

Addressing Global Cancer Care Inequities Using Implementation Science and Community-Engaged Research Approaches



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Abstract

Advances in cancer prevention efforts, screening and early detection, and treatments have contributed to steady reductions in cancer mortality for individuals in high-income countries in recent years. Yet, these benefits have not yet been realised for many populations across the globe, particularly for those residing in low- and middle-income countries, and in other medically underserved communities. Addressing cancer disparities will require targeted efforts to equitably improve cancer care delivery across the care continuum; from detection, through treatment, and to survivorship. This feature article describes how implementation science and community-engaged approaches can address cancer inequities by improving the delivery, uptake, and effective expansion of evidence-based cancer care in real-world resource-limited settings.



INTRODUCTION

Worldwide, an estimated 19.3 million new cancer cases and nearly 9.9 million cancer deaths occurred in 2020.¹ While cancer incidence rates tend to be lower in low- and middle-income countries (LMIC) compared with high-income countries (HIC), the population sizes tend to be larger, resulting in a higher absolute number of patients with cancer.² As such, the majority of the world's cancer cases and deaths now occur in these countries.³ Indeed, 65% of the nearly 10 million cancer deaths in 2020 occurred in LMICs.⁴ Given rapid

demographic and epidemiological transitions, including rising population, increasing life expectancy, growing urbanisation, and lifestyle changes,⁵ cancer has become a leading cause of mortality in LMICs,⁶ with a projected near doubling of cancer deaths expected in the lowest-income countries.⁴ Importantly, the lack of reliable data from population-based cancer registries severely limits our understanding of the cancer burden in LMICs.^{7,8}

DISPARITIES ACROSS THE CANCER CARE CONTINUUM

Advances in cancer prevention efforts, screening and early detection, and treatments have contributed to steady reductions in cancer mortality for individuals in HICs in recent years.⁹ Unfortunately, these benefits have not yet been realised for many populations across the globe, particularly for those residing in LMICs and in other medically underserved communities. For example, slower declines in mortality rates have been observed for individuals residing in the USA's rural areas, and among certain racial and ethnic minority populations.¹⁰ Moreover, the rapid decline in cancer mortality in HICs compared with LMICs suggests that cancer mortality disparities between HICs and LMICs will widen over time.¹¹ The provision of cancer care is complex and constantly evolving, making delivery of high-quality cancer care challenging, even in HICs. As such, cancer care inequities and access to cancer treatments persist within HICs, including both across and within European countries.^{12,13}

Addressing cancer disparities will require targeted efforts to equitably improve cancer care delivery across the care continuum; from detection, through treatment, and to survivorship.¹⁴ Cancer screening is an effective tool that can reduce the burden of cancer by increasing early detection of disease, and thereby improving survival rates. Yet, cancer screening programmes are underutilised, particularly among medically underserved groups, including rural populations,¹⁵ and racial and ethnic minority populations.¹⁶ In resource-constrained LMICs, the lack of access to screening programmes contribute to late-stage of disease presentation and poorer outcomes.¹⁷ Cultural beliefs about cancer, lack of screening awareness, and limited oncology providers, infrastructure, and resources can also diminish the effectiveness of early detection programmes in LMICs.¹⁸ Indeed, systematic population-based screening with techniques such as mammography may not be feasible without economic development and increased prioritisation of healthcare at national and regional levels.³ In addition to cancer screening, limited access to effective but high-cost therapeutics in many LMICs also contribute to observed disparities in cancer mortality.¹⁹ Indeed,

comprehensive cancer treatment is reportedly available in more than 90% of HICs, but less than 15% of LICs.²⁰ Access to high-quality cancer treatment also varies within the USA, with only two of the 71 National Cancer Institute's (NCI) Comprehensive Cancer Centres located in federally-recognised rural counties. Finally, disparities related to cancer survivorship have also been described, including increased long- and late-term side effects from cancer treatment, reduced health-related quality of life, insufficient palliative care, higher rates of financial toxicity, and reduced adherence to follow-up care in medically underserved populations.²¹

FACTORS CONTRIBUTING TO INEQUITIES IN CANCER CARE

Cancer care inequities represent a consequence of persistent disparities in community and individual-level determinants of health, including poverty, health care access barriers, modifiable cancer risk factors, and psychosocial factors.²¹ For example, limited public transportation options and the lack of specialised oncology care providers in many underserved rural settings contribute to longer distances travelled to receive care, which can adversely impact the timeliness and quality of cancer care delivery. Transportation barriers are associated with delayed follow-up after abnormal screening results, decreased access to specialised oncology care, lower receipt of guideline-concordant cancer treatment, and low enrolment in cancer clinical trials.²² Additionally, the impact of implicit bias, structural racism and discrimination on mistrust of the health care system contributes to lower access to and utilisation of cancer care,²³ perpetuating cancer disparities for racial and ethnic minorities and other medically underserved populations.^{21,24}

There is a wide variability in the availability of modern cancer treatment, adequate healthcare infrastructure, and access to systemic therapies and supportive cancer care programmes across global settings, with significant gaps in many LMICs.³ For example, one-third of countries worldwide have no access to radiotherapy, and many require not only equipment, but also training, safety infrastructure, maintenance, and quality assurance to ensure access.²⁵ Indeed, poverty and geography remain profound barriers

to accessing guideline-concordant cancer care and cutting-edge therapeutics, as well as for accessing older and less costly cancer therapies.³ For example, there is a markedly lower utilisation of effective and evidence-based radiotherapy²⁶ and often costly targeted drug therapies (e.g., trastuzumab)²⁷ in LMICs compared with HICs. Additionally, workforce limitations in LMICs are pronounced, with for example, 0.2 physicians per 1,000 people in sub-Saharan Africa compared with 3.7 per 1,000 people in high-income European countries.²⁸ The widespread healthcare infrastructure limitations and lack of trained oncology workforce create barriers that impede the implementation and delivery of evidence-based cancer care treatment in resource-constrained settings, resulting in suboptimal care.²⁹

Any cancer care intervention that aims to reduce the overall burden of cancer in a population may inadvertently increase existing disparities if disadvantaged populations are excluded from the research studies demonstrating the intervention's effectiveness.³ Therefore, inclusion of globally diverse populations in cancer clinical trials is imperative to develop cancer therapies that have the potential for broad reach to achieve more equitable clinical outcomes.¹⁴ However, diversity in cancer clinical trials is lacking, with Black and rural populations vastly underrepresented.^{30,31} Moreover, only 8% of Phase III randomised clinical trials in oncology between 2014 and 2017 were conducted in LMICs.³² Unequal access and participation in cancer clinical trials contributes to a limited understanding of cancer biology,³⁰ which can substantially diminish the potential of precision medicine approaches.³³

Additionally, genetic research databases used to develop targeted cancer therapies contain data on participants of predominantly European ancestry.³⁴⁻³⁷ Developing targeted therapies based on a limited set of non-representative data can exacerbate cancer inequities and disadvantages populations in terms of access to targeted therapies. Moreover, utilisation of targeted cancer therapies requires additional testing to determine eligibility, adding complexity and cost, which may disproportionately impact under-resourced populations,³⁸ and contribute to lower utilisation of effective therapies in vulnerable populations. Importantly, cancer clinical trials are typically conducted in clinical

settings with the necessary resources to support research efforts. This approach to developing cancer treatments and guideline recommendations in well-controlled environments neglects to consider whether the implementation of the intervention is feasible and scalable in community oncology settings, where the bulk of cancer care is delivered.

ADDRESSING CANCER CARE EQUITY GAPS

Concerted efforts are needed to ensure that advancements in cancer care benefit all, particularly those disproportionately burdened by the disease. Implementation of scientific approaches, which focus on identifying strategies to improve the delivery, and the uptake and effective expansion of evidence-based cancer care in real-world resource-limited settings, can be harnessed for cancer equity.³⁹ Using implementation science, researchers can identify optimal strategies to build feasible, appropriate, sustainable, and affordable cancer care delivery pathways in resource-constrained settings, and to identify priorities to ensure maximum health gains with the limited resources available.³ Currently, the dissemination and implementation of evidence-based cancer control interventions and treatments in low-resource settings is inconsistent and incomplete.¹⁹ While it is often assumed that research findings will automatically be translated into practice in low-resource settings, this is typically not the case.³ In fact, many cancer care interventions cannot be simply implemented in low-resource settings because of the shortage of resources, a paucity of trained personnel, poor infrastructure, and fundamental differences in socio-political and cultural landscapes.^{2,40} Resource-stratified phased implementation to address cancer control efforts in the context of available resources, similar to what has been developed by the Breast Health Global Initiative (BHGI),⁴¹ may be an effective approach to translate cancer care guidelines into real-world practice LMICs, as well as underserved communities in HICs, and could help policy makers and health professionals to make best use of scarce resources.

Moreover, community-engaged approaches to adapt and tailor evidence-based interventions that specifically address the needs and

preferences of under-resourced populations can improve cancer care delivery and address disparities.⁴² For example, research suggests that culturally-targeted communication strategies, including message framing and community-centred cancer control interventions, can be used to address disparities for specific populations with increased disease burden.⁴³⁻⁴⁵ Indeed, patient-centred interventions and equitable delivery tools are necessary to ensure feasible and acceptable solutions,⁴⁶ recognising the need for capacity building in many resource-constrained settings. For example, the successful implementation of the human papillomavirus vaccine into the routine immunisation delivery strategy in Tanzania can serve as a model for future efforts centred on low-cost and high-impact solutions to reduce the burden of cancer and address disparities.⁴⁷ The importance of research conducted in low-income countries and its contribution to global science and addressing global health disparities should also not be overlooked.⁴⁸ For example, cancer research conducted in LMICs can generate major discoveries such as the identification of novel cancers, their causative agents, and promising treatments.⁴⁸

Addressing resource disparities in LMICs and medically underserved settings, and increasing capacity will be essential if cancer control efforts are to be successful. This includes providing increasing opportunities for training multidisciplinary cancer care teams, including medical oncologists, surgeons, pathologists, radiologists, and radiation oncologists.⁴⁹ Evidence also suggests that reducing structural and financial barriers to cancer screening can increase access to these services.²¹ In resource-constrained settings without specialised services, the deployment of primary and secondary caregivers, use of off-patent drugs, and application of regional and global mechanisms for financing and procurement have

proven effective in prior efforts.⁵⁰ Additionally, including cancer treatment in national health insurance coverage, with a focus on those living in poverty, can help reduce costs; will be key to achieving access to clinically effective, safe, and affordable cancer medicines;⁵¹ and strengthen health systems to meet the challenge of cancer.⁵⁰ Finally, there is a longstanding need to improve the quality and coverage of cancer registry data worldwide, particularly in LMICs, to better characterise cancer burden and identify research gaps.

CONCLUSION

In summary, disparities in cancer care delivery across the globe are persistent and widening. Targeted efforts to address barriers to cancer care and build a sustainable infrastructure for the implementation and dissemination of cancer prevention measures and provision of cancer care in resource-constrained settings is essential for global cancer control. Key priorities recommended to reduce global cancer disparities include the incorporation of community-engaged approaches to account for contextual barriers and to develop relevant and sustainable solutions to cancer care delivery challenges in real-world settings; focus more heavily on population health-level cancer prevention and early detection strategies over costly individualised targeted therapies; identify novel strategies for collaboration with policy-makers, non-profit organisations, and pharmaceutical companies to promote broad scale-up of evidence-based cancer care interventions; and increasing capacity by focusing research efforts on developing scalable infrastructure, including data registry tools and procedures to broadly disseminate cancer education and awareness efforts, and healthcare provider training in cancer prevention and control.

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