LONDON GLOBAL CANCER WEEK

Building resilience of cancer systems in low and middle-income countries *[Outcome of the Round Table discussion held in London UK on Wednesday 15 November 2023*]

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Introduction

Cancer is a biological process that is common to multicellular organisms and must be effectively treated to avoid fatal consequences. Not everybody develops cancer, but no individual is exempt from cancer; cancer does not make exceptions. Cancer's best ally is delay: the longer the delay in addressing cancer the more expensive the solution, and the less chance of survival. This is equally true for countries and for individuals

The prevention, early detection, diagnosis, and treatment of cancers results in substantial returns on investment in saved health care costs. A global analysis published in 2021 reported that a comprehensive scale-up approach combining imaging, treatment, and quality of care would produce a return of $12.43 for every dollar invested.[1] If cancer cannot be prevented, cancer is best treated when it's at an early stage, and so speed of diagnosis and treatment is key to saving lives, as is awareness, health literacy and ready access to care. Unfortunately, cancer does not correspond to our natural timetables, electoral cycles or financial plans. It can develop slowly, possibly over 10-30 years, growing ever more dangerous the longer it goes undetected. To prevent or reduce future cancer incidence, the groundwork needs to have been laid decades in advance, offering no immediate reputational benefit or political advantage to government actors.

Globally, cancer now represents a significant health burden with an expected increase of 51% in new cases between 2022-2045 [2] and is a leading cause of death; the majority of new cases of cancer and cancer deaths occur in low- and middle-income countries (LMICs). A sub-Goal of SDG 3 (*Good Health & Wellbeing*) set in 2016 was to reduce avoidable deaths from non-communicable diseases (NCDs) by ⅓ by 2030. However, since the COVID-19 pandemic of 2020-2022 many advances in public healthcare have stalled; even rolling backwards in some LMICs. Added to this has been the accelerating effects of climate change and the widening spread of military and civil conflict that together have caused the displacement of large populations around the world. Countries already constrained by economic crises cannot take on the additional cancer burden of these desperate populations.

In response to these challenges, a Round Table discussion was convened at the Royal Society of Medicine London on Wednesday 15 November 2023 as part of the 2023 London Global Cancer Week programme. Speaking under the Chatham House Rule, an invited international panel of representatives from intergovernmental agencies and Civil Society/industry entities were asked to explore ideas around how best to build (or rebuild) more resilient and sustainable healthcare systems in LMICs and how to address the impact of crises e.g. extreme weather, famine, epidemics, armed conflict on displaced populations of patients with cancer. The following outcome document summarizes the notes that were made at the time and includes further reflections submitted by the participants post-meeting.

Take Away Points: Building resilience of cancer systems in low and middle-income countries



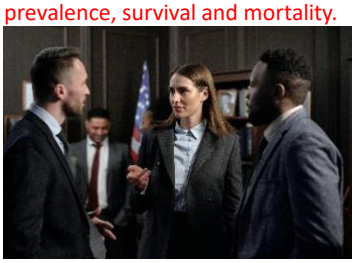
Cancer control is an all-Government issue and should sit within the purview of the President or Prime Minister of a country



Address shortfall of trained workforce and encourage the use of technologies that genuinely reduce inequities



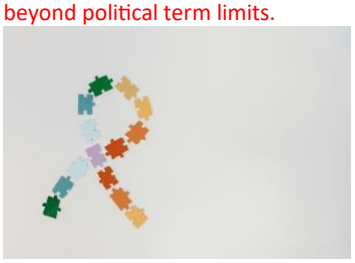
Make cancer a notifiable disease and establish mandatory cancer surveillance through population-based cancer registration to inform government on cancer incidence, prevalence, survival and mortality.



Encourage regulated engagement between public and private sectors for all areas of cancer care



Establish a multi-sectoral, all-society consensus to formulate and sustain NCCPs that set goals beyond political term limits.



Ensure NCCPs include regulations for governance, monitoring and evaluation and costed, funded/, time-dependent plans for implementation include responses to crises



Through legislation elevate the NCCP to the status of a law to ensure the continuity of commitment by successive governments to its implementation



Pursue the goal of Universal Health Coverage that ensures populations cost-free access to evidence-based cancer prevention, diagnostic and treatment interventions that are known to be effective .



Reduce the siloing within different 'issue' communities, e.g. AMR, tobacco, sugar, climate, pollution, etc. as these are all inter-linked with cancer control



Work with civil society to educate populations about cancer, reduce cancer stigma and delegitimize the online communication of misinformation, and the suppression of evidence.



Prepare for crises by thinking the unthinkable and game planning viable responses to unexpected events



Inter- country collaboration is vital in promoting workforce training and sharing examples of good practice. Expand the role of regional actors e.g. African Union, The Commonwealth, CARICOM, ASEAN and professional networks.

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PREPARING FOR CANCER

Having a comprehensive National Cancer Control Plan [NCCP] is an essential prerequisite for addressing cancer at a population level and is a political decision that needs to be taken at the highest level of government. National governments that have implemented well-crafted NCCPs see the benefits of their work, whereas governments without their own NCCP will suffer negative economic, survivorship and infrastructure impacts.

NCCPs should be population-based plans, designed to reduce the burden of cancer and enshrine principles that reflect the aspirations of patients and populations for the reduction of the national cancer burden. These principles include:
* Population-focused…. all of society and not selected sub-groups
* Comprehensive…. from prevention and risk factor control to survivorship and/or palliative care (and everything in-between)
* Designed to mitigate disparities, inequities, and inequalities
* Equal, fair, ethical, and socially just
* Integrated, multisectoral and multidisciplinary
* Accessible, affordable, funded, and sustainable
* Transparent, reportable, and accountable

The main elements of NCCPs[3,4] are generally:

- Prevention: primary prevention (health promotion and environmental protection), secondary prevention (screening and early detection)
- Early detection
- Diagnosis (strong laboratory services being essential to provide health workers with the accurate diagnostic information they need in a timely manner)
- Treatment involving safe and high-quality integrated care and organization of services with clearly identifiable patient pathways
- Palliative care
- Surveillance
- Research both relevant and contextual
- Workforce training
- Quality control and improvement

While each country's NCCP will be designed to meet the present and predicted needs specific to its own population, it should share the following key characteristics in common with other NCCPs:
I. Evidence that the process of drawing up and implementing the NCCP has involved multisectoral stakeholders, including across all government ministries, international organizations, the private sector, non-governmental organisations (NGOs), patient groups and academic institutions. The patient perspective should be captured by collecting the input of patient associations and individuals.
II. The NCCP has a strong governance structure, where 'governance' relates to the designated responsibility and accountability for the cancer plan on behalf of the public. The responsibility

of governance is to see that the plan is executed as intended within pre-determined timelines to achieve beneficial public outcomes. This will include:
a. ensuring the presence of an approved cancer control plan that satisfies the principles of population-based cancer control
b. ensuring that the NCCP is led, implemented, and managed by ensuring that performance of the NCCP is periodically measured and publicly reported.
c. overseeing the allocation of financial resources, the stewardship, and the ongoing sustainability of the cancer plan
d. managing critical externalities, collaborations, and relationships essential for the success of the NCCP.
III. Have a clear implementation plan, that is sustainable, costed, and linked to economic outcomes for society and the country. The implementation plan should be based on international standards and best practices, i.e. on the identification of the most cost-effective interventions, while adopting a contextualised approach with locally led solutions to ensure their relevance and sustainability.
IV. Show the linkage with other issues and how action on cancer control can contribute towards their resolution or amelioration, e.g. NCDs, viral and parasitical infections, AMR, poor diet, climate change, pollution, obesity, financial and gender inequity. These issues are all inter-linked with cancer control and the achievement of SDGs. Cancer care cannot be tackled in isolation. It requires a holistic approach to the healthcare system.
V. A section addressing crisis management and resilience.
VI. The outline of an evidence-based contextually relevant national cancer research agenda highlighting priority topics for novel or improved research.

There are rarely simple solutions to complex problems, and cancer is an extremely complex problem. Its complexity arises from the hundreds of different types of cancer that might affect the human body, the many interventions that are involved (sometimes in conjunction) to prevent, detect, diagnose, and treat cancer, the societal and financial resources (medical and non-medical) that comprehensive cancer control requires, and the large unexplored field of knowledge that has yet to be addressed by scientific research. Too many LMICs do not yet have NCCPs; and many of those that do have NCCPs face problems with integration and implementation. Most plans list what should be done-e.g. establish a cancer centre or inaugurate a vaccine programme- but not how it will be done, who will do it, and who will fund it. Elegant planning is laudable, but implementation is essential. Because of cancer's complexity, its expense and its remorselessness optimising the survival of patients with cancer may largely depend on non-medical factors, such as the availability of transport, the level of internet access, the stability of power supplies, the affordability of diagnostics and treatment, and the educational level of relatives and carers.

It is important, from the outset, to bring all sectors to the table including the private sector, academia, NGOs, patient groups, and all areas of government (especially the Ministries of Finance, Education, Public Works, and Science & Technology) to address the issue of cancer care and implementation of NCCPs, and to work collaboratively to identify the answers to the following five questions:

What is to be done?

Often there are immediate and tangible objectives to be met by a country's NCCP: e.g. launch a national HPV vaccination programme, increase the access to diagnostic services; build a national cancer centre; or establish a radiotherapy facility. However, populations are best served by NCCPs that are the result of a systematic identification by all stakeholders of the existing gaps in the healthcare system and cancer care. Based on this needs assessment NCCPs should adopt a comprehensive approach to establish, maintain and increase system capacity based on predicted patient needs, rather than the level of currently available resources or politically favoured projects.

System capacity comprises of facilities, equipment (diagnostic and therapeutic, including maintenance costs), technology (IT, hardware, and software), and critically, personnel (HR planning) using established workload formulae and with recognition of education, training, skills development, recruitment, retention, and retirement. The planning parameters should be wide, based on the best evidence available, and include rolling capital plans for acquisition and replacement/maintenance and an operating budget with adjustments according to variation in workload. This approach enables NCCP planners to address known inequities - such as the unequal distribution of radiotherapy centres across sub-Saharan Africa, the global shortage of skilled oncology surgeons or difficulties in providing cancer patients with adequate pain relief in a systematic manner, and to order their priorities.

Preventing cancer may be one of the most cost-effective forms of cancer control but NCCP planners should avoid placing all the responsibility on the shoulders of their citizens. Society has a responsibility too, to make the purchase of tobacco and the excess consumption of alcohol less convenient, to make fresh and nutritious food more affordable and, through intelligent civic planning to create more available opportunities for physical exercise. Screening programs are key if a cancer diagnosis is followed by a timely access to the right treatment. NCCPs should adopt a comprehensive approach to ensure cancer care improvement is tackled in all its dimensions.

How can the cancer burden be controlled and reduced?

There are several resources from which NCCP authors can compare their proposed Plan with other NCCPs and draw examples of interventions that will be useful in addressing their own cancer burdens at national, provincial, or local levels. Copies of many NCCPs are available through the International Cancer Control Partnership [ICCP] portal at https://www.iccp-portal.org/. WHO, IARC and IAEA produce fact sheets, toolkits, monographs and a list of Essential Medicines. City Cancer Challenge [5] publishes examples of how strategic multisectoral partnerships in urban settings have improved patient access to cancer care in LMICs. Using an ALMA scorecard[6] a project in Mali shows how local action at district level led to improved service delivery in cervical cancer screening.

Who will get it done? (Implementation)

Substantial resources, underpinned by prolonged political will, are needed to transform a NCCP into action. In the Round Table discussion workforce deficit was identified as a major challenge. Partly, this is a matter of numbers of people. At present, staffing levels are an issue across all countries, principally due to the continuing chronic under-investment in education and training of health workers and the mismatch between education and employment strategies in relation

to health systems and population needs. WHO estimates a projected shortfall of 10 million health workers by 2030, mostly in LMICs. Publicly beneficial synergies and coordination between public and private healthcare providers should be explored to alleviate pressure on public systems.

NCCP authors need to scope the scale of investment needed, taking into consideration the educational and training needs for multidisciplinary working and the level of staff retention required. An assessment should be made of how far the shortfall can be offset by technology and/or education; what is left will be the true deficit. Investing in Technology should decrease funding needs in the long term and reduce pressure on the workforce, but it will not necessarily reduce existing inequities or guarantee increased patient access, nor will it be meaningful in poorer resourced settings that lack the necessary supporting infrastructure. In some situations, it has increased social inequities, as seen during the COVID-19 pandemic. However, thoughtfully used, technology can alleviate many of these disparities.

Who is paying?

It was thought likely that the reason that many LMI countries have either not drawn up NCCPs, or have completed but not yet implemented them, is because either they cannot afford to, due to indebtedness, or because cancer was not yet perceived as a political priority (particularly in those countries with health burdens still transitioning from communicable diseases to NCDs), or possibly both. External funding at the global level still focus on communicable diseases or on some NCDs- e.g. cervical cancer- taken in isolation. The equivalent of The Global Fund to Fight AIDS, Tuberculosis and Malaria does not yet exist in the NCD space.

Building and presenting the 'business case' for investment is likely to be the biggest challenge facing the authors of the NCCP, making their constructive engagement with the Ministry of Finance, the private sector and NGOs throughout the drafting process of significant value. The authors will need to provide a compelling narrative that shows that the NCCP is not only actionable, sustainable, and fully costed but also linked to economic outcomes beneficial to society and to the national purse. The most cost-effective interventions must be identified and supported by economic evidence

The NCCP business case can be elevated by showing how investment in cancer can have a spillover effect, leading to health systems strengthening in other areas of health care; for example the use of mobile computing, medical sensor, and communication technologies (mHealth)[7], pathology services, diagnostic and therapeutic technologies and knowhow, AMR, and the prevention and diagnosis of other NCDs. Cost efficiencies may also be achieved by combining new cancer initiatives with pre-existing public health programmes, e.g. in sexual and reproductive health, community vaccination or tobacco control.

Alternatively, supported by the testimony of patient groups and evidence from academic research, attention can be drawn to the costs to the national economy of inaction, in terms of lost productivity and revenue due to the late presentation of cancers that is characteristic of under-resourced settings. Out-of-country referral, with its attendant diversion of revenue from the health system, represents an additional hidden cost. As the number of young people diagnosed with cancer continues to rise, the costs of lost productivity will become clearer to policymakers, tragically supporting the financial case for investing in cancer prevention,

screening, diagnosis, and early treatment. In addition, NCCP planners should leverage the support of the private sector already looking to invest in health systems strengthening, and to explore the opportunities presented by existing links with multilateral Development Banks and Development Agencies.

Constructing the financial case for NCCPs that build resilience in the cancer systems of LMICs inevitably leads to the more fundamental question: how is Health to be paid for? The Round Table recognised that 'out of pocket' health expenses remain huge for many patients in LMICs with a diagnosis of cancer having a catastrophic impact on family budgets and financial futures. To be effective, all health systems require enduring funding and long-term vision and in recent years the goal of establishing Universal Health Care (UHC) – an important target of SDG 3- has been regarded as the preferred solution. As a result of the COVID-19 pandemic the march towards UHC has slowed to a crawl (stagnated' according to GAVI)[8]. Banks are busy investing in climate change[9] but show comparatively less interest in health, specifically cancer care.

The experience of COVID-19 showed that health (or rather ill health) has economic value and that the world's health systems are dangerously fragile due to perennial under-resourcing. Health system strengthening is a political choice. The argument that 'Health expenditure should be regarded as an investment rather than a cost' has not yet 'landed' with many Minsters of Finance of those LMICs transitioning from a health burden of communicable diseases to NCDs. With the sovereign debt of low-income countries reaching breaking point due to rampant inflation, high interest rates, the long tail of COVID-19 and sluggish economic growth worldwide, their room to manoeuvre is limited. Digital Technology, the proliferation of mHealth apps, the conduct of virtual tumour boards and most recently the arrival of Artificial Intelligence [AI], offer investment opportunities that accelerate access to screening, diagnostic tests, and treatment, facilitate decision-making and reduce costs, but their potential in LMIC can be compromised by the lack of continuous internet access and reliable electrical supply.

One strategy for LMICs is to 'Debt swap'; i.e. to negotiate with creditors to turn one's debts into Development investments. LMICs need their own resources outside of neo-colonial grants and 'debt-for-development' swaps offer promise, especially if they catalyse additional capital infusion from the World Bank.[10,11]

Who is responsible for the NCCP?

Many of the drivers affecting the success of cancer control measures originate from outside the health sector. Addressing the known risk factors cancer shares with other NCDs – tobacco use, excessive alcohol consumption, nutritionally poor diet, lack of exercise and obesity – will involve co-ordinating strategies with ministries responsible for taxation, law enforcement, trade, agriculture, transport, sport, urban planning, and education. The responsibilities for reducing exposure to pollution, improving access to health care facilities through road or rail infrastructure projects, invigorating the development of new pharmaceutical products, achieving better internet connectivity and reliable power supply to enable engagement with hard-to-reach populations, all lie outside the Ministry of Health. It is because it relies on the performance of so many different ministries that cancer control is an all-of-government issue that requires leadership and oversight at the top. While it is advisable that a named individual is given the job of executing the NCCP and the resources with which to accomplish this task, it is equally important that overall political responsibility for the national status of cancer control

rests with the highest office, i.e. at Prime Minister or President level, and that NCCPs be subject to the approval of the national legislature and granted legal status. Giving the NCCP the force of Law will help embed the cancer control mission in successive governments and strengthen the multi-sectoral, all-of society consensus that will be necessary to address future goals beyond political term limits.

KNOWLEDGE GENERATION AND EDUCATION

In addition to creating multisectoral collaborations, mitigating inequities in access to care, and fostering political will, building resilience of cancer systems requires addressing three knowledge gaps that still exist in most LMICs.

1 Cancer Registration

There has been insufficient investment in cancer surveillance and the establishment of population-based cancer registries in LMICs. The main objective of population-based cancer registries is to collect data and produce statistics on the occurrence of cancer within a defined population and to provide a framework for assessing and controlling the impact of cancer in the community. The collection of cancer incidence, mortality, prevalence, and survival data, and, where possible, data on stage and on treatment outcomes, enable governments and health managers to determine whether their cancer strategies have been successful, to identify areas of care where further capacity is needed and to direct their limited resources accordingly. Within its Global Initiative for Cancer Registry Development (GICR), IARC has established six Regional Hubs for Cancer Registration covering Africa, Asia, the Caribbean, Latin America, and Oceania, to provide training and support to population-based cancer registries in each region.

2 Research

Research training and research programmes are critically important to creating a better understanding of the cancer control needs of LMICs and what works in LMIC settings (and what doesn't). There is a growing antipathy to the culture of well-funded 'helicopter research' that perpetuates historical imbalances of power and can be exploitative and of questionable relevance to the situation on the ground in LMICs. Proper investment in research infrastructure within LMICs is crucial to end the dependence on high-income country research agendas. Specifically, training in the conduct of high-quality implementation research will help inform key knowledge areas of cancer prevention, detection, diagnosis, treatment, and palliative care that have previously relied on research carried out in the different contexts of higher income country settings. Extending LMIC research ecosystems to include knowledge sharing networks and databases would further encourage productive research collaborations. It should also foster the capacity of LMICs to host clinical trials to improve access to the latest innovations, ensure their adaptation to local circumstances and populations, develop local healthcare workforces, and increase international investment in the country.

3 Knowledge, Attitude, Beliefs and Behaviour

Social stigma, superstition, planted misinformation and a belief that cancer is inevitably terminal persists in many LMIC communities, contributing to delay and late presentation. There is much work to be done in educating LMIC populations about cancer, beginning with the language used by health professional in countries where the term 'cancer' is not widely recognised[12] The level of health literacy and engagement with the public needs to be raised in order for cancer control strategies to be successful; especially in the area of prevention; e.g. by countering 'anti-vax' messaging that reduces the implementation of HPV elimination, and actively opposing tobacco advertising. Developing a strong and positive narrative, empowering patients by giving them

access to reliable information and ensuring that they understand their cancer, cannot only be the responsibility of health care professionals. Cancer's impact extends across all of society; it requires a corresponding 'All of Society' response and particularly from commercial, financial and media actors in the private sector.

ADDRESSING THE IMPACT OF CRISES

Experience has shown that workable NCCPs cannot be created within an unchanging health care 'silo'; they need to consider the impact of often violent external emergencies such as global economic crises, major risks to health security (e.g. a global pandemic), natural disasters such as earthquakes, tsunami and volcanic eruptions, the accelerating effects of climate change, military and civilian conflict and the resulting mass displacement of populations. When they occur, most crises will appear as unexpected and unplanned events and not necessarily the result of poor governance and leadership, although informed hindsight later might show otherwise.

Ideally, there should be sufficient planned excess capacity – either built system capacity or emergent and expandible capacity – to absorb the shock of a hitherto unforeseen event, but this rarely happens in healthcare. The principal issue here is redundancy, which is hard to manufacture in health services already chronically underfunded. It is more likely that three options will present themselves for immediate consideration:

* Re-prioritizing existing capacity – determining what is less-essential when there is no excess capacity that can be directed to crises.
* Reallocating resources – in the cancer budget, in the healthcare budget, or in the overall national budget.
* Removing the responsibility of delivering cancer care to another country or health system

NCCP planners and health service providers have a duty of care to vulnerable patients with cancer to think through the appropriate responses to different crisis scenarios and to ensure, as best they can, that their emergency plans are both feasible and actionable.

CONCLUSIONS

The first step towards solving any problem is to acknowledge openly that there is a problem. We now know how to address many of the major cancers but cancer experts, in common with climate change experts, have largely been ignored by governments unwilling to initiate the changes and make the investments necessary to control cancer through prevention, early detection and diagnosis and treatment. We also know that financially cancer represents a double blow to national economies: it costs society to treat it, and society loses revenue through lost productivity.

The outcomes of the Round Table discussion have been summarised in the 12 take away messages presented above. Preparing for cancer requires intelligence, knowledge, vision, money, consensus-building, and political courage at the highest level of government. Because of its universality, cancer offers opportunities for the broadest level of collaboration, both within and between countries. A large body of contextually relevant experience in controlling cancer in LMICs already exists and it should be shared through existing international platforms and associations. NCCPs provide the foundation stone that form the base for the implementation of resilient and responsive cancer control programmes. It is important that NCCPs are not political or medical agendas. If a plan is seen to be a political document, its utility is only useful to the

next change of government. If seen to be a medical document, it is deemed to be self – serving to health professional interests. The plan should primarily reflect the intention to reduce the cancer burden of patients, families/caregivers, and the population.

Above all, it is imperative that cancer is no longer regarded solely a medical problem: it is a development issue involving all of society. Cancer cannot be controlled effectively without addressing many other shortfalls in society –inability to meet out of pocket expenses, low levels of literacy, gender inequities, workforce shortage, lack of infrastructure and inadequate capital investment. International initiatives that address the universality of the cancer burden can serve as a catalyst for elevating the economic, technological, academic, infrastructure and overall health benefits of the global community.

The cancer incidence, prevalence and mortality data collected by population-based registries provide compelling metrics for assessing national socio-economic development, especially in those countries transitioning from communicable disease to NCD health burdens. Globally, the majority of cancer incidence and mortality occurs in LMICs and this will only increase with increased urbanisation as their economies develop. Cancer is special because of its complexity, because it has the best data collection methodology of all the NCDs and because many of the measures and resources requiring infrastructural investment for its prevention and treatment are also of benefit addressing other major health and social issues.

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