## Global Cancer Control Networks 2

# The UK's contribution to cancer control in low-income and middle-income countries

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**Cancer mortality rates in low-income and middle-income countries (LMICs) are unacceptably high, requiring both collaborative global effort and in-country solutions. Experience has shown that working together in policy, clinical practice, education, training, and research leads to bidirectional benefit for LMICs and high-income countries. For over 60 years, the UK National Health Service has benefited from recruitment from LMICs, providing the UK with a rich diaspora of trained health-care professionals with links to LMICs. A grassroots drive to engage with partners in LMICs within the UK has grown from the National Health Service, UK academia, and other organisations. This drive has generated a model that rests on two structures: London Global Cancer Week and the UK Global Cancer Network, providing a high-value foundation for international discussion and collaboration. Starting with a historical perspective, this Series paper describes the UK landscape and offers a potential plan for the future UK's contribution to global cancer control. We also discuss the opportunities and challenges facing UK partnerships with LMICs in cancer control. The UK should harness the skills, insights, and political will from all partners to make real progress.**

*Lancet Oncol* 2021; 22: e410–18

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This is the second in a **Series** of two papers about global cancer control networks

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## Introduction

In 2020, most global cancer deaths occurred in low-income and middle-income countries (LMICs; ie, 7·1 million compared with 2·9 million in high-income countries).[1] The reasons for the unacceptably high cancer mortality rates in LMICs are multifactorial, ranging from late-stage presentation and sociopolitical determinants of health through to poor health infrastructure and the notable scarcity of trained cancer care professionals.[2] Social[3] and economic contexts also have a major role in patients' experiences of the health care that they receive. The diagnostic pathways and potential delivery of multimodal treatments add to the challenging environment. Nearly all countries outside the high-income group are also having complex health transitions. These systems are having to manage the burden of non-communicable diseases in addition to communicable diseases and maternal–child health. Additional pressures, such as conflict, increased exposure to known risk factors for cancer and other non-communicable diseases, and a scarcity of economic development to drive universal health coverage all contribute to different cancer ecosystems from those found in high-income settings.[4]

Both in-country solutions and a collaborative global effort are required to change the current situation. There can be no one-size-fits-all solution: approaches will need to be multifaceted, multidisciplinary, and context-specific and address the cancer care continuum in its entirety. Efforts to drive these improvements should be led, designed, and governed (or at least co-led, co-designed, and co-governed) by partners in LMICs to ensure sensitivity to different local needs and dynamic geopolitical structures.

Global oncology is an area of practice, research, study, and advocacy that aims to improve outcomes and achieve health equity across the cancer care continuum, with a special emphasis on underserved populations around the world.[5] Global oncology includes all types of research across all domains, from epidemiology to palliative care, that seeks to understand politics, policies, and solutions to cancer risk, burden, access, outcomes, and quality of life and to translate this knowledge into improved, equitable, and affordable outcomes.[6]

More than 16 *Lancet* and *Lancet Oncology* Commissions and Series have been published covering a wide range of salient issues facing LMIC cancer care and potential plans to improve them, such as surgery,[7] radiotherapy,[8,9] palliative care,[10] imaging,[11] and pathology.[12] The economic case for financing cancer care in settings with fewer resources than others has been consistently made through many of these papers.[9] Given the shared risk factors between many cancers and the other major non-communicable diseases, this economic case does not need to be made alone (panel 1).

What all of these reviews speak to is the need for both fiscal support and scale-up of cancer services as part of health and development in many settings. Although improvements in cancer outcomes in most LMICs will need to be resourced from gross national income, support from international bodies and affluent countries is essential to help to close financing gaps during what will be complex transitions for cancer care. This Series paper describes the UK landscape and offers a potential plan for a strengthened contribution to global cancer control; we explore the UK's relationship with global health and how the global oncology agenda has emerged as a key area of policy.

***Panel 1:*** **Economic case for financing care for non-communicable diseases in low-income and middle-income countries**

16 million people die prematurely each year from non-communicable diseases, of whom 82% are in low-income and middle-income countries. The probability of dying prematurely from a non-communicable disease is four times higher for people living in low-income and middle-income countries than in high-income countries. Macroeconomic simulations predict that, between 2011 and 2025, the cumulative global economic losses due to the four main non-communicable diseases (ie, cardiovascular diseases, cancers, respiratory disease, and diabetes) will surpass US$51 trillion. Although the cost of inaction that is associated with the four major non-communicable diseases in low-income and middle-income countries alone is projected to be more than $7 trillion between 2011 and 2025, the cost of action in these same countries is estimated at $170 billion in the same time period.[13]

## The UK and global oncology: a historical perspective

The UK has a long history of global health engagement that is deeply rooted in its historical focus on infectious diseases and tropical medicine. By the mid-1970s, the UK's global health focus had begun to consider broader issues of disease and development. Although the classic paper of Hughes and Hunter on the effects of development in Africa on disease reflected this pivot point,[14] cancer was a minority player in this new landscape. Research, if any, focused almost entirely on classic epidemiology, such as Boyd and colleagues' examination of cancer incidence in Fiji.[15]

The decade of global economic shocks following the oil crisis of the mid-1970s, and the subsequent imposition of structural adjustment programmes by the International Monetary Fund and World Bank, led to substantial changes across many LMICs. Privatisation and marketisation became the norms, as public health was given decreased importance and funding.[16] By the 1980s, the UK's global health policy was firmly anchored in (conditional) aid and development that focused on HIV/AIDS, child and maternal health, and infectious diseases. Global health policy was dominated by a so-called good-health-at-low-cost agenda.[17] It was not until the 1990s that a true global research agenda for cancer in LMICs first started, with organisations such as Worldwide Cancer Research and the International Network for Cancer Treatment and Research.

It would not be unfair to say that the UK's view of global oncology in the 1990s was mostly seen from the perspective of the WHO International Agency for Research on Cancer (IARC) and, to a lesser extent, the European Organisation for Research and Treatment in Cancer. Global oncology was synonymous with cancer registries and epidemiology that was mostly funded through public sector organisations, such as the Cancer Research Campaign, now Cancer Research UK.

By September, 2000, the UK's global health and development agenda had become entirely orientated towards the eight Millennium Development Goals that were agreed at the UN General Assembly. Non-communicable diseases, including cancer, did not feature, despite mounting evidence that middle-income countries were going through their epidemiological and demographic transitions at an extraordinary rate.[18] This ageing population, coupled with the long-term effects of increasing pro-cancer risk factors that were brought about by weak public health systems, meant that a cancer epidemic was now clearly visible in the future.

Surprisingly, the rising advocacy around non-communicable diseases during the 2000s was not inclusive of cancer on the global health agenda.[19] This time was also a period of unprecedented growth in cancer research in high-income countries, brought about by the new understanding of the genome and cell signalling. The tendency was still to view cancer as a disease of wealth and as a matter of concern mostly for high-income settings. Due to this disregard of the portents, UK policy changed little from the preceding two decades. Despite the UK spending 0·7% of its national income on overseas development assistance (something that donor governments had committed to in the 1970s), non-communicable diseases, including cancer, were substantially underfunded[20] and did not align with cancer burden in LMICs.[21] Throughout the late 2000s and beyond, little political pressure existed on these substantial budgets from the UK charitable sector, which focused almost entirely on the national portfolio.

The build-up to the 2011 UN political declaration on non-communicable diseases provided a backbone for increasing advocacy within the UK for a global cancer agenda. By 2015, the signs were good, as the newly formed UK Research and Innovation began to fund major capacity programmes in global cancer and palliative care, for example in humanitarian settings.[22] As non-communicable diseases became more prominent in the Sustainable Development Goals, with the target of a one-third reduction in premature mortality by 2030 (ie, Sustainable Development Goal 3.4) and increasing advocacy around elimination of cervical cancer, there was increasing optimism that global oncology would develop more traction within the UK's global health agenda. Yet the transition to the complicated global health and development concepts of the Sustainable Development Goals, while including non-communicable disease as a whole within nine global targets and 25 indicators, did little to change UK policy towards increased funding of global cancer control.[23] Instead, UK aid and development morphed into the new agendas of strengthening health systems and universal health coverage and a continuation of support to major third-party organisations, such as Gavi, the Vaccine Alliance.

Any newfound optimism has now been tempered by the COVID-19 pandemic and the UK Government's decision to reduce the overseas development assistance from 0·7% to 0·5% of gross national income. This destructive move has seen major routes for global cancer funding taking huge cuts, with inevitable detrimental consequences. Although the full effects of the pandemic and its associated fiscal cuts have yet to be seen in the UK's approach to global health, the signs are not good. Public sector funding, including that from charities, has plummeted, leading to most organisations and policy makers abandoning global oncology. For the near future, UK aid and development funding are likely to be focused on low-income national interests (ie, security threat countries) and remain horizontally focused (ie, on strengthening health systems that are not disease specific). This focus is likely to have an overall negative effect on the ability of the UK workforce to collaborate with LMICs to improve cancer control.

## Workforce, education, and training: a two-way flow

Within the UK, we have a long history of engagement with health professionals around the world. Indeed, we recognise that, for over 60 years, the National Health Service (NHS) has depended on recruiting health professionals from LMICs, particularly from the south Asian continent and sub-Saharan Africa. Many colleagues came over to the UK for training and some chose to stay. International recruitment in this way enriches the NHS, but it also has the potential to deprive the home country of its own talented health professionals in whom it has invested to train to high levels of competency. Regrettably, there are few data to indicate the full extent of this effect and how it has changed with time.

Committed to increasing the NHS workforce in key areas, including nursing, Health Education England still looks abroad to supplement its numbers in addition to creating plans for increased training posts in the UK. As a consequence of this health migration, the UK has developed a rich cultural diversity, which provides personalised links with many cities and countries worldwide. In addressing the UK's contribution to cancer care in LMICs, this diaspora brings crucial expertise to facilitate and guide the development of fruitful partnerships. The UK can learn from the large variation in models that are used in health environments with fewer resources and share its progress in areas such as professional development, including the crucial role of advanced health practitioners and the creation of the physician associate role. Within the UK, training is required in the type of skills that are necessary to fully engage in global oncology. It is probable that training in areas such as implementation science will be a crucial step in establishing new services. Initiatives, such as the UK Global Cancer Network (UKGCN), can have an important role in this regard.

Education and training are a crucial element in our shared quest to improve the experience of cancer patients in LMICs. Traditionally, this training was underpinned by visiting each other's countries in person, such as the work done in east Africa by the Royal College of Physicians.[24] The increased use of remote communication mechanisms that was prompted by the COVID-19 pandemic has shown the potential for sophisticated, efficient, and productive learning that can be delivered and received from afar. The opportunity to incorporate the potential of the virtual learning environment should be grasped to increase and improve UK partnership-driven education and training.

Funding is a perpetual challenge for education and training programmes. Nevertheless, examples of successful projects exist that were done with ingenuity and completed without the support of a large grant, as shown in panel 2.[25]

The two largest UK comprehensive cancer centres (ie, Royal Marsden NHS Foundation Trust, Institute of Cancer Research, London, and the Christie NHS Foundation Trust, Manchester) have done surveys gauging interest in this field among colleagues within their respective institutions. Between 64% and 89% of respondents had a strong interest in learning more about such opportunities and there was a clear enthusiasm from NHS and academic staff within the UK.[26]

## Research implications and opportunities

The leading cancer research institutes around the world commit to shared research projects in LMICs. Although many UK universities and research organisations collaborate in health projects in LMICs, relatively few have sustainable programmes in cancer care. Pharmaceutical companies already make an important contribution to research in this area. Inevitably, this work is influenced by commercial considerations. To achieve a balanced approach, substantial government-funded support is required to enable LMICs to develop their research capacity (eg, as shown by the global health research programmes of the UK National Institute for Health Research). The direct patient benefit that is associated with participating in clinical research is well documented,[27] and similar improvements in clinical care would accompany the incorporation of increased clinical research in LMICs.

Understandably, concern is being expressed that clinical trials done in high-income countries are driving new developments in cancer treatment in LMICs. Genetic, social, and environmental factors might lead to this extrapolation being inappropriate.[28] These studies, although scientifically sound, are increasingly recognised as not necessarily representative of the global oncology patient population. Examples show an under-representation of older (ie, ≥65 years) and frail adults.[29] A funding and publication bias against randomised controlled trials that are led by researchers in LMICs might also exist.[30] Emphasis should be placed on

For more on the **UK Global Cancer Network** see https://www.ukgcn.org

***Panel 2:* Radiotherapy planning and peer review in sub-Saharan Africa: a needs assessment and feasibility study of cloud-based technology to enable remote peer review and training**

Information and communication technologies (ICT) can have a role in advancing the safe and effective delivery of radiotherapy treatment in low-income and middle-income countries. With funding from the UK Research and Innovation Science and Technology Facilities Council, PL, AA, and a project team undertook a 2-year collaborative partnership (between UK and US collaborators and radiotherapy centres in sub-Saharan Africa) to assess the usefulness of cloud-based software as a remote radiotherapy, peer review, and training tool in settings with few resources.[25]

The UK team, based at Guy's and St Thomas' National Health Service Trust, London, UK, worked with four radiotherapy centres (Komfo Anokye Teaching Hospital, Kumasi, Ghana; Sweden Ghana Medical Centre, Accra, Ghana; Ocean Road Cancer Institute, Dar Es Salaam, Tanzania; and Gaborone Private Hospital, Gaborone, Botswana). First, a needs assessment that aimed to understand whether cloud-based technology had a role in facilitating radiotherapy peer review and education was done. Next, a pilot study attempted to install and use the cloud software in each centre, testing the potential for remote peer review of radiotherapy contours for quality assurance and educational purposes.

Technological constraints—particularly internet connectivity—precluded installation and full functioning of the cloud software in three of four centres. Incompatibility with existing radiotherapy planning systems and technical issues that were related to file download and external review capability also contributed to the absence of functionality. It was clear, however, that the radiotherapy centres could benefit from the educational and quality assurance aspects of cloud-based technology, if it were tailored to the needs and capabilities of low-resource settings.

To achieve this benefit, improved ICT and network infrastructure is required. Additionally, co-development of ICT in the context of available resources is crucial, rather than immediately applying a ready-made solution from a high-income country. The study concluded that further work is required to define an appropriate platform to facilitate routine quality assurance in radiotherapy centres with few resources.

A key component of the next phase of work is that technology development should be led by needs, with the aim of creating a new ICT solution that can be made open access. The ICT solution is being co-developed with collaborators in Zambia, with adaptations centred on pre-existing infrastructure and specific training requirements. Further co-development of ICT is planned in collaboration with colleagues in Botswana and Ghana. Following this initial development work, the aim is to apply for cofunding opportunities to evaluate whether this tool can support improvements in attainment of radiotherapy technical competencies.

For more on **LGCW** see https://www.lgcw.org.uk

supporting clinical trials, qualitative research, and health services research of high quality that are led and done by local investigators in LMICs, to meet the need of the local population. For example, UK funding bodies should use the approach of the Tropical Health Education Trust and the UK Research Institute Global Challenges Research Fund, where studies are co-designed, led by local partners, and of high quality (ie, assessed with Good Clinical Practice framework principles). Additionally, the focus on real world data[31] and theranostics[32] provides a further route for research activity in this area.

To identify new treatment approaches in LMICs, studies need to be done in these environments[33] under an agreed ethical framework.[28] The strong UK cancer research infrastructure can make an important contribution to enabling a revolution in cancer research in LMICs, with all of the associated benefits. It is time for people in high-income countries to recognise the burgeoning burden of cancer in LMICs and for the field of academic global health to be disrupted by a balanced input from LMICs, who are better placed to advise and change their situation.[34] Global oncology should be recognised as an academic discipline in its own right. This imperative has been acknowledged by international organisations, such as the American Society of Clinical Oncology, who have established an Academic Global Oncology Taskforce,[35] and by national centres of excellence, such as the US National Cancer Institute's Center for Global Health[36] and the UK's Institute of Cancer Research, which has supported the establishment of a global oncology hub for collaborative work, alongside the cancer global health programme that is funded by the National Institute for Health Research.[37]

This work is generally categorised in disciplines and even within institutions. With shared aspirations and motivations, such collaborations can increase efficiency, share knowledge and experience, and build sustainable multidisciplinary partnerships with a vision for the long term.

## Contemporary global cancer control developments in the UK

As shown in panels 2 and 3, the UK has longstanding experience working with partners in countries with fewer resources with the aim of improving aspects of health, including cancer. Faced with the inertia of successive governments, non-state stakeholders have accepted that they need to become the agents of change and invent new models for engagement at local, national, and international levels.[42]

A grassroots drive to engage with partners in LMICs has steadily grown within the NHS and UK academia, committed to improving many aspects of cancer health care in countries with fewer resources than the UK. This drive has generated a sustainable model that rests on two structures: London Global Cancer Week (LGCW) and the UKGCN, the foundations of which arose from a series of one day events on cancer in LMICs that were held at the Royal Society of Medicine, London, UK, from 2016 onwards. These early meetings captured the enthusiasm of UK health-care professionals and researchers who were already committed to working with partners in LMICs and provided the essential foundation for the two new structures to realise their ambitions. With shared leadership links, LGCW and the UKGCN enjoy a cyclical symbiosis, feeding new ideas and people into their shared ecosystems.

### LGCW

LGCW is an annual multidisciplinary platform for open discussion of issues facing the whole spectrum of cancer care in LMICs, including potential solutions and the UK's role in addressing these problems. The purpose of LGCW is to raise UK awareness about the work that is

being done in LMICs to improve the care that is delivered to patients with cancer and to provide an annual showcase for UK collaborative initiatives in this field. The first LGCW was inaugurated in November, 2019, and designed as a holistic and multidisciplinary global forum for individuals and institutions that were committed to improving the care of children and adults with cancer worldwide, with a special focus on LMICs. In 3 years, LGCW has grown from eight events to more than 30 events involving geographically diverse organisations, ranging from UN organisations to the UK royal colleges.

### The UKGCN

Evolving organically out of LGCW, the UKGCN was launched on Nov 15, 2020, with the mission to enhance the UK's contribution to cancer care in LMICs by bringing together the talent, resources, and enthusiasm of UK individuals and organisations that are committed to improving the outcome and experience of people who are affected by cancer in LMICs in a strategic and collaborative body (panel 4). The UKGCN is a not-for-profit organisation offering a supportive community for UK researchers, clinicians, and non-governmental organisations that are already committed to helping colleagues in LMICs.

As described in the first paper in this Series,[43] Canada is moving towards developing a national global cancer network with similar aims.

The UKGCN has four categories of membership (ie, active members, supporting members, sponsors, and associate members). The active members form the core of the network. The UKGCN welcomes individuals, institutions, and corporate entities from outside the UK as international members in each of the membership categories.

## Mapping of UK collaborative global oncology work

The first task that was agreed by the UKGCN was to survey the current UK landscape in terms of cancer-related activity in LMICs. This mapping exercise has involved identifying projects done by individuals and institutions across the UK. Given the complexity of the organisational structures across the UK, a multifactorial approach was adopted. Six key groups of individuals and institutions were identified. Between Feb 17 and Feb 25, 2021, members of the groups were invited to respond to an online survey (table). The survey link was also promoted on the UKGCN LinkedIn page and via Twitter. Data collection is ongoing, and a full analysis will be published in due course.

A first snapshot of data has been analysed for this paper from 56 responses that were received between Feb 17 and March 5, 2021 (ie, a period of 16 days). Most (39 [70%] of 56) of these respondents provided information primarily in relation to their individual involvement, with the remainder (17 [30%]) of people responding on behalf of their institution.

### *Panel 3:* International twinning partnerships for childhood cancer

Since 1970, the treatment of children with cancer has steadily improved in high-income countries, leading to survival rates of over 80%. However, 80% of children live in low-income and middle-income countries (LMICs) where survival rates remain at 10–30%. As the incidence of deaths from infectious diseases in LMICs has decreased, childhood cancer incidence has increased.

In 2007, medical colleagues, in association with parents from across the UK, founded the World Child Cancer (WCC) charity, with the aim of developing partnerships between cancer centres in high-income countries and centres in LMICs.[38,39] Since 2009, WCC has created partnerships in eight LMICs, involving child cancer centres across the UK and, in some cases, international centres in other high-income countries.

In the initial stages, WCC set out to raise awareness of childhood cancer, emphasising signs and symptoms to communities, families, doctors, nurses, and importantly governments, using all parts of the public media. WCC also focused on databases for all children to record incidence and treatment and are working towards a national online registry in each country.

WCC is involved in training doctors, nurses, and other professionals who are involved in childhood cancer care. Inevitably, the COVID-19 pandemic has necessitated a transformation to online teaching, which as is the case in many areas, has produced some notable advantages. In the rapidly changing field of childhood cancer, WCC has advised on optimum treatment protocols that are suitable to be used in each particular health environment. The charity has provided funds in situations of great need, assisting with the costs of some essential medicines in countries where families have to pay for all costs[40] and has helped with funding of new-build accommodation, equipment, and parental accommodation where needed. Throughout the pandemic, WCC's major donors have agreed to transfer funding to support and protect patients, families, and all staff to avoid catching COVID-19. From the start of all our partnerships, an agreement is signed that the low-income or middle-income country will take ownership of the project, with good leadership in the country and the support of teams and their government for it to be a success in the long term. UK volunteers and funding organisations can make a real difference and there will be mutual benefit for all involved in the partnership.

Together we are developing networks across each country to help all children with cancer.[41] Since inception, WCC has developed friendships with our partners in the long term, while improving the lives and families of children with cancer worldwide.

Respondents were involved in a broad range of clinical practice, research, and education or training projects across the whole of the cancer pathway (figure). They are working with teams in a broad range of LMICs (appendix p 1), with a high level of activity in sub-Saharan Africa, the Middle East and north Africa region, and south Asia.

These data will serve as a baseline for the UKGCN and will provide a foundation on which a future UK strategy can be developed. In addition to leadership and strategy development, the UKGCN can act as a catalyst to bring new individuals and institutions into the field of global cancer.

For more on the **geographical distribution of UK cancer projects in partnership with LMICs** see https://www.google.com/maps/d/edit?mid=1dQGs9NO1ZS1xseRWjtDM8FfXGFFKds-p&ll=7.254483228178007%2C9.61061650000002&z=3

See **Online** for appendix

### Mutual benefits of two-way partnerships

Matching willing, empowered individuals in the UK with teams that are keen to collaborate in LMICs in the field of oncology has not previously been done within a formal structure or with coordinated strategic leadership. The UKGCN will serve as a portal to enable such introductions

***Panel 4:*** **Objectives of the UK Global Cancer Network**

**The principal objectives of the UK Global Cancer Network are:**

To encourage and facilitate active collaborations between the UK cancer community and partners in low-income and middle-income countries (LMICs) by building up a UK cadre of active members and supporters who are committed to working collaboratively with LMIC partners in cancer care.

To raise awareness in the UK about the worsening cancer burden in LMICs and how the UK Global Cancer Network can help by engaging with UK professionals, policy makers, and the public to place cancer on the international development agenda.

To act as a broker for catalytic programmes that improve the care of patients with cancer in LMICs through collaboration and partnership.

| | Search approach | Invitations sent, n |
|---|---|---|
| Personal contacts of the steering group | Identified by the steering group | 75 |
| Networks and other relevant organisations | Google search for cancer-related organisations, intelligence from the steering group, and identification of partner organisations linked to research | 34 |
| Cancer centres and teams | 62 teams were identified from the oncology UK workforce census 2019 report (ie, 2018 data returns) and email contacts identified through publications, hospital websites, LinkedIn contacts, Google search, and personal contacts | 35 |
| Colleges and societies | 31 relevant organisations were identified (three included in the personal contacts list) from a list of relevant members of the Association of Medical Royal Colleges, recommendations for specialist colleges or societies from the steering group, and Google search for leadership team and contact details | 28 |
| UK charities | Contact details of 46 relevant charities were identified through networking and Google search | 46 |
| Academic institutions | Including universities with global health courses or teams, specialist global health units, and teams running clinical trials, which were identified from the International Cancer Research Partnership database, International Clinical Trials Registry Platform (extracted on Feb 1, 2021), and the Kidney Cancer UK trials list | 67 |

285 invitations were sent in total. 56 (20%) responses were received between Feb 17 and March 5, 2021.

***Table:*** **Summary of invitations to respond to the UK Global Cancer Network mapping survey by group**

and to raise the profile of cancer as a leading cause of premature mortality in LMICs. Most UK cities are multicultural and engaging with diasporas will strengthen the success of the network's output. The multidisciplinary UKGCN can lobby for effective cross-disciplinary working in LMICs and galvanise the UK cancer community to improve advocacy for involvement in global cancer care.

Such collaborative engagements offer individual, institutional, and societal benefits within the UK.[44] On an individual level, partnerships realise the altruistic ambition to share knowledge and skills through mentorship and training. The change of setting and the challenge of delivering health care or doing research in a setting with fewer resources than the UK often restores energy and prevents burnout.[45] In-country experience deepens personal understanding of social contexts, beliefs, and needs that are also found in UK immigrant communities and act as barriers to accessing health care. This bilateral imparting of knowledge can inform work to reduce inequalities within the UK.

Service benefits include the witnessing of frugal innovation and alternative ways of organising care, which can help the NHS to reduce the costs of delivering care.[46] Collaborative work can also indirectly support the export of UK technologies, medicines, and health-care products through training and mentorship that is provided by organisations such as Health Care UK. Within the UK, there are world leading commercial health organisations that recognise the potential of investing in LMICs in the long term. By working in partnership with these UK businesses (facilitated and coordinated by Health Care UK), the UKGCN can use their experience, expertise, and resources to enhance the effects of many cancer projects. Clearly a reciprocal benefit will return to the commercial sector by having access to a broad and talented pool of health-care professionals and academics.

## UK Governmental policy and international partnerships

Having left the EU, the UK holds the presidency of G7 and the role of hosting of the UN climate change conference, COP26, in November, 2021. These positions provide opportunities for the UK to proclaim its global role as a force for good. Its health priorities for G7 are promoting health security; developing shared global standards, including improved coordination of clinical trials; tackling antimicrobial resistance; and fostering digital health and artificial intelligence.

Although its population has suffered badly during the pandemic, the UK has provided additional financial support for WHO and contributed a small, but much needed, £540 million to COVID-19 Vaccines Global Access for supplying vaccines to LMICs. The expertise and commitment of the UK's health professionals and its excellent science has reinforced its role as a global centre of scientific excellence with important advances in virology, genetics, vaccines, and associated technologies. Looking ahead, three themes—ie, tackling climate change, recovery from the pandemic, and making a success of Brexit—will dominate the UK's approach to global health for years to come. All themes are linked and many of the actions that are needed to address climate change are directly relevant to managing cancer and other non-communicable diseases in LMICs.[47,48] Brexit's primary effect is the UK's realignment with Europe, including many middle-income countries within central and eastern Europe, and the wider European global health agenda, particularly led by Germany. Although UK faculty will have access to EU funding under the terms of accession agreement, the influence of the UK

within Europe's wider strategy (eg, Cancer Mission in Horizon Europe and the Directorate General Research, Brussels) has been greatly diminished.

The global call to eradicate a cancer—ie, cervical cancer—for the first time[49,50] will be successful only by collaborative teamwork. Every government and all sections of civil society are vulnerable to economic variability, as evidenced by the effects of the COVID-19 pandemic on the global economy. It is crucial that international bodies, such as those within the UN (eg, WHO, the International Atomic Energy Agency, and IARC) and their civil society collaborators, are adequately funded to assist collaboration.

## Discussion

We acknowledge and reflect on the bearing that the UK's colonial legacies have on the way that we live our lives and experience health care, and we strive to move on from the injustices of the past. Many of the issues that countries are now facing in developing sustainable national plans for cancer control are due to issues such as structural adjustment programmes and subsequent economic measures that are proposed by and benefit high-income countries. As one of the recognised leaders in global health, a member of the Commonwealth, and a country whose public and private health systems are dependent on the diaspora of health-care professionals originating from LMICs, the UK should be an agent for positive change in worldwide cancer control. The preliminary national mapping exercise by the UKGCN indicates that a considerable amount of global oncology work that can be built on is being done, both formally and informally, with colleagues in Commonwealth and non-Commonwealth countries.

The UK's model relying on LGCW and UKGCN offers the potential for the future development of the global oncology movement by providing a high-value foundation for international discussion and collaboration. The success of LGCW will not be measured by the number of events that it presents nor the size of its attending audiences but by the outcomes that it has engendered and the number of countries copying its example. Similarly, the worth of the UKGCN rests not on the world's esteem of its membership or the number of members but on what its members have succeeded in achieving in partnership with friends and colleagues worldwide, and how effective they have been with influencing their NHS colleagues, research funders, and the UK Government in recognising the importance of global oncology. Springing from the grassroots, LGCW and the UKGCN share many objectives and the ambition to act as catalysts for progress. These objectives include moving the governments of donor countries towards the explicit inclusion of cancer in their global development agendas.

The ambitions for building global oncology in the UK take on a new urgency after the COVID-19 pandemic. The COVID-19 and Cancer Taskforce collaboration has exposed both issues and opportunities.[51] Perhaps the greatest challenge rests with managing the reputational and real effects of the overseas development assistance cuts to UK global health budgets.[52] The UK community needs advocates, such as the UKGCN, as a collective voice to drive global oncology back into the focus of the

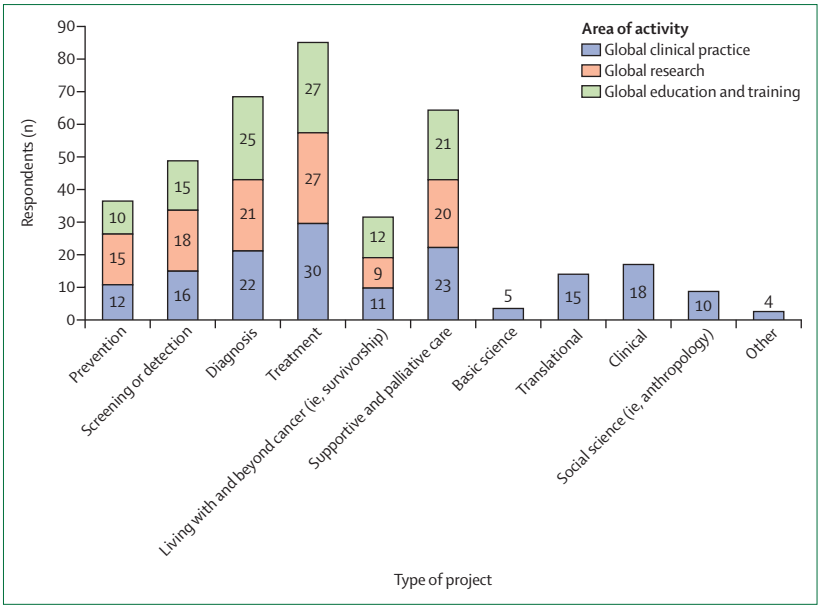



*Figure:* **National mapping exercise of UK cancer activities in low-income and middle-income countries**

### *Panel 5:* Challenges and opportunities for the UK Global Cancer Network

**Challenges**

- Scarcity of UK awareness of the cancer problem in low-income and middle-income countries
- Current government policy
- The reduction in funding for overseas development
- Priorities other than cancer
- COVID-19 pandemic
- Economic downturn affecting charities and non-governmental organisations
- National Health Service under stress and needing to rebuild
- Inadequate National Health Service and academic structures to facilitate global cancer work
- Insufficient training for UK personnel to do global cancer work

**Opportunities**

- The breadth of expertise and experience that is offered by UK Global Cancer Network members
- UK global links and relationships, including diasporas
- UK expertise in health and science
- Enthusiasm and commitment from UK individuals and institutions
- The effect of COVID-19 on the perception of mutual global health support
- UK commercial health sector
- Increased recognition of the cancer burden in low-income and middle-income countries by funding bodies
- The positive effects of a global cancer initiative on climate change
- Use experiences of UK national professional organisations, including royal colleges

For more on the **COVID-19 and Cancer Taskforce** see https://covidcancertaskforce.org

### Search strategy and selection criteria

We searched PubMed for papers that were published in English between Jan 1, 2011, and Feb 28, 2021, using the search terms "global oncol*" AND "UK" OR "LMIC". These searches were greatly supplemented by identification of articles that were already known to the authors and not picked up by the search or reference list search, including six key papers that were published before 2011. Specifically, for the mapping exercise section, the search for contacts was predominantly through personal connections who were then invited to cascade the survey to other interested colleagues. Additionally, contacts for corresponding authors publishing in this field were identified through an electronic search of PubMed and Embase that was done remotely by ML. MeSH terms were name of low-income and middle-income country AND (affiliation = "UK" or "United Kingdom", or "Belfast" or "Cardiff" or "Edinburgh" or "Glasgow" or "Leeds" or "Liverpool" or "London" or "Manchester" or "York") AND (neoplasms[MeSH Major Topic]) AND (y_5[Filter]); Filters: 5 years (YR=2016–2020). Following the review of the titles and abstracts by librarian Ingrid Francis and ML, 24 papers were considered relevant to the topic of the survey. The final reference list was generated on the basis of the relevance for the broad scope of this Series paper.

political and funding agendas, if words are to be matched by sustainable funding for research, capacity, and capability building. In holistically addressing the UK's approach to global cancer control, the UK is faced with many challenges and opportunities (panel 5).

Cancer requires a so called all-of-government, all-of-society, and all-of-lifetime approach, supported by strong evidence for the economic case for cancer prevention, treatment, and research. The WHO 2017 Cancer Resolution[53] has raised awareness to the UK Government (and 193 other countries) of the importance of cancer care as a health policy issue, yet the absence of political will at international, national, and local levels is a key challenge to collaborative work. Global oncology should not be a hobby for UK clinicians. We recommend that postgraduate training programmes offer the flexibility and support to permit clinicians to receive appropriate training to enable them to deliver this work to a high standard. Similarly, colleagues in LMICs should receive adequate funding and training for research and education including time, consumables, and overheads.

The UK community and its partners across the world will need to take a far more integrated and coherent approach to UK funding to the overseas development assistance for cancer control that leverages the past ten years of applied research; for example, how to build cancer surgery into a broad surgical–anaesthetic–obstetric agenda as part of overall strengthening of health systems[7] or building women's global health that takes both a cancer and non-cancer approach.[54] Opportunities do exist, but as Wickstead argued, they will need to be reorientated towards capacity, capability, and showing effectiveness (ie, programmes that deliver tangible benefits and are value for money).[55]

## Conclusion

In a world where the inequalities in health outcomes separating the rich from the poor both within countries and between countries are increasing, a closer understanding of the challenge of cancer worldwide and a commitment to work together to address these inequalities is called for. Although the challenges of COVID-19 and climate change are paramount, it would be a serious error to postpone consideration of other health initiatives, such as cancer. If this relentlessly progressive problem is not faced now, the global, social, and economic consequences will require considerably more time and resources to address in the years ahead.

We are at an important juncture in the UK; a global recession looms after COVID-19, the pandemic rages on in many countries, and we are in the early stages following exit from the EU. The COVID-19 pandemic has shown that one global health community exists worldwide and that, to tackle the foremost global health challenges, the community should harness the skills, insights, and the political will from all partners to make real progress. It is important that governments and other national and international bodies recognise the energy that is manifesting itself in grassroots initiatives in the UK, Canada, and other countries and either move to meet it with an encouraging response or renounce their claim to responsible leadership. The UKGCN provides us with an important opportunity to take this agenda forwards.

**Contributors**

SS, RC, ML, and AMY designed this Series paper. SS, ML, RS, KD, AMY, NC, PL, TE, AA, AN, GB, and RC contributed to the writing of this Series paper from initiation until completion. FC and BS reviewed, edited, and contributed to writing of the early and final drafts. KD and AN constructed the figures. ML created panel 1. PL and AA created panel 2. TE created panel 3. All authors made the decision to submit for publication.

**Declaration of interests**

We declare no competing interests.

**Acknowledgments**

RS received funding from the Economic and Social Research Council Global Research Challenge Fund, National Centre for Research Methods, University of Southampton (ES/P010962) for this work.

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