

Program against cancer in Uzbekistan.

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Abstract

Worldwide, one in eight deaths is due to cancer. Projections based on the GLOBOCAN 2012 estimates predict a substantive increase new cancer cases per year by 2035 in developing countries if preventive measures are not widely applied. According to the World Health Organization (WHO), millions of lives could be saved each year if countries made use of existing knowledge and the best cost-effective methods to prevent and treat cancer. Therefore, the aim of this study is to estimate a provisional budget against cancer in low and middle incomes countries, according the GNI-PPP, the cancer incidence and the number of population. Economically country classification is determining with the Gross National Income (GNI), per capita, Purchasing Power Parity (PPP), according the administrations of the International Monetary Fund (IMF), the World Bank (WB) and the Central Intelligence Agency (CIA). Cancer incidence data presented are based on the most recent data available at IARC. However, population compares estimates from the US Bureau of the Census. The provisional budget is establishing among the guidelines developed by WHO for regional and national cancer control programs according to national economic development. Provisional budget against cancer is estimated to 387,574.618 (thousands of U.S \$) for a population of 29,748,859 persons in Uzbekistan.

Keywords: Cancer program, Cancer control, Prevention, Early detection, Institutional reinforcement, Diagnosis, Treatment, Low and middle-income countries, Uzbekistan.

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Introduction

Worldwide, one in eight deaths is due to cancer. Cancer causes more deaths than AIDS, tuberculosis, and malaria combined [1]. When countries are grouped according to economic development, cancer is the leading cause of death in developed countries and the second leading cause of death in developing countries [2]. Rates of cancers common in Western countries will continue to rise in developing countries if preventive measures are not widely applied [3-5]. Projections based on the GLOBOCAN 2012 estimates predict a substantive increase to 19.3 million new cancer cases per year by 2025, due to growth and ageing of the global population. Incidence has been increasing in most regions of the world, but there are huge inequalities between rich and poor countries. More than half of all cancers (56.8%) and cancer deaths (64.9%) in 2012 occurred in less developed regions of the world, and these proportions will increase further by 2025 [6]. By 2030, the global burden is expected to grow to 21.4 million new cancer cases and 13.2 million cancer deaths [7]. Rates of cancers will continue to rise by 2035 with 23,980,858 new cancer cases [3-5].

In addition to the human toll of cancer, the financial cost of cancer is substantial. Cancer has the most devastating economic impact of any cause of death in the world. Data limitations do not allow estimating the worldwide economic costs of cancer. However, portions of the total costs of cancer have been estimated to be as high as \$895 billion (US) worldwide. It is estimated that more than half of all cancer cases and deaths

worldwide are potentially preventable.

In Uzbekistan, the number of new cancer cases is estimated to 24,940 with 16,495 deaths in 2015. By 2025, incidence is expected to grow to 32,868 with 22,448 deaths. Rates of cancers will continue to rise to 41,756 new cancer cases by 2035 with 29,354 deaths if preventive measures are not widely applied. According to the World Health Organization (WHO); Entitled: National Cancer Control Programs: Policies and Managerial Guidelines, millions of lives could be saved each year if countries made use of existing knowledge and the best cost-effective methods to prevent and treat cancer.

“An urgent need in cancer control today is to develop effective and affordable approaches to the early detection, diagnosis, and treatment of breast cancer among women living in less developed countries,” explains Dr Christopher Wild, Director of IARC. “It is critical to bring morbidity and mortality in line with progress made in recent years in more developed parts of the world.”

With the data highlighting a large variability of GNI/capita even within similar income levels in the various world regions, it is expected that additional investment in resources and costs may be more dependent on income level of the country than on the GNI group or the geographic region of the world. Therefore, the aim of this study is to estimate a provisional budget against cancer in Uzbekistan, according the GNI-PPP, the cancer incidence and the number of population.

Methods

Economically country classification

The economics states are established among the means of GNI-PPP according the administrations of the International Monetary Fund (IMF); the World Bank (WB) and the Central Intelligence Agency (CIA) [13-15]. The difference concerning the same country can be considerable among the data origin. These variations are explaining by:

GNI-PPP is estimated

Anterior projection of an economic crisis changes GNI-PPP data

The estimation of the population included in the local population

The choice elements for GNI-PPP evaluation have some subjective part.

These data must be taken with precaution

Economically Country is divided according to the Gross National Income (GNI) per capita 2016, Atlas method and PPP.

Gross National Income (GNI), per capita, Purchasing Power Parity (PPP)

Gross national product is Gross Domestic Product (GDP) plus net income (employee compensation and investment income) from abroad. GNI, per capita is GNI divided by mid-year population.

PPP is Purchasing Power Parity; an international dollar has the same purchasing power over GNI as a US dollar has in the United States. PPP exchange rates are used to account for the local prices of goods and services not traded internationally. However, PPP is used to compare across national accounts, not for making international poverty comparisons.

The provisional budget is establishing among the guidelines developed by WHO for regional and national cancer control programs according to national economic development. However, an International Atomic Energy Agency report suggested that in developing countries at least 60% of cancer patients require radiation treatment.

Radiotherapy is one of the main components of modern cancer treatment and requires substantial capital investment, trained professionals in several disciplines, high precision equipment and a particular external and internal organizational structure. In High Incomes Countries, the healthcare costs can be as much as 8.4% to 18% of a country's gross domestic product. Cancer consumes about 5%-10% of the global healthcare budget, of which radiotherapy only consumes about 5%; thus, more than 50% of cancer patients requiring radiotherapy in low and middle-income countries lack access to treatment. A benchmark of between 400 and 500 patients per treatment unit per year has been used to calculate machine throughput in several reports. The benchmark of 450 patients per machine, which corresponds to about 8 operating hours per day, seems adequate for High

Incomes Countries. For scenarios where radiotherapy demand is not satisfied, a treatment day of 10 h optimizes the utilization of equipment and decreases the number of machines needed. But, the range of needs currently covered varies from 0% and 3%-4% in Low Incomes Countries in Latin America and Africa up to 59%-79% in Up-Middle Incomes Countries in Europe-Central and Asia.

However, in this study, in order to found the best cost-effective methods to prevent and treat cancer, the number of machines needs is establishing among 3 millions of peoples and not by the number of cancer cases, according to the weakness of the countries incomes.

Conclusion

Cancer has the most devastating economic impact of any cause of death in the world. Incidence has been increasing in most regions of the world, but there are huge inequalities between rich and poor countries. Projections based on the GLOBOCAN 2012 estimates predict a substantive increase to millions new cancer cases per year by 2030.

Rates of cancers will continue to rise by 2035 in Uzbekistan, if preventive measures are not widely applied. An urgent need in cancer control today is to develop effective and affordable approaches. It is expected that additional investment in resources and costs may be more dependent on income level of the country than on the GNI group or the geographic region of the world. However, in order to found the best cost-effective methods to prevent and treat cancer, provisional budget against cancer is estimated to 387,574.618 (thousands of US \$) for a population of 29,748,859 persons in Uzbekistan, according the GNI-PPP, the cancer incidence and the number of population.

It is very important for all organizations to be aware of the complexity of cancer control. A flexible approach is needed. This account must be added to the actual supply efforts of cancer prevention and treatment. However, effective measures to reduce cancer morbidity and mortality require the active participation of cancer survivors and their local communities; the mobilization and appropriate allocation of resources; the formulation of evidence-based policies and proven interventions; and the commitment of organizations and institutions in the nonprofit, for-profit, and governmental sectors. Ultimately, cancer control goes hand in hand with efforts to promote human and economic development and to improve standards of health, education, and medical care throughout the world.

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