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**Left behind: cancer disparities in the developed world**

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# Left behind: cancer disparities in the developed world

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## Abstract

Huge advances have been made in cancer treatments over recent decades; however, significant disparities still exist in the developed world on the basis of race, socioeconomic status, education level, geographical location, and immigration status and in the U~~S~~ANited States, insurance status. Cancer disparities persist in the continuum of cancer care from risk factors, screening, diagnosis, treatment, survivorship, and end-of-life care. The causes of disparities are complex and multifactorial. The MASCC (Multinational Association of Supportive Care in Cancer) Education Study Group would like to propose a framework of cancer disparities from a social perspective utilizing “social determinants of health” as delineated by the World Health Organization and highlight an unmet need for research and policy innovations to address cancer disparities in developed world.

## Keywords

Cancer disparities

Developed world

On behalf of MASCC Education ~~and Communication~~Study group

**A02**

## Introduction

Huge advances have been made in cancer treatments over recent decades; however, significant disparities still exist in the developed world on the basis of race, socioeconomic status, education level, geographical, location and immigration status and in the USA, insurance status [1–6]. While there is no single definition to describe a developed country for the purpose of this article, we are including in developed world, countries with very high United Nations Human Development Index (HDI) [7]. HDI takes in to account transformation of income in educational and health opportunities and therefore in to higher level of human development. Cancer disparities continue to persist in the developed world through the continuum of cancer care from risk factors, screening, diagnosis, treatment, survivorship, and end-of-life care [8–10].

In the USA, African Americans experience higher rates of cancer overall and higher mortality from cancer [2]. Certain cancers have higher incidences in particular communities; for example, African Americans in the USA suffer higher risk of prostate cancer and are more likely to die of this disease. Latina women in the USA experience higher rates of cervical cancer. Similarly, Aborigines in Australia continue to experience higher rates of cancer deaths than non-Indigenous populations; for example, cancer of trachea, bronchus, and lungs is 24.5 % higher in the Indigenous population [11]. Minorities in developed countries have poor access to health care, undergo cancer screening at much lower rates, and have higher mortality from cancer [12].

## Cancer disparities: a complex challenge

The causes of disparities are complex and multifactorial. They exist within and outside the medical systems in society. There are disparities in risk factors, economic and educational opportunities, and access to health care in different populations within a developed country [1, 5, 13]. There are significant differences within a country and significant differences between different countries in the developed world [4, 14, 15]. Ethnic minorities are over-represented within incarcerated populations [1, 16]. The economic and social disadvantages that underserved patients experience translates into worse cancer-related outcomes [17]. Underserved patients may have low health literacy, which is also associated with worse cancer outcomes [18].

Several ways exist to study cancer disparities. The MASCC (Multinational Association of Supportive Care in Cancer) Education Study Group would like to propose a framework of cancer disparities from a social perspective utilizing “social determinants of health” as delineated by World Health Organization. This model can be used to identify cancer disparities from risk factors, screening, diagnosis, treatment, and end-of-life care. These models represent variables that interact and

modify each other. Individual factors such as age, sex, race, and biological characteristics are not modifiable; however, it is possible to mitigate negative experience associated with these characteristics. These characteristics form the individual and social basis of disparities. Older adults may suffer worse outcomes than younger patients by receiving a different treatment. Race/ethnicity is associated with negative experiences of discrimination and segregation of minorities. This may influence individual behaviors and risk factors from early childhood leading to disparities in the incidence and outcomes from cancer and other chronic diseases. Smoking rates are higher in racial and ethnic minorities and with lower education levels. Peer networks, parental smoking, and lack of support for ceasing smoking in immediate neighborhoods influence smoking rates. Minorities often live in poor neighborhoods with cramped living quarters, homelessness, and poor access to health care with few educational and economic opportunities. Lower education status has been associated with higher rates of smoking and higher rates of obesity. Recent migrants particularly from conflict areas of the world and undocumented migrants often live in poor neighborhoods and work in unregulated industries where they may be underpaid and experience unhealthy working conditions [19]. Minorities may have language discordance, different cultural beliefs than health care providers that may lead to dissatisfaction, and poor adherence with established care. Research studies tend to have smaller representation from minorities and underserved patients [9]. Treatment guidelines for cancer screening and treatment, which are based on these studies, may have limited application to underserved population.

## **The social and economic impact of cancer disparities**

Disparities contribute to higher rates of cancer deaths in minorities. In the **United States**, education attainment between lowest (<12 years) and highest education levels (>12 years) approximately doubles the risk of cancer mortality [2, 20]. Health-related expenses increase the chances of descent into extreme poverty for already impoverished individuals. Minorities and vulnerable patients present at advanced stage of cancer with less chances of cure and higher risk of mortality [4]. Vulnerable patients are also less like to receive survivorship care, which decreases the chances of receiving appropriate care at time of recurrence and management of early and long-term effects of cancer and cancer treatments. This patient population is also less likely to receive end-of-life care increasing pain and suffering at the end of life [10]. The elimination of known risk factors and improving health can decrease the incidence of cancer. A higher uptake of screening can shift the cancer burden to an earlier stage resulting in more cures and lower disease burden. A higher access to pain medication and end of life can reduce pain and suffering associated with cancer (Fig. 1).

**Fig. 1**

Social framework for cancer disparities

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## Next steps

Elimination of cancer disparities will require multilevel interventions. On an individual level, promoting health by influencing health behaviors and improving access to health information may be an important intervention. Harnessing different information resources such as culturally appropriate written materials, audio/video materials, and promoting individual health by increasing the awareness at a community level and by recruiting community leaders as part of an educational intervention may make such initiatives more effective or likely to succeed [21]. A peer support initiative where volunteer peer supporters are utilized to influence health behaviors may be more effective than fliers, books and handouts. Recognizing the strength of community may be useful, such as barbershop initiative for African American patients with hypertension [22].

At medical system levels, all clinicians and researches should be trained to recognize disparities and be aware of the biases that may hinder the patient-provider relationship and communication. Appropriate treatment should be available to all patients irrespective of their social or economic status. Medical researchers should identify not only causes of disparities but also test strategies to mitigate them. Inclusion of minorities in research studies should be prioritized as a requirement in research grants. Increasingly, in this global world, clinical trials that do not include the minorities may have limited applicability. This may require overcoming distrust, which minorities have with health systems, particularly with medical research. A concerted effort should be made to increase the number of minorities as care providers, researchers, and leaders in medical systems. This will enrich our organizations with diversity of experiences and perspectives. While health policies can be a significant intervention to reduce health care disparities, it is social and economic policy that can have the most far-reaching consequences on reducing disparities. The lessons learned in testing these interventions can lead to significant reductions in cancer deaths in developed countries and can be applied to the developing world.

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**A04**

Compliance with ethical standards

## *Conflict of interest*

The authors declare that they have no conflicts of interest.

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