
Cancer is a punishment from God	4.1%	5.1%	71.0%	72.5%	24.5%	22.4%

Source: Cancer Awareness Measure CAM 2022 – MOPH

### QCP Priorities

Much work has already been undertaken in this area, supported by the PHS. To build on this progress, action is required to develop more targeted interventions, incorporating campaigns designed specifically for the people and cultures in Qatar. Greater focus must be given to vulnerable populations, who require targeted communications and prevention activity. Finally, Qatar's commitment to delivering Health in all Policies will be a key driver and enabler for change, embedding best practice in public health prevention across all aspects of the country's growth and development to deliver long lasting and substantial change over generations.

Responding to the needs of people at risk, the QCP focus on reaching the hard-to-reach populations, those individuals who have barriers to accessing general awareness interventions, or those who are outside the mainstream populations. The QCP priorities for this chapter aim to reach priority populations, supporting inclusion, equitable prevention and public education. Therefore, the awareness initiatives planned will be designed and delivered to meet their physical, psychosocial, and spiritual needs across the full continuum of care. Moreover, the awareness interventions will be delivered equitably to all members of the population.

Perhaps the most significant program of work identified is the establishment of a National HPV vaccination program (1.2.D). HPV is a vaccine-preventable infection that causes nearly all cases of cervical cancer. According to studies, infection with HPV led to an estimated 570,000 cases of cervical cancer and 311,000 cervical cancer deaths worldwide in 2018.

This initiative has been under discussion in Qatar for some time, and an ever-increasing number of countries has already initiated this program, in line with the WHO global target of 90% vaccination HPV coverage by 2030.

WHO recommends the following targets or milestones that each country should meet by 2030 to be adopted to eliminate cervical cancer within the century:

- 90% of girls fully vaccinated with the HPV vaccine by the age of 15
- 70% of women screened using a high-performance test by the age of 35, and again by the age of 45
- 90% of women identified with cervical disease receive treatment

The results of a 2020 analysis found that, by meeting HPV vaccination targets by 2030, cervical cancer cases could drop by 89% within a century. Meeting targets for cervical cancer screening and treatment would further reduce cervical cancer cases by 97%, averting 72 million cervical cancer cases over the next century. A 2016 health economics analysis of return on investment for vaccines in 94 low- and middle-income countries estimated that HPV vaccines would yield a three-fold return on investment between 2011 and 2020. Subsequent studies demonstrate that this may be understated. Nevertheless, the health and economic benefits of establishing this program are clear. A feasibility study is being undertaken to evaluate establishment of a National Cervical Screening Program, to complement the national HPV vaccination program discussed in Chapter two.

### Priority population groups

**Craft and Manual Workers:** Qatar's workforce has significantly increased over the last decade, with an influx of workers engaged in different projects and industries. This population group now comprise for more than 60% of the total population in the country. This is a diverse community with many languages, cultures and social backgrounds. Over half of the total number of laborers work in construction, craft and related trades, as well as in mining and other primary occupations, which expose them to occupational hazards and leading to an increased risk of developing occupational diseases including cancers.

**Healthy Women:** There are numerous barriers to increasing awareness and accessing screening for women, including limited time to focus on their health, negative perceptions related to cancer in their community, myths, stigma, cultural barriers to screening, and low health literacy, especially about cervical and breast screening, and HPV vaccination.

**Healthy Aging:** People aged 60 years and above experience more chronic conditions and comorbidities, which may limit access to cancer awareness and screening initiatives, especially given the ongoing digital transformation.

**People with Language Barriers:** Providing clear and understandable health awareness messages supports screening and prevention efforts and will play an essential role in achieving equitable access to the national cancer control activities.

### Challenges to overcome

There are several challenges that must be overcome. Primarily the desired changes require people to alter their behavior and enhance health seeking behavior remains one of the largest issues facing health system and public health globally. Even the recent pandemic has demonstrated that individuals do not always take actions in the best interests of their own health. To further exacerbate this issue, cultural issues must be overcome in Qatar, including stigma and those related to gender. It is well known that social issues such as inequity are a significant risk factor for poorer health outcomes, and finally there are new and emerging risks to population health, including globalization – leading to lifestyle and diet changes for example, and the increased use of electronic cigarettes and vaping.

Finally, it should be noted that many of these lifestyle challenges are not within the traditional domain of healthcare to fix. Multi-sectoral engagement with education, youth and sports organizations and urban planning sectors will be essential for successful implementation. Much of this cross-sector working will be undertaken as part of the Qatar Public Health Strategy.

The following Strategic Objectives have been developed:

<b>1.1</b>	To reduce the risk of known lifestyle risk factors (tobacco use, unhealthy diet, physical inactivity) to cancer in Qatar
<b>1.2</b>	To reduce exposure to various infectious agent, environmental and occupational carcinogens
<b>1.3</b>	To have inclusive, equitable, culturally acceptable, effective, and comprehensive programs targeting risk reduction and prevention of cancer through efficient knowledge, attitude and behavioral changing interventions
<b>1.4</b>	To increase access to evidence-based information on cancer prevention, screening, and early diagnosis

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>1.1</b>	<b>To reduce the risk of known lifestyle risk factors (tobacco use, unhealthy diet, physical inactivity) to cancer in Qatar</b>
1.1.A	Deliver training to tobacco inspectors to enforce implementation of tobacco bylaws by Q4 2024
1.1.B	Establish national 'quit line' that is linked with cessation centers to support smokers to quit by Q4 2025
1.1.C	Implement smoke-free policies across all Qatar according to Tobacco law No 10-year 2016 by Q4 2026
1.1.D	Review current tobacco taxation system by Q4 2024
1.1.E	Develop Qatar dietary and physical activity guidelines by Q4 2023 and implement associated legislation by Q4 2025
1.1.F	Deliver national campaigns to promote healthy eating and physical activity by Q4 2026
1.1.G	Deliver training to healthcare professionals, to unify messages and increase awareness on healthy eating and physical activity by Q4 2026
<b>1.2</b>	<b>To reduce exposure to various infectious agent, environmental and occupational carcinogens</b>
1.2.A	Deliver training to Health Care Professionals (HCPs) on prevention and early detection of occupational cancers by Q4 2026
1.2.B	Prepare policy briefs to minimize air pollution sources by Q4 2026
1.2.C	Draft a road map on chemicals and health in Qatar using the Inter-Organization Program for the Sound Management of Chemicals (IOMC) Toolbox by Q4 2026
1.2.D	Establish a National HPV vaccination program by Q4 2026
1.2.E	Run a mass HBV vaccination campaign for Manual and Craft Workers (MCWs) by Q4 2024
1.2.F	Run priority population focused awareness campaigns to reduce exposure to various infectious agent, environmental and occupational carcinogens by Q4 2024
1.2.G	Deliver training for HCPs regarding the importance of HPV and HBV vaccine by Q1 2024
<b>1.3</b>	<b>To have inclusive, equitable, culturally acceptable, effective, and comprehensive programs targeting risk reduction and prevention of cancer through efficient knowledge, attitude and behavioral changing interventions</b>
1.3.A	Develop and deliver training on stigma, gender, inclusion, equity for those involved in cancer awareness interventions by Q4 2026
1.3.B	Create and implement governance process for awareness materials and events that guarantee that language used, messages, and events are inclusive, gender sensitive and culturally acceptable by Q1 2024
1.3.C	Establish Peer Education (PE) programs among priority populations by Q1 2024
1.3.D	Launch multilingual cancer awareness website through the QCIC platform by Q1 2025
<b>1.4</b>	<b>To increase access to evidence-based information on cancer prevention, screening, and early diagnosis</b>
1.4.A	Conduct Cancer Awareness and Behavioral surveys by Q4 2023
1.4.B	Establish a Public-Private Partnerships (PPP) process and system by Q1 2026
1.4.C	Finalize program and schedule of Cancer Awareness Calendar (CAC) events, and commence delivery of events by Q1 2024
1.4.D	Deliver awareness and promotion campaigns for cancer screening and early detection, targeting priority population groups by Q4 2023



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## Chapter 2

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# EARLY DETECTION AND SCREENING

**Chapter Author: Dr. Shaikha Abu Shaikha**



## Introduction

Early detection of cancer is recognized to increase the chance of successful treatment. For example, in bowel cancer cases diagnosed at the earliest stage, more than 9 out of 10 people survive for at least 10 years. However, if diagnosed at a late stage, survival is below 5%.

In 2016, a national population-based call and recall screening service for breast and bowel cancer was launched for Qatar. The screening program now operates across four PHCC centers, alongside a mobile screening service. This screening is necessary as figures from recent years demonstrate a trend of increasing numbers of late-stage cancer being detected. Enhanced screening should bring down the proportion of cancers detected late, with a direct impact on survival rates.

## Operating Context

Qatar's population-based cancer screening programs are increasingly mature. Since commencing operations in 2016, considering the impacts of COVID-19, four rounds of bowel cancer screening and two rounds of breast cancer screening have been conducted:

Table 4. Cancer Screening Rates

National Bowel Cancer Screening (Qatari)									
Year	2016	2017	2018	2019	2020	R4 Total	2021	2022	R5 Total
Round	1	2	3	4 (COVID-19)			5		
Coverage Rate	11%	19%	23%	43%	5%	24%	30%	-	-
Uptake Rate	25%	45%	31%	34%	18%	31%	31%	-	-

National Breast Cancer Screening (Qatari)												
Year	2016	2017	2018	R1 Total	2019	2020	2021	R2 Total	2022	2023	2024	R3 Total
Round	1				2 (COVID-19)				3			
Coverage Rate	17	22	23	51	18	3	-	21%	-	-	-	-
Uptake Rate	39	46	30	53	36	25	-	34%	-	-	-	-

The National Breast Cancer Screening Program is offered once every three years for women aged 45 – 69. The National Bowel Cancer Screening Program is offered once every two years to men and women aged 50 – 74.

These programs have been supported by a robust framework of governance, led by the National Governance and supported by strong internal PHCC governance arrangements. Foundational elements are in place, including:

- National KPI Libraries for Breast & Bowel Cancer Screening
- National Breast and Bowel Cancer Screening Guidelines
- National Breast and Bowel Cancer Screening Quality Frameworks
- National Cancer Screening Registry.

Services were designed from the start to deliver comprehensive performance reporting, which has enabled targeted improvement programs. The national cancer screening programs are supported by a national cancer screening marketing awareness and promotional campaigns service to support early detection, screening coverage and uptake. A national cancer screening call center service has been established to manage invitations, attendance and follow-up of the eligible target screening populations.

To complement the National Breast and Bowel Cancer Screening Program, a mobile cancer screening unit operates, which is fully equipped with a mammography machine, changing facilities and seated waiting area. It tours the hard-to-reach geographical areas of Qatar which is an excellent marketing and awareness tool to promote early detection and cancer screening.

An opportunistic Cervical Cancer Screening Service is also delivered at PHCC and is available to all women aged between 21 - 69 with no related symptoms. The screening test is done at three-year intervals for women aged 21-49 years old and at five-year intervals for women aged 50-69 years.

A Rapid Referrals Service is delivered at PHCC for urgent suspected cancers, where a 48-hour referral pathway is deployed for a rapid and definitive diagnosis at HMC to confirm or rule out the possibility of cancer.

Several key operational and service improvements for screening services have been delivered over the course of the Cancer Framework, including:

- Overhauled the supporting IT systems to initially tailor them to Qatar's operational cancer screening pathway and then subsequently to augment them by introducing data warehouse reporting capability along with upgraded systems
- The National Bowel Cancer Screening Program enhanced the cancer screening pathway by introducing a pilot to deliver efficient postal delivery of screening tests and telephone consultations for screening participants
- Both national cancer screening program services have expanded into a fourth dedicated screening suite located inside PHCC's Muaither Health Center
- Following a successful transition into PHCC, relocated the national cancer screening call center from the remote Ruwais Health Center to Doha to support improved recruitment and retention
- Periodic review and update of the screening policies/ service specifications and quality assurance protocols
- Periodic audits of both national cancer screening programs, both internally within PHCC and externally by the MOPH supported by international experts including IARC and WHO

## QCP Priorities

National cancer screening services continue to grow and mature in Qatar, enhancing access and available technology and infrastructure to better support the needs of the population and improve accuracy of services and speed of referrals. Chapter 4 will also set out how holistic support services will be integrated as part of screening services, ensuring that people are provided support they need through the first difficult weeks following abnormal screening results and first diagnosis.

Beyond these measures, the QCP proposes to conduct feasibility studies for the priority populations to evaluate establishing new cancer screening programs (2.4.D). This will bring Qatar in-line with international best practice, meeting WHO commitments and provide cancer screening services as needed that will save lives and have a significant positive economic return on investment.

These changes lay the foundation for further developments, the potential of Artificial Intelligence (AI) to transform screening services will drive further excellence and improved early detection. Emerging technologies, such as liquid biopsy, will further push definitions of early detection, as screening develops the potential for detection at 'stage zero', or before cancer can develop.

## Priority population groups

- Target populations for breast and bowel cancer screening
- Cancer population priorities to be set by the Cancer Screening Governance Committee (CSGC) under the governance of the National Cancer Governance Board
- Priority populations will be determined following analysis/feasibility studies to assess merit of implementing population based cancer screening programs i.e. cervical, prostate, lung and thyroid cancer screening programs.

## Challenges to overcome

To achieve this ambition there are several challenges that must be overcome. Implementation of the HPV vaccine requires focused efforts to overcome cultural barriers. Whilst Qatar has made huge progress in recent years, the relatively 'new' nature of population-based cancer screening services, compared to countries where these have been in place for 15-20 years for example, means that there is less meaningful data available for analysis, research and to drive system improvements. Finally, these services require dedicated funding and a specialized, skilled, workforce to accommodate rising demand and complexity of services being offered.

The following Strategic Objectives have been developed:

<b>2.1</b>	<b>To incorporate telemedicine into cancer screening services</b>
<b>2.2</b>	<b>To improve enabling systems to enhance the quality of screening programs</b>
<b>2.3</b>	<b>To support the establishment of new National Screening Programs</b>
<b>2.4</b>	<b>To enhance the early detection rates of cancer</b>

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>2.1</b>	<b>To incorporate telemedicine into cancer screening services</b>
2.1.A	Implement a teleradiology reading service for the National Breast Cancer Screening Program by Q4 2024
2.1.B	Implement postal delivery of all bowel cancer screening tests by Q4 2024
2.1.C	Establish program to offer bowel cancer screening participants telephone consultations by Q3 2024
<b>2.2</b>	<b>To improve enabling systems to enhance the quality of screening programs</b>
2.2.A	Complete a feasibility study to screen the breast cancer high risk group aged 40-44 by Q1 2025
2.2.B	Establish a system for assessing and improving clinician skills by Q4 2025
2.2.C	Enhance breast cancer screening by including effective artificial intelligence to support reading mammography screening images by Q4 2025
<b>2.3</b>	<b>To support the establishment of new National Screening Programs</b>
2.3.A	Complete feasibility studies to evaluate establishing a National Cervical Cancer Screening Program
2.3.B	Establish baseline of cervical cancer detection rates by Q4 2024
2.3.C	Based on feasibility studies, proposals for new National Screening programs (if any) to be approved by Q1, 2025, with services to be launched by Q4, 2026
<b>2.4</b>	<b>To enhance the early detection rates of cancer</b>
2.4.A	Establish a clinical peer review group to enhance cancer services through monitoring and coordination of urgent suspected cancer referrals by Q4 2025
2.4.B	Design and deliver Cancer Training Programs to build health professionals capability to recognize and act on the early signs of symptoms of common cancers by Q4 2025
2.4.C	Commence annual program of staff education regarding signs and symptoms of cancers established and available to all staff (public, private and voluntary sector) by Q4 2024
2.4.D	Complete feasibility studies as needed to evaluate introducing National Cancer Screening Programs for priority population groups by Q4 2025

## Patient Story 1 – Screening to Treatment

Mariam came to Qatar in 2006, afterwards she got married, at the age of 25. She was blessed with her three children in

2008, 2009, and 2010. In 2016, when she was taking a shower and she performed a breast self-examination. This is when she felt a ball-like mass in her right breast. After discussing this with her husband, he recommended her to get it checked in the health center.

In the health center, the physician assured her that everything looks fine and gave her an imaging appointment in Hamad General Hospital after six months. With the concerns that 6 months is a long time period to wait for, she went to a private hospital for the checkups. On the same day, she did lab tests and a mammography, and she was instructed to come back in two days for the results. After two days, the physicians told her that the mammography showed “something,” and she they needs needed to do a biopsy for the mass.

Following the biopsy, Mariam went to the doctor with her husband. She felt confused with the way the doctor was reacting. He refused to make an eye contact with her, and he was trying to make himself look busy by going through the papers.

She did not know what the results might have to say about her mass, but she was not anticipating what the doctor was going to tell her, nor she did she wanted to hear it. “It is cancer,” the doctor uttered.

She did not know how to react after that, and she did not control her rush of emotions. To calm her down, her husband held her hands tightly, in a way she could not forget. Her husband asked about the next step, in which the doctor replied that another biopsy is needed to determine the extent of the malignancy. It was done on the same day.

Mariam was booked to do the surgery in the following week. The days before the surgery, she was slowly accepting the shocking news and coming to terms with her diagnosis. “I kept saying alhamdulillah ya rab (Thank God) repeatedly, and I accepted God’s fate. I was spending more time with my kids playing with them and kissing them, as if I would not be able to see them again after the surgery.”

Following successful surgery and follow up care and chemotherapy provided by the NCCCR, Mariam is happily a survivor.

“I am going to defeat the cancer; the cancer cannot defeat me.” These were the words of Mariam, a courageous, strong 39 year-old woman who defeated breast cancer in a battle that lasted for two years. “I was stronger than my disease.”

Mariam’s journey shows the importance of easy access to rapid screening, referrals and diagnoses, the interconnectedness of the health system, as her care was managed in the private sector and within the NCCCR, and the value of support from her family, friends and the wider community.



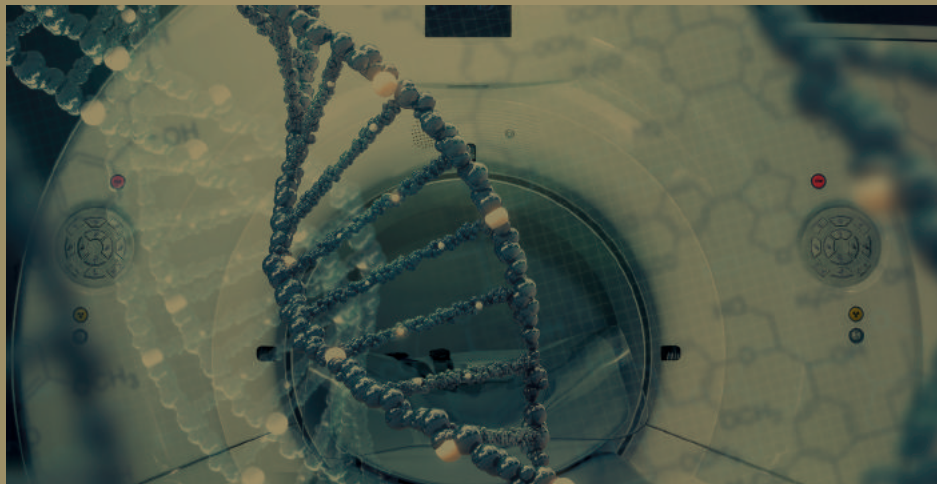
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## Chapter 3

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# QUALITY TREATMENT AND ONGOING CARE

**Chapter Author: Dr. Mohamed Salem Al Hassan**



## Introduction

As defined by the National Cancer Strategy (2011), treatment must be patient centered. To achieve the absolute best clinical outcomes, treatment must also be multidisciplinary, specialized, evidence-based, and rapid. Over the last decade, the environment in which cancer patients are treated has changed beyond recognition, with the introduction of new facilities and treatments cancer treatment in Qatar is now provided at a quality equivalent to the best countries in the world.

Fourteen cancer site specific Multi-Disciplinary Teams (MDTs), made up of physicians, surgeons, radiologists, pathologists, nurses, oncologists and clinical support staff have been established with specialist knowledge and skills in a specific cancer type. The MDTs focus on the clinical, radiological, and pathological features of each individual patient, making recommendations about treatment to ensure care is tailored to individual needs. Patients, as well as being discussed at an MDT meeting, have named Patient Pathway Coordinators who guide them through the patient pathway.

As patient numbers continue to grow, the future challenge is to continue to extend services and offer new and innovative modalities, whilst delivering world class quality of care and patient experience.

## Operating Context

There has been sustained development of new services and implementation of quality initiatives across all aspects of the patient pathway since the launch of the first Cancer Strategy. Supported by Cancer Clinical Advisory Groups and clinical management guidelines, a range of new services have been established including a specialist palliative care unit, bone marrow transplant programs, establishment of a survivorship clinic and cardio-oncology services. These innovations are supported by advanced treatment technologies, peer review and referral management, monitored by tailored performance indicators.

The urgent referral system, established in 2011, ensures referrals are offered an appointment to be seen at a specialized clinic within two working days. Patients are supported throughout their journey by cancer site specific pathway coordinators, with an e-referral system for suspected cancers operationalized in September 2021. The cancer waiting times is closely monitored and data is continuously used to improve the quality of services and care provided. It is well recognized that rare tumors and complex cases arise from time to time, and flexibility in the patient pathway is required to allow for diagnostics and treatment planning for these unique cases. Investment in infrastructure and innovative technologies have enabled clinical practice improvement and significantly enhanced the facilities in which care is delivered. All confirmed cancer cases are discussed at site specific MDTs. Many of these MDTs have undergone international peer review with excellent results, which is the quality assurance program for cancer services. This process ensures that the MDTs deliver their service to the highest possible standards.

Qatar utilizes state-of-the-art diagnostic and treatment modalities comparable to those available in the best specialist cancer centers around the world. Refurbishment and creation of additional bed capacity at NCCCR and the new Surgical Specialty Center in HMC has helped accommodate the growing demand for services, although this additional capacity is already under pressure. There has been expansion and enhanced integration of pharmacy services alongside cancer services, ensuring ready access to a full range of advanced treatment protocols, including palliation medications.

Arrangements are in place to ensure that surgeons acquire and maintain their skills and experiences even for rare cancers, given Qatar's small population, including sub and super specialization and partnerships with international centers of excellence. The Department of Surgical Oncology at HMC tracks all surgical cancer cases against a suite of KPIs, ensuring that the quality of care is delivered at a consistently high level. The Departments of Medical Oncology and Radiation Oncology also have a suite of KPIs to monitor the quality of their respective services. These arrangements are complemented using emergent technologies, enabled the provision of a range of sophisticated and minimally invasive techniques, including robotic surgery, in clinical practice. A number of surgical fellowship programs are well established, supporting the education and training of the next generation of surgical oncologists.

Provision of stem cell therapies continues to mature and expand, with programs aligned with World Marrow Donor Agency, European Society for Blood and Marrow Transplantation and the Centre for Bone and Marrow Transplant Research and plans are being developed to explore cell and gene therapy options.

Novel techniques including radiosurgery, image guided radiotherapy and proton therapy are also planned for future delivery. The radiation oncology services in Qatar provide the most up-to-date treatments available to cancer patients, including CyberKnife, Brachytherapy, Adaptive Brachytherapy, Surface Guided Radiotherapy (Align RT) and whole-body irradiation.

Qatar has embarked on an ambitious program regarding the development precision medicine in cancer care. Precision medicine, which is underpinned by genetics, will assist in the future prevention, diagnosis and treatment of cancer patients, inevitably improving long-term prognoses and outcomes.

A 10-bedded specialist palliative care unit was opened in the site of the National Centre for Cancer Care and Research (NCCCR) in 2015, this service is JCI accredited and is supported by an accredited fellowship training program. As patients continue to live longer with advanced disease, the expansion of palliative homecare services is of paramount importance to the cancer program in the State of Qatar. A six-month pilot study for the establishment of palliative homecare services was completed in 2021 and a business case has been submitted for approval to proceed with operationalizing the service in 2022/23, with a capital investment required to take the service forward. Service Level Agreements (SLAs) are in place to ensure provision of psycho-oncology services.

### QCP Priorities

To build on the incredible progress made in cancer care over the last decade and maintain momentum to ensure that everyone in Qatar has access to world class care, continued focus is required to expand capacity and capability to offer services. To ensure resources are well utilized, it is important to ensure that screening services are detecting cases early and accurately. There remain opportunities to simplify and clarify 'transition points' across the patient pathway, including between pediatric and adult services, palliative care and community and home care. Finally, the proposed new center will integrate translation of research activities alongside world class clinical care, ensuring that patients in Qatar receive a standard of care as good as any in the world, and better than any in the region. This will require international collaboration and sustained investment.

It should be noted that, despite improved quality and range of cancer care available in the country, Qatar continues to fund cancer patients to seek care abroad. This care may be no better than services available in Qatar, and the way it is provided, including the travel, separation from home and family, waiting times and other psycho-social impacts likely mean that patient care is suboptimal, despite significant costs. With the number of rare tumors and complex cases presenting on an annual basis, a defined pathway for the treatment of complex cases will be developed, to allow for additional investigations and planning of treatment. There will always be a number of complex cases and rare tumors diagnosed that will require treatment abroad in high volume centers, as the recommended treatment for such cases may not be available in the State of Qatar currently. To facilitate the treatment and care of this cohort of patients, partnerships and contracts need to be established with specific centers in the USA, Europe and Asia. A recent example of this is HMCs partnership with Heidelberg University Hospitals for rare cancers.

A cancer survivorship clinic opened in 2020, and this was the first step in developing a robust survivorship program. Cancer survivorship is more than just surviving a diagnosis of cancer. A diagnosis of cancer affects not just the patient but their families, friends and caregivers and the development of a cancer survivorship program in the State of Qatar will be an integral part of the cancer program.

Thanks to advances in diagnostics and treatment, cancer survivors are now living longer and more involved in their care than ever before. The survivorship program will be underpinned by provision of specialized clinicians to ensure that patients are supported in their trajectory beyond cancer treatment. It will be important to establish parameters for discharge back to the care of the community, with the possibility of dedicated centers within PHCC which will be aligned to the cancer survivorship program. As we consider the needs of patients holistically and look at transitions across the patient pathway, so too must accessibility of services be considered, building on strong collaborative partnerships between primary care, community services and hospital care to ensure people can access services conveniently within their communities.

Centralizing care into a new comprehensive cancer center, will raise the profile of, and confidence in, cancer services in the country, thus having a direct impact on patient care, outcomes and expenditure across the country. The need for a new comprehensive cancer center has been discussed for some time. There is now a compelling case that such a center is required to maintain and accelerate excellence in cancer care for the people of Qatar. The new ultra-specialized comprehensive cancer center will provide cancer care to citizens, residents, and patients from overseas who wish to have their cancer treatment in Qatar.

Great care and consideration has been taken into account for the design of this new center; HMC engaged world class architects and engineers to work in collaboration with HMC clinicians to design a state-of-the-art building that is future proofed in line with the projected population increases and volumes of cancers diagnosed per annum. The new comprehensive cancer center will be equipped with the latest cancer treatment technologies including protonbeam therapy with the aim of archiving the best clinical outcomes. The new comprehensive cancer center will also provide various amenities to patients, their carers and families.

As hospital construction costs are often considerable and to ensure optimal efficiency a 'right sizing' exercise and analysis was carried out prior to finalizing the design and project plan. A substantial fiscal budget and human resource investment is now required to support this important project. The establishment of a cancer support center should also be considered as such centers are key to providing support to cancer patients, their families and carers.

## Challenges to overcome

The continuing increase in demand for cancer services, and the need to offer new and innovative care has placed pressure on all aspects of care delivery, including budget, workforce, infrastructure, and resources. Physical space and bed capacity remains a constraint to deliver new and expanded services, as does the ability to recruit high quality clinicians and nurses.

The following Strategic Objectives have been developed:

<b>3.1</b>	To refresh proposal to establish a new Comprehensive Cancer Center, which has all modalities under one umbrella
<b>3.2</b>	To further develop palliative care services, including palliative homecare services and survivorship program
<b>3.3</b>	To increase investment in personnel and services, including development of treatment facilities and infrastructure
<b>3.4</b>	To enhance collaboration across all key stakeholders to ensure that patients have rapid access to services

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>3.1</b>	<b>To refresh proposal to establish a new Comprehensive Cancer Center, which has all modalities under one umbrella</b>
3.1.A	Refresh and submit updated business case for new Comprehensive Cancer Center by Q4 2023
3.1.B	Presentation and approval of business case for new Comprehensive Cancer Center by Q1 2024
<b>3.2</b>	<b>To further develop palliative care services, including palliative homecare services and survivorship program</b>
3.2.A	Undertake a 'needs assessment' to be carried out in relation to the development of a cancer survivorship and palliative care programs by Q4 2023
3.2.B	Based on needs assessment, establishment of a survivorship program by Q4 2023
3.2.C	Development of palliative care homecare services by Q4 2025
<b>3.3</b>	<b>To increase investment in personnel and services, including development of treatment facilities and infrastructure</b>
3.3.A	Continue to develop annual program of staff education regarding signs and symptoms of cancers established and available to all staff (public, private and voluntary sector) by Q4 2023
3.3.B	Joint capital investment plan for current, new and innovative cancer services across HMC, PHCC, Sidra and MOPH co-developed annually from Q4 2023
3.3.C	Operating model for precision medicine services developed by Q4 2023
3.3.D	Re-establishment of peer review in partnership with an accredited institute by Q1 2024
<b>3.4</b>	<b>To enhance collaboration across all key stakeholders to ensure that patients have rapid access to services</b>
3.4.A	Agreed and approved SLA, guidelines and protocols in place for transition pathway for teenagers/ young adults into the adult pathway/treatment centers by Q1 2024
3.4.B	Approved framework for monitoring of quality assurance & patient safety through a standardized process agreed by all parties by Q1 2024

## Patient Story 2 – Survivorship

Peter is a 50 year old musician. Originally from the United Kingdom, he moved to Doha five years ago with his loving wife and two children. He enthusiastically agrees when asked to share his story and message for those battling cancer. When he was diagnosed, he says, he knew someone who “had the same thing.” As soon as he spoke to them, it made a huge difference in his life. “It massively made everything better. I went in for the operation and chemotherapy knowing I may have a chance.”

Towards 2015, he went to his GP complaining of a “regular sore throat and nothing else.” The right side of his neck was also “swollen up a little bit.” The physician prescribed him antibiotics and asked him to return in a week if the swelling persisted. A week later he went back to the GP, his sore throat resolved in no time. However, his neck remained swollen. The doctor looked worried as it was “unusual for the swelling not to have gone away.” He consulted his colleagues and told Peter, “don’t be scared, but if I put you down as a suspected case of cancer, the ultrasound department will see you within two to four days.”

A week later, Peter was in Hamad General Hospital getting a series of medical tests. He says, was the “start of the proper diagnosis.” Looking back, he’s glad the first doctor he saw “flagged it up and got him into the system early.” After having been through the process of surgery, chemotherapy, and radiation, he recognizes how vital early detection is. He describes this process of waiting for the diagnosis as the “hardest bit” of his journey. “Not knowing was terrifying. Once I knew, I could deal with it. When you don’t know if you have a cyst, an abscess, or cancer, you’re constantly worried. Of course, the doctors can’t tell you what it is or isn’t. No one used the word cancer with me directly, yet those six weeks were horrid.”

The day he finally received his diagnosis was difficult. However, “but now I knew what it was,” he says. “It took me a couple of days to get my head around it. I had all the support of speaking to people who’ve had the same illness. I spoke to doctors, and they told me about other people who had survived and those who had the same operation that I was scheduled for and were now happily getting on with their lives. I was concentrating on the operation and what was going to happen next. This stopped me from worrying about it all the time. It saved me.” He describes a shift in his attitude from shock and a sickening feeling after being told he has cancer to believing that his illness was treatable. “I realized that this is survivable. This isn’t an instant death. I started to see it for what it is, rather than what I thought beforehand.”

Over the following weeks, he shared the news with the rest of his family and the people around him. “The more I talked about it, the less frightened I became. Eventually, I began to make it a point to share my story with people as it made me feel better.” He stresses the importance of support from friends and family during challenging times. “Bottling it all up and going into a hole is a bad idea. We all need to talk.”

Following his diagnosis, he underwent surgery in February 2016. He says that “going in lying on a trolley was frightening.” He remembers waking up in the ICU, surrounded by machines, with tubes coming out of every part of his body. “It was intimidating. But overall, it was quite quick. That’s the good thing about the Qatar system. There are loads of machines, and everything is modern.”

He describes his journey as a “team effort” “I didn’t do it on my own. I needed my wife, kids, nurses, doctors, the staff at radiotherapy, the secretaries, the clerical staff- everyone. You remember all these people. Simple gestures such as people greeting you or asking you how you are matter.”

Even after he received his first “all clear of cancer,” it took him months to get the fear of recurrence out of his thoughts and allow himself to slip back into his routine.

Initially, every minor sore throat would lead to him worrying and spending hours checking his neck. He gradually overcame this instinct by reminding himself that he was alright and focusing on the present.

Today, he has completed two-and-a-half years in remission and created two musical records in this period. His goal is to complete five records in total by the time he completes “five years of recovery”. He wishes for these to be the best five years of his life. Peter says he is learning to relax and live again with time. With each passing day, he worries less. As his life slowly returns to the way it was before, he says, it’s easy to get obsessed with the silly day-to-day things that do not truly matter. However, he doesn’t wish to forget his experience of being close to death completely. “It reminded me of how lucky I am, and I do not want ever to forget that.” Peter’s experience has fundamentally changed a lot of things about him. “In many ways, I’m back to being me. But in several tiny ways, I’m a different person. I’m very aware of my life now- my wife, my children. I am more about the ‘now’ and living in and for the present.”

Peter’s journey shows the value of connecting with other survivors, the need for support from family and friends, the team effort that goes into cancer care, and how challenging it can be for survivors to return to their ‘normal’ lives after cancer.



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## Chapter 4

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# HOLISTIC SUPPORT

**Chapter Author: Dr. Hisham Morsi**



## Introduction

Having the patient as the central focus of a patient, and family, centered healthcare system was a significant strategic priority of the 2011 strategy. To enable this, the last decade has largely focused on delivering excellent clinical infrastructure. It is now the time to focus on taking core steps towards this transformation of the health care system.

The holistic approach is a system that has the whole person, as a human being, with needs at the center of its attention, not just their clinical problem. It considers all aspects of the human being that includes, but is not limited to, the physical, emotional, social and spiritual wellbeing.

In the context of global malignant illnesses, the burden of cancer continues to increase, and it is well-documented that, while not a homogeneous population, cancer patients and cancer survivors, and their carers, face many physical, psychological, social, spiritual, and financial issues. Globally, innovative cancer care is developing from a disease-focused, to a patient-centered approach, which addresses all the needs of cancer patients, both during and after treatment.

Each person will have a unique experience of illness, a different path to recovery and set of human needs which are influenced by their age, gender, culture, heritage, language, faith, sexual and gender identity, relationship status, life experience and beliefs.

Providing holistic care is a core component of providing more integrated care, which utilizes conventional and complementary approaches to cancer integrating them with a focus on the whole person, which includes emotional, spiritual, social, and lifestyle (diet, physical activity, sleep, relationships) factors, the doctor-patient relationship as a partnership and collaboration. Some of the principles of a holistic care model include:

- Integrated care models emphasize a patient centered approach
- Services are provided in a consistent approach across a range of providers, not just one organization or provider
- Patients should have access to high quality comprehensive care as close to home as possible
- Shared protocols, guidelines, and care pathways ensure consistency of care
- Comprehensive screening for supportive care needs is critical to ensuring holistic care for cancer patients
- A healthcare system that strives to prevent the occurrence of cancer rather than reacting to it.

Responding to the individual needs in a holistic and patient-centered manner is extremely important for patients living with and beyond cancer. Holistic care that looks past the clinical needs, such as recovering from the effects of cancer treatment and addressing the risk factors associated with recurrence and incorporates the other needs of the body, mind and spirit, is a critical unmet need.

Cancer patients and survivors are often uncertain about next steps in their cancer journey and, despite the evidence to support the importance of holistic care, empirical research indicates a lack of evidence regarding post-treatment services. Patients frequently report that their psychosocial and other supportive care needs are neither identified nor addressed. Furthermore, cancer survivors do not consistently receive survivorship care plans that provides a summary of the patient's diagnosis and treatment plan, possible side effects, healthy lifestyle habits, available resources for financial and psychosocial support and ways to prevent the recurrence of cancer. Increased research is greatly needed to expand the evidence base required to define optimal care delivery, including the type or components of care delivered, the manner in which that care is delivered and by whom, and the efficacy of the various models of optimal care delivery.

## Operating Context

As cancer services in Qatar have developed to their current world class standard, there are more cancer survivors and an ever greater need to provide a comprehensive package of care for the people of Qatar. Whilst there has been increasing integration across the patient care pathway for cancer services, and the enhanced use of multi-sector MDTs, holistic care as a principle is relatively new. Many of the building elements inside hospitals are available, but they must be reconfigured and realigned to ensure that not just the patients clinical needs are met, but that their holistic wellbeing is cared for. Other infrastructure components, mainly those outside the hospital setting, do not exist and need to be developed, so that all aspects of cancer patients' lives are cared for.

In this context, the Quality of Life (QoL) Unit, first formed in January 2014, ran a gap analysis of the cancer services in Qatar. Significant gaps in the QoL were identified across three main categories: Individual QoL, Health Related QoL and Community Related QoL.

The QoL team has been providing significant support to cancer patients in their fight against cancer and beyond. The extent of help required is significant, as most recovering cancer patients require continuous support across all levels of their lives including psychological, social, spiritual and emotional support. Consolidating the cooperation between existing units of care as well as creating the necessary community components is a must if Qatar is to achieve the 'Excellence to All' to which the QCP aspires. Re-normalizing the life of cancer patients and their families, without the support of these community components, is not possible and is key to both current and former patients' recovery and long term well-being.

QoL service is currently provided through the NCCCR inpatient service, outpatient clinics and through community collaborations. The QoL team provide cancer patients of all ages and their families with education, information and support. The team also arranges a number of events and initiatives that help make the day-to-day life of someone living with cancer much easier, including helping cancer patients connect with other cancer sufferers who face many of the same challenges and also helping them to connect with the community as a whole. To sustainably grow and develop this service, QoL training, and psychology MSc and PhD certification, has been established for healthcare staff.

There is growing evidence as to the potential positive impact of the QoL service, and the challenges currently faced by cancer patients, survivors and their families in Qatar:

Figure 11. Family Financial Difficulties by Category Direct Cost of Treatment and Indirect Costs Due to Interrupted Life

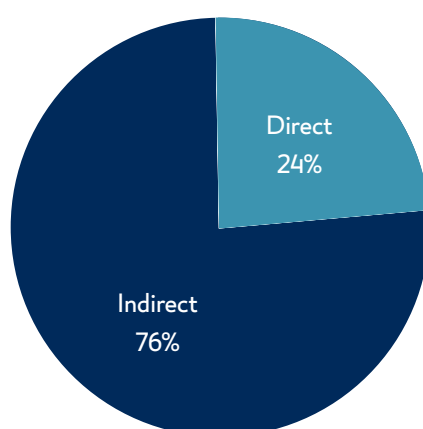
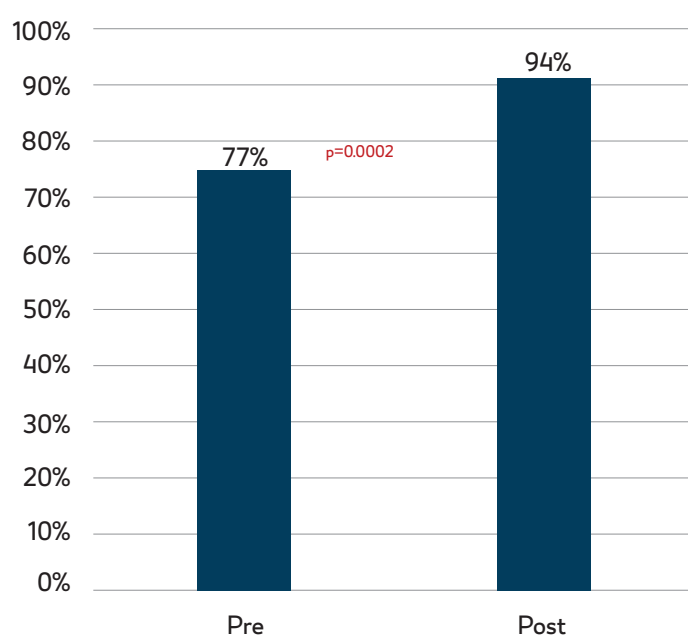


Figure 12. Satisfaction of Addressing Psycho-social Needs (before and after engagement with QoL service)  
Showing Highly Significant Impact of Addressing Patients' Needs



## QCP Priorities

Many areas covered in the QCP represent improving or enhancing existing services, building upon the foundation laid by previous cancer frameworks and strategies to build established services towards further excellence. This is not the case for holistic support. The Strategic Objectives and Deliverables identified here represent a significant change to the way in which care, in the broadest definition of that word, is delivered. Here we seek to go beyond treatment of disease and look to support the people of Qatar in all aspects of the health and wellbeing, be it sense of being, sense of belonging, spiritual, financial, self-awareness and expression, being integrated and contributing to society or consciously evolving. From individuals dealing with their first diagnosis, to those who have overcome cancer and are returning to their 'old' but 'new' lives, to those who are entering into their final chapters, different levels of support are required.

The shift to a holistic model of support is complying with the international best practices trend across the globe, and in reality, it is simply addressing all the needs of an individual, putting the patient at the heart of their care and ensuring that all their needs are met. This will not happen overnight, whilst many of the components for these services exist, they are immature and are not yet integrated, it will take many years to fully realize the full vision for holistic support in Qatar, the QCP lays out the foundation upon which future services will be built. The aim of this foundation is not only to deal with the cancer problem and its aftermaths, but also to optimize the prevention of its occurrence in the first place through expanding the holistic approach to screening participants and exposed communities.

### Priority population groups

- Qataris
- Screening participants awaiting results or with positive results
- Low income and CMWs
- Teenagers and young adults

### Challenges to overcome

To achieve these objectives, there are several challenges that must be overcome. Primarily the desired changes require a shift in mindset from treating patients for a specific condition or disease to treating them as dynamic, social individuals with a wide range of needs beyond treatment to their current condition. There is a need for much greater collaboration across the entire continuum of care and into social and community settings. Current support services are fragmented and difficult to navigate, just as dedicated positions have been created to help patients navigate cancer services within HMC, so support is needed to help people navigate services outside the hospital setting. Hospice, palliative, and bereavement service all require strengthening. To support this culture shift, greater research, and better and more accessible data is required to inform design of new and improvements to existing services.

Beyond medical care patients require financial and other support, and where this support is available, they need assistance accessing these services. To truly help patients navigate care and transition across services and along the patient pathway, there is a need for those who have experienced cancer to provide their insight and for patients to be supported by those with similar cultures and experience. Finally, it is important for services to reflect and understand the different needs of different patients, including those of younger adults and teenagers.

The following Strategic Objectives have been developed:

<b>4.1</b>	To establish a foundation of national infrastructure for the integration of holistic support across the entire cancer patient pathway
<b>4.2</b>	To enrich available data and enhance workforce capacity and capability with regards to holistic support
<b>4.3</b>	To enhance the individual, health, and community related quality of life of cancer patients and survivors

To achieve these objectives, the following Deliverables have been identified:

<b>4.1</b>	<b>To establish a foundation of national infrastructure for the integration of holistic support across the entire cancer patient pathway</b>
4.1.A	Establish a national governing entity/committee to coordinate, govern and monitor the integration of holistic support across the cancer care continuum by Q4 2023
4.1.B	Develop a national 'Holistic Support - Model of Care' for Qatar's Cancer Patients and Survivors by Q2 2023
4.1.C	Draft necessary national policies and guidelines to support Holistic Support units which includes psycho, social, spiritual and community support, within each tertiary care center by Q4 2023
4.1.D	Coordinate and support the creation of facility level plans to deliver QoL improvements, across all cancer healthcare providers in Qatar by Q4 2023
4.1.E	Complete development of the National Transitional Framework (NTF) Program and design complementary transitional care programs by Q1 2026
4.1.F	Develop information for patients and guidelines for HCPs in providing holistic support across the screening pathway for supporting patients awaiting or with positive results by Q4 2023
<b>4.2</b>	<b>To enrich available data and enhance workforce capacity</b>
4.2.A	Establish Holistic Support data baselines and ongoing data capture systems including the creation of a data registry at MOPH by Q4 2023
4.2.B	Incorporate patient satisfaction Holistic Support surveys as part of patient experience surveys by Q4 2023
4.2.C	Establish a comprehensive Holistic Support capacity building and certification program to empower nurses and frontline health workers by Q1 2024
4.2.D	Establish a Holistic Support research program with focus on evidence-based practice, and incorporating feedback into service improvement by Q4 2023
4.2.E	Introduce tertiary level Holistic Support qualification, taught within academic institutes in Qatar by Q1 2025
4.2.F	Undertake a workforce analysis to identify opportunities to expand the roles and remits of existing cancer patient support staff (CNS & PN) Q4 2023
4.2.G	Provide training workshops and competency certification on communicating and discussing the process and results with screening participants, by Q2 2024
<b>4.3</b>	<b>Enhance the individual, health, and community related quality of life of cancer patients and survivors</b>
4.3.A	Deliver patient family and carer empowerment, advocacy, skills and contextual rehabilitation training programs from Q1 2025
4.3.B	Establish accessible benefits packages to support normalization of life for priority populations, including children with cancer, by Q1 2026
4.3.C	Create and deliver a program of 'quick win' improvements to bio-psycho-socio-spiritual clinical services supported by existing workforce by Q4 2023
4.3.D	Design a national holistic community support program by Q4 2024

## Patient Story 3 – Holistic support

My name is Sheikha. I work as a TV and radio presenter. I have been working as a teacher and a school principal since 1995. I resigned from my position as a school Principal of a governmental school in 2016, and I traveled abroad to explore myself and find a new passion.

At first, I thought it was just a contusion, although it was not blue. I have learned in school how to examine my body. “While checking my body, I found a tumor at the top of the shoulder that scared me. Initially, I did not suspected it could be a tumor because a barrier hit me during swimming. I neglected it in the beginning for nearly four months as I thought it was just a contusion. I met a competent doctor who told me that it would be better to subject me to ultrasound rays to see the content of this discoloration. He gave some medicines that might help to reduce inflammation. Upon coming home back, I decided to work in media. Two months after starting my new career, I became worried about the tumor because it had decreased in size after taking medicines. However, it had re-emerged. Therefore, I went to the Health Center that referred my health file to Hamad Medical Corporation on the following day. I received a phone from a health consultant that they had received my file and that they would identify an appointment for me.

The result was positive for grade 1 breast cancer. I have not understood what happened for a while. I cried when I knew the result, not for fear of illness, but because I knew how my mother was frightened. My mother knew that something was wrong, so I told her the truth. The doctor was the most prominent supporter. He told me that I needed chemotherapy followed by surgical treatment.

What helped me during this crucial period was the remembrance of God Almighty, the observance of the prayers, and the reading of the Holy Qur'an. I took the chemotherapy first dose at National Center for Cancer Care & Research. The smell of the treatment made me nauseous and tired.

My father and doctor used to accompany me on every treatment visit and were waiting for me throughout the treatment period in the hospital. They asked me to eat after treatment, and I refused because the medicine made me nauseous.

On the first dose of treatment completion, I went to my parent's home; they insisted that I must stay with them during the treatment period because of my symptoms. I was taking treatment every twenty-one days. The most concern for me was the pain that happened to my mother. After treatment, she burst into tears. She noticed that my mood was changing after treatment. Having completed the first treatment stage, I asked to complete treatment in a tranquil city similar to Qatar in terms of customs and habits. To avoid seeing myself in that sick state, I was transferred to MD Anderson, where I was far from my mother. My brother accompanied me on my road for treatment. Before traveling, I had told some of my coworkers about my medical condition. I had not said any of them before because I didn't want anyone to pity me.

My brother looked at my weak body piteously, and I asked him to stop because this pathetic way may result in more weakness and would not help. Living in Houston is considered the best-ever period of my entire life. I have not lived in the accommodation allocated to patients. Instead, I lived far from them to avoid the sympathetic sight of people. I decided on a day to stop using a wig. When my brother saw me, he went off without saying a word. I knew how he felt. Therefore, as soon as he returned, he was shocked that I accepted myself. Physicians have told me that it is a temporary matter; you will return to your normality within nine months. I told my brother that I didn't want him to look at me miserably, significantly, since the treatment differed. I took the medical dose every 21 days; I take it now weekly.

I became aware of the importance of having my family next to me. My mother, may God have mercy on her, and my father used to call me several times every day. My mother was very worried about me; she felt ill. Her heart became weak, and she became unable to speak. Psychologically she suffered more than I. I tried to show her that I was okay and sent her pictures of me doing the housework, but she was still worried.

There is nothing more important than that a person takes time dedicated to himself to maintain his health and keep him connected to his Lord to feel God's blessings in life. All of us need time free to meditate on what we went through. It is important because the disease affects everything in a person's life, no matter how small. Treatment affected my body and deepened my way of thinking. This experience made me shift my view from negative to positive and how I deal with life difficulties.

Now, I consider anything that may meet me in life easy, God willing. When a person relies on God Almighty, he will find an unnatural force that helps to face whatever happens. I have realized that nothing could be compared to cancer. I cannot describe myself as a cancer fighter. However, I combat cancer with the help of God Almighty. On becoming ill, I realized the importance of everything and became aware and appreciated what life gave me. I knew the value of health and family. My children and brothers have become closer. Daily routine took me away from my parents. I visited them daily, but I have never been closer to them. I have discovered these things because of illness”.

Sheikha's story shows the importance of addressing all the needs of the patient, ensuring they have access to a complete network of psychosocial wellbeing. It also shows the impact cancer can have not just on the patient, but the whole family, carers and the wider community.



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## Chapter 5

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# CHILDHOOD CANCER

**Chapter Author: Dr. Ayman Saleh**



## Introduction

Cancer is a leading cause of death for children and adolescents. Unlike cancer in adults, most childhood cancers do not have a known cause. Studies have sought to identify the causes of childhood cancer, but very few cancers in children are caused by environmental or lifestyle factors. Current data suggest that approximately 10% of all children with cancer have a predisposition because of genetic factors.

Because it is generally not possible to screen for or prevent cancer in children, the NCP will seek to reduce the burden of cancer in children through a focus on prompt, correct diagnosis followed by effective, evidence-based therapy with tailored supportive care.

The transition between pediatric, youth/adolescent and adult services for those with cancer is of vital importance and clear plans need to be made to ensure the transition is smooth. HMC and Sidra Medicine continue to work together to develop clear pathways of care. MDT meetings should be attended by both pediatric and adult providers to act as the forum through which plans of care for individual patients are made. It would also be considered good practice for there to be joint clinic appointments for those transitioning between services in the year prior to transition. Consideration should also be given to ensure support addressing late effects of treatment for those who have had cancer in childhood or adolescence.

## Operating Context

The opening of Sidra Medicine has presented significant enhancement of specialty pediatric services, however there is also a need to ensure that transition of patients across care pathways is well managed. Presently the division of Pediatric Hematology-Oncology & Bone Marrow Transplant provides full services for all childhood cancer patients. Operation at Sidra Medicine since May 2018 bringing together some services previously provided through different institutions in Qatar whilst also establishing new and improved services. The vision of the division is to provide a state-of-the-art center of excellence in the region and internationally.

Since services commenced at Sidra Medicine, care for children, adolescents, and young adults (from birth until 18 years of age) have been provided. Previously, patients older than 14 years of age were cared for by adult hematology-oncology specialists. The service is provided by a multi-disciplinary team comprising of Qatari nationals and international physicians, oncology pharmacists, and nurses with broad experience and skills in oncology, all recruited to enhance the variety of services provided. As of December 2021, all nurses are APHON chemotherapy and biotherapy providers. Support staff including allied health professionals, child life specialists, psychologists, and other pediatric mental health specialists, social services are all currently available at Sidra Medicine and constitute an integral part of the pediatric cancer program.

Over the last five years, a range of improvements have been delivered for pediatric cancer services, including the establishment of sub-specialty specific clinics to better organize and deliver tailored and targeted care for patients with specific diseases. With total of 654 physician clinics in 2021 serving about 4,840 visits. Patient waiting lists have effectively been reduced to zero. Inpatient admissions to Sidra Medicine have increased by more than 100% since 2019.

Specialized chemotherapy infusion center, inpatient and outpatient units have been established, provided 5,113 infusions/transfusions and 535 procedures in 2021. Finally, collaboration locally, regionally, and internationally for complex cases and stem cell transplants have enhanced care provided by the pediatric cancer program. The Pediatric Cancer MDT continues to meet weekly with participation from hospital services and divisions, to discuss new oncology cases.

A new pediatric neuro-oncology service (PNOS) has been initiated at Sidra Medicine: a project that was set up to streamline the diagnosis and ensure high quality management of children diagnosed with a central nervous system tumor in Qatar. Supported by an MDT with colleagues from Pediatric Hematology/Oncology, Neurosurgery, Neuroradiology, Radiation oncology, Endocrinology, Ophthalmology, Physiotherapy and Psychology.

To enhance local capability and sustainability of services, Sidra's pediatric fellowship program, is preparing for accreditation by ACGME-I, currently three fellows are in programs receiving training and education.

## QCP Priorities

Several clear priorities have been identified in development of the QCP. These include increasing availability of some high-cost medication, providing greater financial and holistic support to children and their families. And further development of pediatric home care, palliative care, and stem cell transplant services.

Whilst each chapter of the QCP has been designed to address a particular aspect of cancer services, it is important to note that to deliver world class patient care and experience these services must be integrated across the patient pathway. The QCP aims to ensure that quality is delivered across the entire continuum of care, and managing transitions between settings and systems of care, be it primary to secondary, pediatric to adult or community and palliative care. These transitions can, historically, be challenging and accordingly attention will be paid to ensure these transitions are as seamless as possible, and patients are supported throughout their journey.

## Priority population groups

- Children
- Adolescents
- Families of children with cancer

## Challenges to overcome

The principal challenge to overcome for enhancing pediatric services is in ensuring accessibility of services and smooth transitions across the patient pathway. In-hospital care for children and adolescents is world class, the focus is therefore on extending the range of services currently available, ensuring those services are accessible, and providing support to children, adolescents, and their families outside of the hospital setting. With the expansion of childhood palliative care services, consideration must also be given to staffing, access to specific advanced therapeutics and Hematopoietic stem cell transplantation (HSCT).

Accordingly, the following Strategic Objectives have been identified:

<b>5.1</b>	To expand services so that Qatar can be internationally recognized as having a Childhood Cancer Center of Excellence (COE)
<b>5.2</b>	To support research efforts to accelerate cures for children with cancer in Qatar
<b>5.3</b>	To improve the enabling systems of quality childhood cancer services

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>5.1</b>	<b>To expand services so that Qatar can be internationally recognized as having a Childhood Cancer Center of Excellence (COE)</b>
5.1.A	Establish an affiliation with an internationally recognized leading major Childhood Cancer Center, network or international cooperative group by Q2 2024
5.1.B	Establish a program for Human Stem Cell Transplant (HSCT) for children and adolescent by Q4 2025
5.1.C	Establish Targeted Therapy/Precision Medicine program for the treatment of childhood cancer by Q4 2026
5.1.D	Establish a center for CAR-T and gene therapy by Q4 2026
5.1.E	Establish a holistic palliative care service as part of the pediatric cancer program by Q4 2025
5.1.F	Establish a holistic home care service as part of the pediatric cancer program by Q4 2026
<b>5.2</b>	<b>To support research efforts to accelerate cures for children with cancer in Qatar</b>
5.2.A	Establish international research-based collaboration by Q4 2024
5.2.B	Design an innovative research program which includes the expansion of the Clinical Trial Unit (CTU) function by Q4 2024
<b>5.3</b>	<b>To improve the enabling systems of quality childhood cancer services</b>
5.3.A	Ensure systematic and regular specialized pediatric oncology data collection, through a national pediatric oncology registry at MOPH by Q4 2024
5.3.B	Establish clear operational pathways for cancer referrals and counter referrals across all providers by Q4 2025
5.3.C	Review workforce requirements and ensure staffing levels are adequate and specialized to deliver the full range of childhood cancer services by Q4 2025

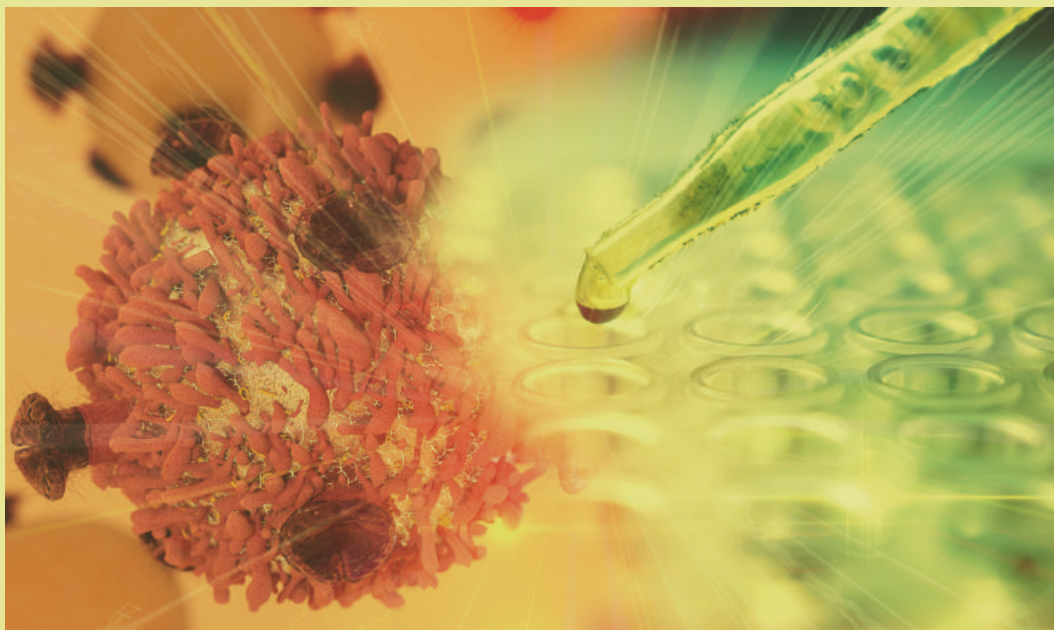
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## Chapter 6

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# SURVEILLANCE AND RESEARCH

Chapter Author: Dr. Khalid Al Rumaihi



## Introduction

To understand and drive forward progress, it must be measured and measurable. The health system in Qatar has gone through a remarkable evolution of digitalization, data for cancer services is no exception. Qatar possesses a range of tools to enhance performance management, patient experience and quality of care. Cancer surveillance, as defined by the International Agency on Cancer Research (IARC) is the occurrence of cancer (incidence and prevalence) and the systematic collation, analysis and interpretation of cancer data and its statistics. Data is of paramount importance to the Cancer Program in the State of Qatar, as it is used as a catalyst for important matters such as service planning, quality improvement, and monitoring trends in cancer. Data also plays an active role in cancer research across many domains, including clinical, translational, and allied healthcare.

Comprehensive cancer care, provided within an academic health system can only be realized with seamless integration across clinical, research and academic domains and with close collaboration between academic health partners in Qatar and beyond. Steady progress continues to be made in cancer research within Qatar however in general, the people of the Arabian Peninsula remain underrepresented in multi-center studies, clinical trials, and international registries. Greater collaboration and integration of research activities both within Qatar and with international partners is essential to drive increased benefit from the wealth of data currently available.

### Operating Context

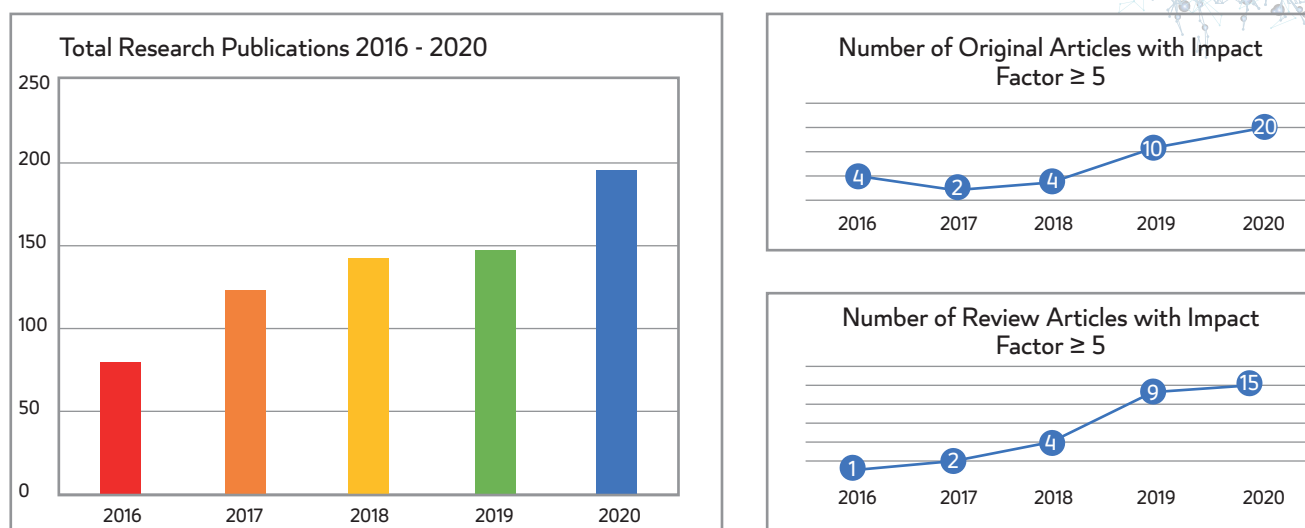
The Qatar Cancer Information Center and its Governance Committee was established during the course of the Qatar National Cancer Framework (2017-2022) to facilitate change and improvements in the quality of cancer data collated. The Qatar Cancer Information Center (QCIC) was launched with the primary aim of centralizing all cancer related data in a national data warehouse and now houses three registries: Qatar National Cancer Registry, Cancer Screening Registry and Cancer Waiting Times Registry. Enhancement of the original Qatar Cancer Minimum Dataset has provided robust data including details of socio economic status, prevalence in risk factors (including familial risk factors) and it is anticipated that further enhancements will be made over the coming years to include the capture of data items such as molecular data and palliative care data. The Qatar Cancer Information Center is also the hub for the Qatar Cancer Network which promotes collaborative working across the State of Qatar.

To support the operational aspects of cancer surveillance, regular interaction with IARC takes place. An educational program is under development to ensure that all healthcare professionals involved in collating cancer data are kept up to date with new developments. Annual review of the Minimum Cancer Data Set will ensure that the National Cancer Registry remains at the forefront of cancer data collation and centralization.

To support operational engagement, the Qatar Cancer Network continues to develop, enabling better collaboration and sharing of information with partners across the wider health sector. Partnership between academic institutions, research centers and medical providers has continued to develop and mature, driving considerable progress towards Qatar's national vision and shifting towards and advanced knowledge-based economy, and capitalizing on the significant investment put towards expanding research in the country.

Since the creation of the Qatar Cancer Research Partnership (QCRP) in 2012, a range of research has been undertaken. The creation of a clinical trials unit poised to further accelerate developments in this area. At the forefront of this work is the development of personalized and precision medicine, with new diagnostics and molecular pathology offering remarkable potential for future cancer services. Research is prioritized for stem cell and other cellular therapies. Additionally, better immunotherapy development and monitoring is expected. Qatar cancer research has seen steady improvements in the number of research publications, and more importantly the quality of journals in which they are published and the associated impact factor. Figure 14 demonstrates the increase in annual publications related to cancer research over the past number of years.

Figure 13. Growth in Quality and Quantity of Cancer Research in Qatar



The importance of the infrastructure and governance in cancer research cannot be underestimated. To increase the positive impact of clinical, laboratory, translational and population-based research on the outcomes of patients in The State of Qatar, better coordination between different research entities is required. The NCGB has given its approval for the establishment of a Cancer Research Office, which will be based in the MOPH. The national lead for cancer research will manage this office and report on its activity on a quarterly basis to the NCGB. This office will facilitate all cancer research in Qatar and will coordinate and manage all international collaborations regarding cancer research.

Research priorities linked to this new iteration of the strategy will be defined within 2023. A National Research Group will be established with the overarching aim of monitoring investment into research, promoting better coordination and support for cancer research.

Precision Medicine is now at the forefront of the new generation of cancer care and HMC has established a Precision Medicine Steering Group to oversee the development of precision medicine, engaging with world renowned experts in this innovative field of cancer care.

### QCP Priorities

The QCP sets out steps to utilize and develop Qatar's strategic advantage with regards to cancer research, for a range of reasons, including:

- Integrated vision for cancer care, education, and research
- Excellent academic research infrastructure and exceptional talent
- Collaboration across national academic partners
- Unique patient population and genotypes with particular clusters and patterns of disease
- Qatar's size makes whole population studies possible
- Possibility to occupy important 'niche positions' in cancer research
- International research interest in an understudied population
- Outcomes of interest to international Arabian diaspora
- Improved data driven planning and monitoring processes

There continues to be much excellent research work underway across Qatar. The QCP sets out to refine and focus this on efforts that will have a direct impact on patients and patient care, bringing together the best of clinical and academic thinking towards

translational research that will deliver tangible benefits and improved services for the people of Qatar.

To enhance quality of care and efficiency, research is exploring better ways to monitor treatment efficacy using dynamic biomarkers. Qatar continues to establish itself as an international hub of research, with many ongoing activities that may not directly relate to cancer but are of interest. There are clear desires to partner with industry locally and internationally to be at the forefront of novel mRNA technologies, which have the potential to develop vaccines against cancers.

Research is an important activity for all clinicians and healthcare professionals in cancer care. Individuals accordingly require protected time to pursue research interests as part of their job plans. A dedicated core team with relevant experience is also required for the clinical trials unit to facilitate ongoing research work in this area.

### Priority research areas

- Further priorities areas for the next four years to be developed by the CRCG on an annual basis.

### Challenges to overcome

Fundamental to challenges in research and surveillance is the lack of central coordination across cancer research activities. This leads to duplication or misdirection of efforts and scarce resources. There exists a range of issues (beyond cancer) with clinical trials in Qatar, however greater central coordination, focus and support can assist this issue, alongside increased awareness across providers, patients, and the general population. Finally, research is an international endeavor, and Qatar must do more to connect with international leaders and build strong global partnerships.

**Accordingly, the following Strategic Objectives have been developed:**

<b>6.1</b>	To identify strategic priorities and themes for cancer research, focusing on encouraging innovation and areas impacting patient care
<b>6.2</b>	To improve local and international coordination and collaboration, including participation in clinical trials

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>6.1</b>	<b>To identify strategic priorities and themes for cancer research, focusing on encouraging innovation and areas impacting patient care</b>
6.1.A	Develop a set of priority research areas for cancer by Q4 2023
6.1.B	Qatar National Research Fund (QNRF) to provide funding, for cancer research projects, only to those areas identified as priorities by Cancer Research Governance Committee (CRGC) by Q4 2024
6.1.C	Undertake population mapping exercise to confirm priority population groups for new screening programs by Q2 2024
<b>6.2</b>	<b>To improve local and international coordination and collaboration, including participation in clinical trials</b>
6.2.A	Establish the Qatar Cancer Research Office by Q1 2024
6.2.B	Establish the clinical trials awareness program by Q1 2025
6.2.C	Establish a system to enable the collection of patient reported outcome measures (PROMs) (see chapter 4) by Q1 2026
6.2.D	Advocate for reliance agreements between Institutional Review Boards (IRBs) to minimize duplication of researcher submissions by Q4 2024

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## Chapter 7

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# STRATEGIC ENABLERS

**Chapter Author: Dr. Al-Hareth M Al - Khater**



## Strategic Enablers

### Introduction

Strategic enablers are essential for the successful delivery of the QCP. The strategic objectives and deliverables set out in the previous chapters cannot be achieved without concerted efforts to deliver improved governance, workforce and digital infrastructure. The development and implementation of policy, systems and environmental change is a commonly used approach to reduce disease burden, and with this in mind a programmatic approach with strong governance and stakeholder engagement is required to ensure that the QCP deliverables are achieved.

Measuring performance and quality of cancer care services is as essential as key stakeholder engagement to ensure that the strategic objectives are met. Central to this is meaningful and accurate data, which underpins informed decision making regarding important factors such as infrastructure and the cancer workforce.

### Governance

As identified in the Qatar National Cancer Strategy 2011, an efficient governance structure and a systematic approach to awareness and prevention, quality treatment and ongoing care, screening, and holistic support is of the upmost importance to ensure that 'Excellence for All' in cancer care is achieved.

Operational delivery of many of the deliverables within the QCP will be the responsibility of individual organizations. Individual organizations already have well established governance structures in place and the National Cancer Program, under the guidance and governance of the National Cancer Governance Board, works with stakeholders across the healthcare spectrum in Qatar including HMC, PHCC, Private Providers and NGOs to achieve the targeted deliverables.

Funding is of importance to ensure that all key deliverables are addressed. The NCGB will liaise with stakeholders to have a better understanding of budget allocations so that the necessary interventions regarding fiscal support are addressed.

As with all strategies, a midterm review will be planned to take place in early 2025. This review will inform the NCGB on deliverables that have been successfully implemented and areas that may, perhaps, require further support to ensure successful implementation. In addition to this review, it is proposed that progress reports are provided by lead organizations to the NCGB on a quarterly basis. The NCGB will provide the Public Health Committee with an annual report on progress, key risks and mitigation. To enhance this oversight, comprehensive implementation plans for each deliverable are to be developed, including key milestones, budget and workforce and mechanisms for monitoring progress and highlighting any risks and issues. The NCGB will undertake a review of governance arrangements to consider how best to support the implementation of the QCP.

### Monitoring and Evaluation Plan

The monitoring of deliverables is an essential requirement of the program. The Deliverables set out in the QCP have been structured to enable robust monitoring and evaluation of progress against the plan. Each deliverable has a clear endpoint and are designed such that it is clear when the deliverable has been completed. The NCGB will initiate a program of monitoring implementation parallel to ongoing monitoring of performance including cancer waiting times and expert peer review.

Whilst the Deliverables have been structured to be unequivocal about whether they have been achieved, the Strategic Objectives are broader overarching national priorities, many of which will persist beyond the life of the QCP. Some will be improvement objectives for generations to come, as the work of enhancing quality, expanding services, and improving patient care and experience is an ongoing endeavor for health services. To ensure that services are being improved, that progress is being made towards Strategic Objectives and that Deliverables are having the desired impact, a suite of Key Performance Indicators (KPIs) will be developed. These KPIs are operational, not strategic measures, but nevertheless have a direct impact on patient care and patient experience. KPIs and their associated targets may change overtime, as new services, technologies, and modalities are introduced. As operational measures, these KPIs will be reported quarterly to the NCGB, and the KPIs themselves will be reviewed on an annual basis to ensure they remain fit for purpose. In some areas, baselining of performance is required before a target can be approved, the KPIs supporting the QCP will therefore continue to evolve throughout the lifespan of the Plan.

### Workforce

As the quality and scope of Cancer services expands and improves, workforce remains the biggest contributor and most precious resource. It is essential to ensure that the capacity and capability of workforce is in line with requirements and continues to

expand and improve as deliverables are achieved, and as more cases are identified through screening programs and alongside the predicted increase in burden of disease with incidence rates projected to increase from current levels of roughly 18 per 100,000 to 34 per 100,000 by 2030, there is a clear need to invest significantly in improving the numbers, capability and capacity of Qatar's cancer workforce.

Cancer care is one of the most resource intensive areas within any healthcare system. Experienced, well qualified staff are crucial to ensuring that the highest level of care is delivered to cancer patients. Qatar has invested intensely in its workforce, with senior Qatari clinicians involved in the delivery of care and management of services across the cancer patient pathway. To sustain this, succession planning and investment in training for the next generation of surgical, medical and radiation oncologists, pharmacists, nursing, and allied health professional staff must continue. As detailed implementation plans for these areas are developed, it will be the responsibility of each lead organization to ensure that they have identified and have plans to address their workforce requirements. To ensure that there is collaboration and not competition for scarce resources and given the potential scale of some deliverables, the NCGB will be carefully considering workforce and may wish to establish specific groups to undertake a workforce planning study, to ensure that workforce planning for the next 3, 5 and 10 years is managed proactively. This workforce planning should also ensure that, where applicable, all clinicians engaged in cancer care are subspecialized with the appropriate experience and qualifications to perform their role.

Nursing and Allied Health Care professionals contribute greatly to the cancer care within Qatar. The country now has over 30 clinical nurse specialists working across the 14 MDTs. In addition to this, physiotherapists, occupational therapists, and prosthesis technicians amongst others work across the service to ensure that patients receive the benefit of their input. It will be important to understand the ongoing requirements for nursing and allied health care professionals to ensure that "Excellence for All" is achieved in cancer care.

Workforce related to cancer registry should also be highlighted as an area for review to ensure that a number of certified tumor registrars working not only in the QNCR but also with major data providers such as HMC. As previously mentioned in Chapter 6, workforce investment in the area of cancer research and clinical trials is of particular importance across the cancer program in the State of Qatar.

Beyond these programs, several deliverables are seeking to introduce new services or deliver significant changes to current operating models, the HPV vaccine program, new National Screening Programs, Comprehensive Cancer Center, Holistic Support Model of Care, New Pediatric Cancer Services and Qatar Cancer Research Center will all require, in some cases significant, new workforces to be deployed. Although it should be noted these will not always represent new employees.

## Infrastructure

A well-founded infrastructure is important to ensure that cancer patients have access to all modalities of treatment and ongoing care.

Qatar has made substantial infrastructure investment in cancer care over the past decade; Screening facilities, robotic surgery theatres, PET CT Suites, bone marrow transplantation (BMT) translational research laboratory, advancements in molecular science and biomarkers to name but a few. The investment in infrastructure must continue, as discussed in Chapter 3, a new hospital facility as a dedicated comprehensive cancer center will be central to cancer service in the country. In preparation for the new comprehensive cancer center, other infrastructure needs, for example high volume services such as breast care services, should be reviewed to have a better understanding of current and future requirements.

The Peer Review program is an integral part of the National Cancer Program's quality assurance. This program will recommence in 2024 as an established collaboration with an international center recognized for excellence in cancer care.

## Data and Digitalization

Fundamental to the success of any program or strategy is the availability of data. The healthcare system in Qatar has made excellent progress in this regard. The National eHealth and Data Management Strategy was developed in 2018, and one of its key initiatives is the Qatar Health Information Exchange Hub (QHIE-Hub) program, which was launched in 2022. Cancer services across Qatar will benefit enormously from this program.

The QHIE-Hub will provide a national health information exchange platform, allowing accurate health data and information to be shared efficiently and in a timely manner across all healthcare stakeholders, both public and private. This will provide an integrated patient-centric view of an individual's healthcare journey across all providers in the continuum of care, empowering both patients and providers.

As the central repository of health data, the QHIE-Hub will allow improved information and knowledge to be used for enhanced

patient engagement, improved health promotion and preventative care, more integrated care and service delivery, and robust population health planning, monitoring, and analytics. The QHIE-Hub will enhance capabilities to effectively plan services, monitor health risk factors, manage, and respond to public health risks and challenges, control utilization, enable effective research, and ensure high quality of care and services.

To support the alignment and interaction of eHealth initiatives across Qatar Health Sector, the MOPH will deliver a comprehensive, patient-focused, private, and secure eHealth delivery model to improve how patients receive care, through safe and secure exchange of data.

Aligned to the MOPH's Data Management Strategy, the National Cancer Registry has revised its National Cancer Registry E-Platform, so that data providers can now register cancer with the information going directly to the National Cancer Registry. The National E-Health program will act as a data interaction exchange, where information related to patient care can be shared, and the parameters related to patient confidentiality will be closely monitored through data protection policies and control monitoring. As the QNCR becomes part of the E-health hub, this will be the platform from which the QNCR will curate its data.

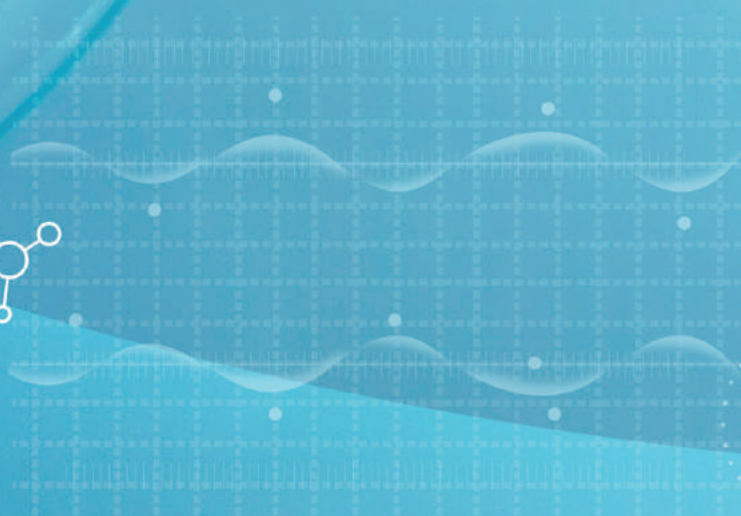
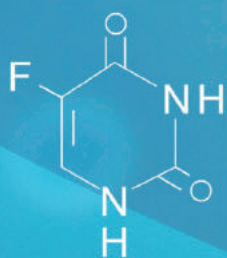
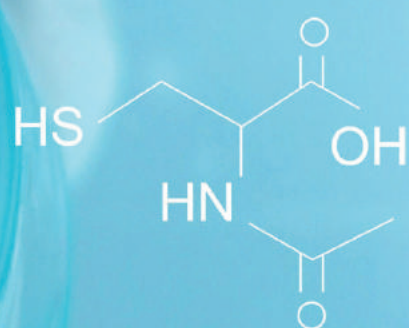
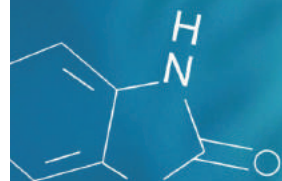
Following the recommendations set out in the NCF, HMC has embarked on an ambitious project of digitalizing all cancer data over the next three years. Successful collaboration between HMC and PHCC resulted in the launch of the E-referral system for urgent suspected cancers in September 2021, and digitalization is continuing now across the cancer patient pathway, through a working group consisting of stakeholders.

Accordingly, the following Strategic Objectives have been developed:

<b>7.1</b>	Ensure that capacity and capability of workforce is reflective of the requirements to support cancer services in Qatar.
<b>7.2</b>	Ensure that effective mechanisms are in place to monitor the implementation of QCP.
<b>7.3</b>	Support the ongoing dynamic requirements related to cancer data.

To achieve these Strategic Objectives, the following Deliverables have been identified:

<b>7.1</b>	<b>Ensure that capacity and capability of workforce is reflective of the requirements to support cancer services in Qatar</b>
7.1.A	Complete a review of cancer workforce requirements over 3, 5 and 10-years to inform organization workforce planning by Q2 2024
7.1.B	Update licensing and privileging requirements, to ensure all clinicians working in cancer care have appropriate sub-specialty experience and qualifications, by Q2 2024
<b>7.2</b>	<b>Ensure that effective mechanisms are in place to monitor the implementation of QCP</b>
7.2.A	Suite of Key Performance Indicators for the QCP, developed in partnership with key stakeholders, approved by the NCGB by Q4 2023
7.2.B	Completed capacity and capability review and review of governance arrangements to support QCP Implementation by Q3 2023
7.2.C	Approved reporting mechanisms, schedules and templates for QCP KPIs and quarterly updates by Q3 2023
<b>7.3</b>	<b>Support the ongoing dynamic requirements related to cancer data.</b>
7.3.A	All stakeholder organizations to develop cancer specific e-health and data management plans, in line with national programs, by Q4 2024




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# List of Figures and Tables within the QCP Document

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## List of Figures and Tables within the QCP Document

### Figures

Figure 1. The National Cancer Framework Patient Pathway .....	10
Figure 2. WHO - The Value of Preventing Non-Communicable Diseases .....	13
Figure 3. Cancer Governance Structure .....	15
Figure 4: Cancer Incidence Rates - Qataris .....	18
Figure 5. Three and Five Year Survivorship for All Cancers .....	18
Figure 6. Cancer Incidence By Nationality – Qatar 2020 .....	19
Figure 7. Cancer Incidence By Gender – Qatar 2020 .....	19
Figure 8. Percentage of Participant's Awareness on the Signs and Symptoms of Cancer .....	23
Figure 9. Percentage of Participant's Awareness About the Risk Factors of Cancer .....	24
Figure 10. Percentage of Participants Who Agreed and Disagreed on Myths and Beliefs About Cancer.....	24
Figure 11. Family Financial Difficulties by Category Direct Cost of Treatment and Indirect Costs Due to Interrupted Life .....	43
Figure 12. Satisfaction of Addressing Psycho-social Needs (before and after engagement with QoL service) Showing Highly Significant Impact of Addressing Patients' Needs .....	43
Figure 13. Growth in Quality and Quantity of Cancer Research in Qatar.....	55

### Tables

Table 1. Summary of Cancer Incidence - Qatar 2020 .....	19
Table 2. Most Common Cancers Newly Diagnosed in Qatar During 2020 .....	19
Table 3. Participant's Agreement/ Disagreement on Myths and Misconceptions About Cancer by Nationality .....	25
Table 4. Cancer Screening Rates .....	30

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# Appendices

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# Appendix 1 - Strategic Objectives and Deliverables

## Chapter 1: Prevention and Public Education

Ref. No.	Strategic Objectives & Deliverables	Lead Organization
<b>1.1</b>	<b>To reduce the risk of known lifestyle risk factors (tobacco use, unhealthy diet, physical inactivity) to cancer in Qatar</b>	
1.1.A	Deliver training to tobacco inspectors to enforce implementation of tobacco bylaws by Q4 2024	MOPH
1.1.B	Establish national 'quit line' that is linked with cessation centers to support smokers to quit by Q4 2025	MOPH
1.1.C	Implement smoke-free policies across all Qatar according to Tobacco law No 10-year 2016 by Q4 2026	MOPH
1.1.D	Review current tobacco taxation system by Q4 2024	MOPH
1.1.E	Develop Qatar dietary and physical activity guidelines by Q4 2023 and implement associated legislation by Q4 2025	MOPH
1.1.F	Deliver national campaigns to promote healthy eating and physical activity by Q4 2026	MOPH
1.1.G	Deliver training to healthcare professionals, to unify messages and increase awareness on healthy eating and physical activity by Q4 2026	MOPH
<b>1.2</b>	<b>To reduce exposure to various infectious agent, environmental and occupational carcinogens</b>	
1.2.A	Deliver training to Health Care Professionals (HCPs) on prevention and early detection of occupational cancers by Q4 2026	MOPH
1.2.B	Prepare policy briefs to minimize air pollution sources by Q4 2026	MOPH
1.2.C	Draft a road map on chemicals and health in Qatar using the Inter-Organization Program for the Sound Management of Chemicals (IOMC) Toolbox by Q4 2026	MOPH
1.2.D	Establish a National HPV vaccination program by Q4 2026	MOPH
1.2.E	Run a mass HBV vaccination campaign for Manual and Craft Workers (MCWs) by Q4 2024	MOPH
1.2.F	Run priority population focused awareness campaigns to reduce exposure to various infectious agent, environmental and occupational carcinogens by Q4 2024	MOPH
1.2.G	Deliver training for HCPs regarding the importance of HPV and HBV vaccine by Q1 2024	MOPH
<b>1.3</b>	<b>To have inclusive, equitable, culturally acceptable, effective, and comprehensive programs targeting risk reduction and prevention of cancer through efficient knowledge, attitude and behavioral changing interventions</b>	
1.3.A	Develop and deliver training on stigma, gender, inclusion, equity for those involved in cancer awareness interventions by Q4 2026	MOPH
1.3.B	Create and implement governance process for awareness materials and events that guarantee that language used, messages, and events are inclusive, gender sensitive and culturally acceptable by Q1 2024	MOPH
1.3.C	Establish Peer Education (PE) programs among priority populations by Q1 2024	MOPH
1.3.D	Launch multilingual cancer awareness website through the QCIC platform by Q1 2025	MOPH
<b>1.4</b>	<b>To increase access to evidence-based information on cancer prevention, screening, and early diagnosis</b>	
1.4.A	Conduct Cancer Awareness and Behavioral surveys by Q4 2023	MOPH
1.4.B	Establish a Public-Private Partnerships (PPP) process and system by Q1 2026	MOPH

Ref. No.	Strategic Objectives & Deliverables	Lead Organization
1.4.C	Finalize program and schedule of Cancer Awareness Calendar (CAC) events, and commence delivery of events by Q1 2024	MOPH
1.4.D	Deliver awareness and promotion campaigns for cancer screening and early detection, targeting priority population groups by Q4 2023	MOPH

## Chapter 2: Early Detection and Screening

2.1	<b>To incorporate tele-medicine into cancer screening services</b>	
2.1.A	Implement a tele-radiology reading service for the National Breast Cancer Screening Program by Q4 2024	PHCC
2.1.B	Implement postal delivery of all bowel cancer screening tests by Q4 2024	PHCC
2.1.C	Establish program to offer bowel cancer screening participants telephone consultations by Q3 2024	PHCC
2.2	<b>To improve enabling systems to enhance the quality of screening programs</b>	
2.2.A	Complete a feasibility study to screen the breast cancer high risk group aged 40-44 by Q1 2025	PHCC
2.2.B	Establish a system for assessing and improving clinician skills by Q4 2025	PHCC
2.2.C	Enhance breast cancer screening by including effective artificial intelligence to support reading mammography screening images by Q4 2025	PHCC
2.3	<b>To support the establishment of new National Screening Programs</b>	
2.3.A	Complete feasibility studies to evaluate establishing a National Cervical Cancer Screening Program	PHCC
2.3.B	Establish baseline of cervical cancer detection rates by Q4 2024	PHCC
2.3.C	Based on feasibility studies, proposals for new National Screening programs (if any) to be approved by Q1, 2025, with services to be launched by Q4, 2026	PHCC
2.4	<b>To enhance the early detection rates of cancer</b>	
2.4.A	Establish a clinical peer review group to enhance cancer services through monitoring and coordination of urgent suspected cancer referrals by Q4 2025	PHCC
2.4.B	Design and deliver Cancer Training Programs to build health professionals capability to recognize and act on the early signs of symptoms of common cancers by Q4 2025	PHCC
2.4.C	Commence annual program of staff education regarding signs and symptoms of cancers established and available to all staff (public, private and voluntary sector) by Q4 2024	PHCC
2.4.D	Complete feasibility studies as needed to evaluate introducing National Cancer Screening Programs for priority population groups by Q4 2025	PHCC

## Chapter 3: Quality Treatment and Ongoing Care

3.1	<b>To refresh proposal to establish a new Comprehensive Cancer Center, which has all modalities under one umbrella</b>	
3.1.A	Refresh and submit updated business case for new Comprehensive Cancer Center by Q4 2023	HMC
3.1.B	Presentation and approval of business case for new Comprehensive Cancer Center by Q1 2024	HMC
3.2	<b>To further develop palliative care services, including palliative homecare services and survivorship program</b>	
3.2.A	Undertake a 'needs assessment' to be carried out in relation to the development of a cancer survivorship and palliative care programs by Q4 2023	HMC
3.2.B	Based on needs assessment, establishment of a survivorship program by Q4 2023	HMC

Ref. No.	Strategic Objectives & Deliverables	Lead Organization
3.2.C	Development of palliative care homecare services by Q4 2025	HMC
<b>3.3</b>	<b>To increase investment in personnel and services, including development of treatment facilities and infrastructure</b>	
3.3.A	Continue to develop annual program of staff education regarding signs and symptoms of cancers established and available to all staff (public, private and voluntary sector) by Q4 2023	HMC
3.3.B	Joint capital investment plan for current, new and innovative cancer services across HMC, PHCC, Sidra and MOPH co-developed annually from Q4 2023	MOPH
3.3.C	Operating model for precision medicine services developed by Q4 2023	HMC
3.3.D	Re-establishment of peer review in partnership with an accredited institute by Q1 2024	HMC
<b>3.4</b>	<b>To enhance collaboration across all key stakeholders to ensure that patients have rapid access to services</b>	
3.4.A	Agreed and approved SLA, guidelines and protocols in place for transition pathway for teenagers/ young adults into the adult pathway/treatment centers by Q1 2024	HMC
3.4.B	Approved framework for monitoring of quality assurance & patient safety through a standardized process agreed by all parties by Q1 2024	HMC
<b>Chapter 4: Holistic Support</b>		
<b>4.1</b>	<b>To establish a foundation of national infrastructure for the integration of holistic support across the entire cancer patient pathway</b>	
4.1.A	Establish a national governing entity/committee to coordinate, govern and monitor the integration of holistic support across the cancer care continuum by Q4 2023	MOPH
4.1.B	Develop a national 'Holistic Support - Model of Care' for Qatar's Cancer Patients and Survivors by Q2 2023	HMC
4.1.C	Draft necessary national policies and guidelines to support Holistic Support units which includes psycho, social, spiritual and community support, within each tertiary care center by Q4 2023	HMC
4.1.D	Coordinate and support the creation of facility level plans to deliver QoL improvements, across all cancer healthcare providers in Qatar by Q4 2023	HMC
4.1.E	Complete development of the National Transitional Framework (NTF) Program and design complementary transitional care programs by Q1 2026	HMC
4.1.F	Develop information for patients and guidelines for HCPs in providing holistic support across the screening pathway for supporting patients awaiting or with positive results by Q4 2023	HMC
<b>4.2</b>	<b>To enrich available data and enhance workforce capacity and capability with regards to holistic support</b>	
4.2.A	Establish Holistic Support data baselines and ongoing data capture systems including the creation of a data registry at MOPH by Q4 2023	MOPH
4.2.B	Incorporate patient satisfaction Holistic Support surveys as part of patient experience surveys by Q4 2023	HMC
4.2.C	Establish a comprehensive Holistic Support capacity building and certification program to empower nurses and frontline health workers by Q1 2024	HMC
4.2.D	Establish a Holistic Support research program with focus on evidence-based practice, and incorporating feedback into service improvement by Q4 2023	HMC
4.2.E	Introduce tertiary level Holistic Support qualification, taught within academic institutes in Qatar by Q1 2025	HMC
4.2.F	Undertake a workforce analysis to identify opportunities to expand the roles and remits of existing cancer patient support staff (CNS & PN) Q4 2023	HMC


Ref. No.	Strategic Objectives & Deliverables	Lead Organization
4.2.G	Provide training workshops and competency certification on communicating and discussing the process and results with screening participants, by Q2 2024	HMC
<b>4.3</b>	<b>To enhance the individual, health, and community related quality of life of cancer patients and survivors</b>	
4.3.A	Deliver patient family and carer empowerment, advocacy, skills and contextual rehabilitation training programs from Q1 2025	HMC
4.3.B	Establish accessible benefits packages to support normalization of life for priority populations, including children with cancer, by Q1 2026	HMC
4.3.C	Create and deliver a program of 'quick win' improvements to bio-psycho-socio-spiritual clinical services supported by existing workforce by Q4 2023	HMC
4.3.D	Design a national holistic community support program by Q4 2024	HMC

## Chapter 5: Childhood Cancers

<b>5.1</b>	<b>To expand services so that Qatar can be internationally recognized as having a Childhood Cancer Center of Excellence (COE)</b>	
5.1.A	Establish an affiliation with an internationally recognized leading major Childhood Cancer Center, network or international cooperative group by Q2 2024	Sidra
5.1.B	Establish a program for Human Stem Cell Transplant (HSCT) for children and adolescent by Q4 2025	Sidra
5.1.C	Establish Targeted Therapy/Precision Medicine program for the treatment of childhood cancer by Q4 2026	Sidra
5.1.D	Establish a center for CAR-T and gene therapy by Q4 2026	Sidra
5.1.E	Establish a holistic palliative care service as part of the pediatric cancer program by Q4 2025	Sidra
5.1.F	Establish a holistic home care service as part of the pediatric cancer program by Q4 2026	Sidra
<b>5.2</b>	<b>To support research efforts to accelerate cures for children with cancer in Qatar</b>	
5.2.A	Establish international research-based collaboration by Q4 2024	Sidra
5.2.B	Design an innovative research program which includes the expansion of the Clinical Trial Unit (CTU) function by Q4 2024	Sidra
<b>5.3</b>	<b>To improve the enabling systems of quality childhood cancer services</b>	
5.3.A	Ensure systematic and regular specialized pediatric oncology data collection, through a national pediatric oncology registry at MOPH by Q4 2024	Sidra
5.3.B	Establish clear operational pathways for cancer referrals and counter referrals across all providers by Q4 2025	Sidra
5.3.C	Review workforce requirements and ensure staffing levels are adequate and specialized to deliver the full range of childhood cancer services by Q4 2025	Sidra

## Chapter 6: Surveillance and Research


<b>6.1</b>	<b>To identify strategic priorities and themes for cancer research, focusing on encouraging innovation and areas impacting patient care</b>	
6.1.A	Develop a set of priority research areas for cancer by Q4 2023	MOPH



Ref. No.	Strategic Objectives & Deliverables	Lead Organization
61.B	Qatar National Research Fund (QNRF) to provide funding, for cancer research projects, only to those areas identified as priorities by Cancer Research Governance Committee (CRGC) by Q4 2024	MOPH
61.C	Undertake population mapping exercise to confirm priority population groups for new screening programs by Q2 2024	MOPH
<b>6.2</b>	<b>To improve local and international coordination and collaboration, including participation in clinical trials</b>	
6.2.A	Establish the Qatar Cancer Research Office by Q1 2024	MOPH
6.2.B	Establish the clinical trials awareness program by Q1 2025	MOPH
6.2.C	Establish a system to enable the collection of patient reported outcome measures (PROMs) (see chapter 4) by Q1 2026	MOPH
6.2.D	Advocate for reliance agreements between Institutional Review Boards (IRBs) to minimize duplication of researcher submissions by Q4 2024	MOPH

## Chapter 7: Strategic Enablers

<b>7.1</b>	<b>Ensure that capacity and capability of workforce is reflective of the requirements to support cancer services in Qatar</b>	
7.1.A	Complete a review of cancer workforce requirements over 3, 5 and 10-years to inform organization workforce planning by Q2 2024	MOPH
7.1.B	Update licensing and privileging requirements, to ensure all clinicians working in cancer care have appropriate sub-specialty experience and qualifications, by Q2 2024	All stakeholders
<b>7.2</b>	<b>Ensure that effective mechanisms are in place to monitor the implementation of QCP</b>	
7.2.A	Suite of Key Performance Indicators for the QCP, developed in partnership with key stakeholders, approved by the NCGB by Q4 2023	All stakeholders
7.2.B	Completed capacity and capability review and review of governance arrangements to support QCP Implementation by Q3 2023	All stakeholders
7.2.C	Approved reporting mechanisms, schedules and templates for QCP KPIs and quarterly updates by Q3 2023	NCGB
<b>7.3</b>	<b>Support the ongoing dynamic requirements related to cancer data.</b>	
7.3.A	All stakeholder organizations to develop cancer specific e-health and data management plans, in line with national programs, by Q4 2024	HMC/MOPH



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# Acknowledgements

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## Appendix 2

### Acknowledgements

One of the most essential factors to delivering continuous improvement in cancer care for more than a decade has been the collaboration, cooperation and partnership working across many stakeholders and organizations. Whilst we cannot personally thank the many hundreds of individuals who contributed to these improvements and supported development of the QCP, we Would like to express the deepest appreciation for the leadership of H. E. Dr. Hanan Al Kuwari, The Minister of Public Health in the State of Qatar.

A very special thanks to the leaders of the cancer services in the State of Qatar, including Shk. Mohammad Al Thani, Ministry of Public Health, Lord Ara Darzi, Chair of the NCGB, Dr. Mariam Ali Abdulmalik, Primary Health Care Corporation, and Dr. Mohammad Salem, Hamad Medical Corporation, for their enduring support to achieve excellence in cancer services.

Our ongoing relationship and the scientific and advisory support from the Eastern Mediterranean Office / World Health Organization has been hugely important in development of the QCP.

We would like also to extend our thanks to all of those who supported the development of this plan. Representatives from organizations across the patient pathway have provided their expertise and knowledge to inform this document. For all of your hard work, effort and contributions, we, and the people of Qatar, thank you.

### Chapter Authors



**Dr. Amani Elkhatim**

#### Chapter 1 – Prevention & Public Health

Dr. Elkhatim is a medical doctor, with MPH and MD community Medicine. Currently works in MOPH, as specialist working in public health department, under the health promotion & NCDs section.

For the last 12 years, she worked in different areas in the NCDs Control mainly cancer control, tobacco control, road safety, and injury prevention. Her work in cancer is leading the education, understanding and awareness about cancer in health promotion department.

Being a public Health Expert for more than 20 years, she worked as different areas of Public Health nationally and globally. She also worked in different setting of public health, public, private- academia, service provision, NGOs and Governmental institutions.



**Dr. Shaikha Sami  
Abushaikh**

#### Chapter 2 – Early Detection & Screening

As the Director of Cancer Screening Programs and Senior Consultant Community Medicine within PHCC, Dr. Shaikha Sami AbuShaikha plays a vital role in developing and implementing the national population-based Breast and Bowel Cancer Screening Programs. Her mandate is to expand preventive and community-based healthcare by taking this 'Prevention' message to a wider audience and connecting more effectively with the public. Working closely with medical professionals across PHCC, HMC & the MOPH to encourage preventive health measures for Breast, Bowel and Cervical Cancer.

Starting out with a Doctor of Medicine (MD) Degree from the Arabian Gulf University, she specialized in Community Health and Preventive Medicine and passed the Arab Board certification in 2010. Later Dr. Shaikha obtained a Masters Degree from the Royal College of Surgeons in Ireland in 'Healthcare Management'. This empowered her to take on several senior leadership positions within PHCC before eventually arriving at her current responsibility as Director of Cancer Screening Programs.

To fulfil her current role Dr. Shaikha believes that the public needs to get a deeper understanding of the benefits of early screening which can lead to significantly more successful treatment. With her admirable vision she is also well known as the driving force behind PHCC's 'Screen for Life' program which works tirelessly and in tandem with Qatar's National Cancer Strategy.



**Dr. Mohamed Salem  
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### Chapter 3 – Quality Treatment & Ongoing Care

Dr. Mohammed Salem Al Hassan, is the Medical Director and Chief Executive Officer of The National Center for Cancer Care and Research, HMC. Dr. Mohamed Salem is also the Chair of Corporate Cancer Services at HMC.

He has held many senior leadership roles in his career at HMC including; Managing Director of Hamad Medical Corporation, Chairman of the Emergency Department, Chairman of Surgery and Director of Medical Education. His most recent appointment is Chair of Corporate Cancer Services. He is renowned for his surgical skills having introduced laproscopic surgery to the State of Qatar over two decades ago.

Dr. Mohamed participates in many institutional and national committees including his role as the Vice Chairman of System Wide Incident Command Committee and Chairman of Thyroid Multidisciplinary Team. He has published many research papers regarding thyroid cancer. Dr. Mohamed is the Vice Chairman of the Arab Medical Union and is well known internationally through his contributions to clinician education. He is a past examiner of the Royal College of Surgeons, Ireland.



**Dr. Hisham Morsi**

### Chapter 4 – Holistic Support

Dr. Hisham Morsi, works directly with the Palliative Care services at NCCCR.

He has practiced medicine for over 30 years, having studied his Bachelor of Medicine at Alexandria in Egypt. He trained in molecular biology at Kingston University in the UK where he later undertook a PhD in Molecular Oncology. In 2018, he gained an MSc in Psychiatry from Cardiff University. He is head of research and a board member at Pediatric Potential in the USA and acts as a consultant for the International Forum of Social Innovation in Paris, France.

Dr. Morsi maintains active engagement in research with many publications since he began working at HMC in 2014.



**Dr. Ayman Saleh**

### Chapter 5 – Childhood Cancers

Dr. Ayman Saleh joined Sidra Medicine in 2017, as Deputy Division Chief in the Division of Pediatric Hematology-Oncology & Bone Marrow Transplant. He was appointed Chief of the Division in March 2020. He currently serves as the Chairman of the IRB and multiple other committees at Sidra Medicine.

During his career, he has held multiple leadership positions including Division Chief of Pediatric Hematology Oncology (1998-2011) and Medical Director and Chairman of the Department of pediatrics (2005-2007). He also chaired committees like cancer care committee, institutional review board (IRB), credentialing committee, pediatric academic review committee, pediatric executive committee, standing committee of the board, and professional affairs committee. He was elected as a president of the medical staff and medical executive committee (2003-2007).

He conducted research projects and served as a principal investigator and a full member of the international Children's Oncology Group since its inception in 2000. He also conducted clinical trials and received multiple grants in childhood cancer, hemophilia, hemoglobinopathies and supportive care.



**Dr. Khalid Rashid Al Rumaihi**

## Chapter 6 – Surveillance & Research

Dr. Al Rumaihi graduated from the College of Medicine and Medical Sciences at King Faisal University in the Kingdom of Saudi Arabia. Post-residency, Dr. Al Rumaihi joined the Swedish Board Training Program in Urology at Uppsala University Hospital in Sweden, which he completed in 2005 and European fellowship board in urology.

In 2012, Dr. Al Rumaihi became the Head of Urology Section at Hamad Medical Corporation, where he also serves as Urology MDT Lead clinician and Chairman of Urology Tumor Board.

He obtained MBA in International Healthcare Management from Frankfurt School of Finance & Management Germany in 2015.

During COVID-19 pandemic he established Urgent Consultation Center and became Urgent-teleconsultation Project Lead in March 2020 to present.



**Dr. Al-Hareth M. Al-Khater**

## Chapter 7 – Strategic Enablers

Dr. Al-Hareth M. Al-Khater was granted a Qatari national medical scholarship and obtained his medical degree at the Royal College of Surgeons in Ireland. He then joined HMC where he did his internship & internal medicine residency training before obtaining a national medical subspecialty scholarship. He completed his internal medicine residency, hematology, and medical oncology fellowship training at the University of Missouri-Columbia, working at the University Hospital, the Harry S. Truman Memorial Veteran's Hospital & Ellis Fischel Cancer Center.

Dr. Al-Khater obtained American Board certification in internal medicine, hematology and medical oncology. He is currently a senior consultant medical oncologist, deputy medical director for clinical affairs at the NCCCR & chair of the healthcare ethics committee at HMC. He is also a medical advisor for the National Cancer Program in the MOPH & represents Qatar as a member of the IARC. He has participated in many institutional, national & international committees including being a member of the Qatar National Research Ethics Committee, member of the Qatar State Awards Trustees' Committee, member of the executive committee for the Board of Regents of Qatar University, member of the Advisory Committee for the Gulf Center for Cancer Control & Prevention, Saudi Arabia & a member of the Scientific Council for the IARC. His main interests are urological cancers and healthcare ethics at the end of life.



QCP Steering Committee		
Chair	Lord Ara Darzi	Imperial College London
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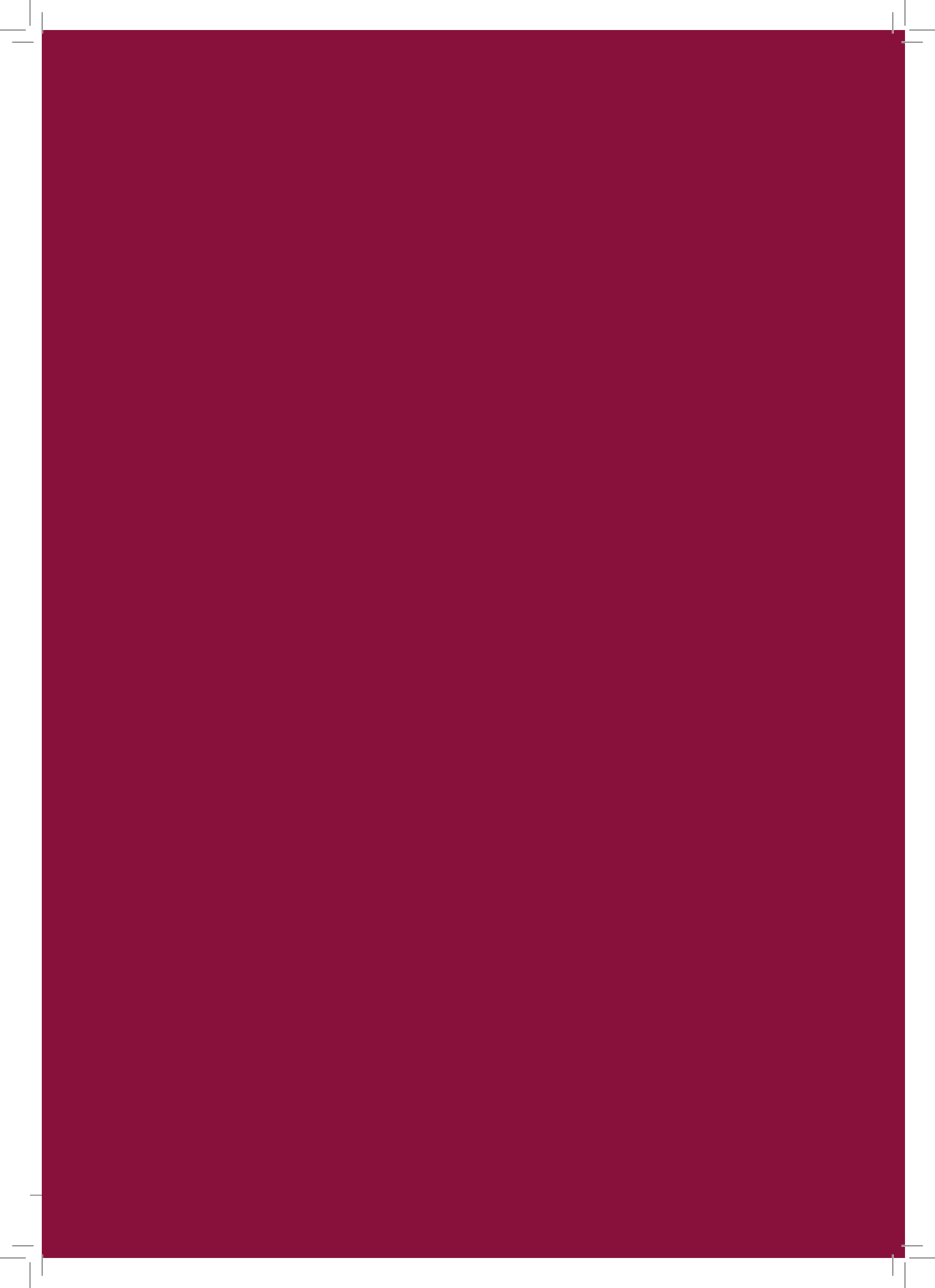
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