

Surgery's role in addressing population health needs

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Abstract

There is a large and unacceptable burden of death and disability from conditions that are treatable by surgery. Several global efforts to address this burden have included the World Health Assembly resolution (WHA68.15) on emergency and essential surgical care, the Lancet Commission on Global Surgery, and the Disease Control Priorities project. On a country level, progress can be made in almost any location by taking a logical approach that includes defining the most cost-effective surgical interventions that can and should be made available to anyone in a given country, identifying and addressing the barriers to such care that often include finding ways to address financial barriers, and developing monitoring mechanisms to ensure that access to quality care is indeed being achieved. To accomplish these goals, there is a need for collaborative work by the fields of surgery and public health.

Keywords: Surgery, Global health, Public health, Low- and middle-income country.

Introduction

Conditions that are treatable by surgery cause a large burden of death, disability and suffering. These include trauma (injury), obstetrical complications, abdominal emergencies (such as appendicitis and bowel perforation), and non-communicable diseases (such as cancer and vascular disease), among others. The vast majority of this burden is in low- and middle-income countries (LMICs). In countries at all economic levels, it has not been well addressed how surgical care can be optimised to maximally lower the population-wide health burden from these conditions.

Surgeons are obviously at the forefront of addressing these problems. Surgeons, in general, focus on providing a service to an individual patient. This is the sine qua non of their job and should rightly be their main emphasis. Nonetheless, the field of surgery as a whole has been slow to address how it can better address the health needs of an entire country's population. Likewise,

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the field of public health has often considered surgical care too expensive and not something that should be invested in as a means to improve the health of the population as a whole. Moreover, interactions between the two fields have been minimal.

Global initiatives

This lack of attention to surgery's role in population health has been changing recently. Several important publications have been released over the past few years, like the Lancet Commission on Global Surgery (LCGS),¹ the Disease Control Priorities (DCP) project,² and the World Health Assembly (WHA) resolution on emergency and essential surgical care.^{3,4}

The LCGS developed several estimates on the extent of need for surgery globally, such as the estimate that 5 billion people do not have access to safe, affordable surgical care when needed and that only 6% of the 313 million surgical procedures performed annually occur in countries where the poorest third of the world's people live.¹ To address these deficiencies, the LCGS recommended 6 indicators and related targets for each. For example, there are targets for minimum number of surgeons and minimum number of operations per population, at which LMICs can achieve most of the population-wide benefits of surgery. It suggested 20 specialist surgical, anaesthetic, and obstetric providers per 100,000 people compared with levels of around 100 in high-income countries (HICs); and 5,000 surgical procedures per 100,000 people per year compared with 10,000-20,000 in HICs.¹ Most LMICs do not meet these targets yet.

The DCP project is a comprehensive global effort to evaluate the cost-effectiveness and population-wide effect of almost all health interventions. It has involved the World Bank, the World Health Organisation (WHO), the Bill and Melinda Gates Foundation, and other prominent global health stakeholders.² It has been influential in setting the health agenda for many international agencies, country governments and donors. The third and the latest version of the Project (DCP3) has devoted one of its nine volumes specifically to surgery

and several of the other volumes (e.g., cancer, cardiovascular disease) also address surgical services. DCP3 identified a group of 44 procedures or sets of procedures that address conditions that have large health burdens and for which there are surgical procedures and related care that are highly cost-effective and feasible to promote globally.² These procedures primarily cover high-burden conditions like injury and obstetrical complications. Many of these services are feasible to deliver at rural hospitals which improves access, especially in the poorest countries.²

WHA Resolution (WHA68.15): "Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage".^{3,4} The WHA consists of every minister of health in the world (or their designees) and functions as the governing board of the WHO. It sets WHO's agenda and makes recommendations to country governments. One of the main methods used for both of those activities are resolutions. In 2015, the WHA adopted the first resolution specifically on surgery. The WHA resolution provides guidance to individual countries on ways in which to approach promoting improvements in surgical care system-wide and nationwide.^{3,4} For example, the resolution urged all governments, among other suggested actions, to "identify and prioritise a core set of emergency and essential surgery and anaesthesia services" and to ensure that they are "accessible to all who need them". The resolution also required WHO to undertake several actions to promote the agenda of improved access to surgical care globally, such as "to establish mechanisms to collect emergency and essential surgical and anaesthesia case log data in order to increase understanding of unmet needs and improve the global capacity for surgery and anaesthesia in the context of universal health coverage".^{3,4}

Steps individual countries can take

In all countries, there are surgeons and other healthcare providers who have been working hard, often against considerable odds, and developing important innovations and making noteworthy progress on improving surgical care at their institutions and in their areas. For example, two WHO publications contain case studies on such progress in a wide range of countries for the topic of injury care specifically and surgical care more broadly.^{5,6} Taken together, the country examples

and the global initiatives show that more steady progress towards improving care for people with conditions treatable by surgery can be made nationwide, affordably and sustainably, by several concrete steps.

The first step is to define the most cost-effective surgical procedures that are feasible to promote countrywide and to which everyone in the country could reasonably have access. These procedures should be encompassed within the growing movement towards universal health coverage. Although there is global guidance on these procedures, the list would need to be adjusted for each country, based on the disease pattern and healthcare system.

The second step is to identify and address the main barriers that prevent people from accessing the essential services. In some cases, this might result in the need to increase geographical coverage, especially to more remote areas. In some cases, this might involve the need to strengthen financing mechanisms, as a frequent reason that people cannot access needed surgical services is poverty.

The third step is to develop monitoring mechanisms to ensure availability, delivery and quality of the essential services. This includes monitoring of capacity for surgical care in a country's network of hospitals. WHO has developed several sets of guidelines for such monitoring for surgery in general and for trauma care in specific.^{7,8} There is also the need to monitor access to and utilisation of surgical services. The six indicators proposed by LCGS could be especially useful. The indicators include number of surgery, anaesthesia, and obstetrical providers per population; and percentage of population having 2-hour access to hospitals that can perform certain indicator - or bellwether - procedures.¹

There is a growing global movement towards countries developing national surgical plans (national surgical obstetrical and anaesthesia plans – or NSOAPs), as recommended by the LCGS.^{1,9} Many of the above steps are reflected in such NSOAPs.

Success story in global surgery

One notable success story in improving surgical care globally and in many individual countries is that of lowering maternal mortality. Many of the steps noted above have been successfully implemented in efforts to lower maternal mortality. The number of maternal deaths

has been well defined and is actively monitored globally and in almost all countries, using vital registry data, when they are available, or validated statistical methods (e.g. the Sisterhood method)¹⁰ when vital statistical data is not available or is not reliable.

The most cost-effective procedures needed to address maternal mortality have been identified and promoted globally. These include assuring a skilled attendant, like a nurse or a midwife, at every birth and access to emergency obstetrical care when needed.

The fields of public health and obstetrics have collaborated with each other fruitfully. They worked together to address barriers to care and to ensure increases in population-wide coverage of the well-defined essential services.

Strong advocacy has led to increased political pressure to address safe motherhood both in individual countries and globally, as reflected by the adoption of several WHA resolutions on this topic, as well as incorporation of maternal issues in the Millennium Development Goals (MDGs) and now the Sustainable Development Goals (SDGs).¹¹

These steps have had notable success, with well-substantiated decreases in the number of maternal deaths globally, from 390,000 in 1990 to 275,000 in 2015.¹¹ This is probably the most successful example of a global effort to address a surgical condition and contains important lessons for addressing other surgical issues.

Conclusion

Surgery is a necessary tool to address many conditions that have a high population-wide burden of death and disability. Progress can be made in almost any location by taking a logical approach that includes defining the most cost-effective surgical interventions that can and should be made available to anyone in a given country, identifying and addressing the barriers to such care, and developing monitoring mechanisms to ensure that access to quality care is indeed being achieved. For all of this there is a need for the fields of surgery and public

health to work together.

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