



## Financing pediatric surgery in low-, and middle-income countries



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### ABSTRACT

Congenital anomalies once considered fatal, are now surgically correctable conditions that now allow children to live a normal life. Pediatric surgery, traditionally thought of as a privilege of the rich, as being too expensive and impractical, and which has previously been overlooked and excluded in resource-poor settings, is now being reexamined as a cost-effective strategy to reduce the global burden of disease—particularly in low, and middle-income countries (LMICs). However, to date, global pediatric surgical financing suffers from an alarming paucity of data. To leverage valuable resources and prioritize pediatric surgical services, timely, accurate and detailed global health spending and financing for pediatric surgical care is needed to inform policy making, strategic health-sector budgeting and resource allocation. This discussions aims to characterize and highlight the evidence gaps that currently exist in global financing and funding flow for pediatric surgical care in LMICs.

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### Introduction

The current global surgical landscape is undergoing transformation with the recent recognition by the World Health Organization (WHO) Member States of the role of emergency and essential surgical care and anesthesia as a component of Universal Health Coverage (WHO resolution A68.15); an expansion in global surgical care knowledge and evidence-base with recent publication of the Lancet Commission report on Global Surgery<sup>1</sup> and the Disease Control Priorities 3 report on Essential Surgery<sup>2</sup>; increasing prioritization of global surgical care as part of health systems strengthening and national health plans and increasing international collaboration for advocacy and policy changes as with the recent international launch of The Global Alliance for Surgical, Obstetric, Trauma, and Anaesthesia Care (The G4

Alliance), an advocacy-based organization with 47 member organizations representing six continents, 140 countries and over 300 organizations from all sectors.<sup>3</sup> “Best estimates” and projections based on modeling have estimated the global burden from surgical conditions between 28% and 32%,<sup>1</sup> however, even less is known about the proportion of global burden from pediatric surgical conditions and congenital anomalies, although an estimated 94% of severe congenital anomalies occur in low, and middle-income countries (LMICs).<sup>4</sup> Despite advances in surgical care, technology and recognition of the distinct surgical needs of children compared with adults that have been predominantly achieved in high-income countries (HIC), major gaps persist in the accessibility and delivery of pediatric surgical care in LMICs with sparse data available to truly determine the present unmet surgical need and true global surgical burden. Health policy for children in resource-limited settings has largely been focused on communicable diseases and nutrition. Barriers to prioritization of surgical care in LMICs in part has been due to the perception that surgical care is too costly, complex, and resource intensive; however, a recent United Nation report has in fact shown investment in surgical care in LMIC to be cost-effective with a 1:10 cost-benefit ratio<sup>5</sup>; “surgical procedures are among the most cost-effective of all health interventions in the developing world.”<sup>2</sup> An indirect metric for country-level prioritization of a particular global health focus lies in the proportion of funding earmarked for specific health priorities in a countries' budget, with global shifts in health area focus and prioritization thought to be reflected by changes in such funding flow. These shifting health priorities, as increased attention is called to pediatric surgical care, are in concert with the

*Abbreviations:* CDC, Center for Disease Control; CDG, Center for Global Development; CRS, Creditor Reporting System; DAC, Development Assistance Committee; DAH, development assistance for health; GHE, Government Health Expenditure; GAVI, Global Alliance for Vaccines and Immunizations; GDP, Gross Domestic Product; GPG, global public goods; HIC, high-income countries; IHME, Institute for Health Metrics and Evaluation; LMICs, low, and middle-income countries; NHA, National Health Accounts; NGOs, non-governmental organizations; ODA, Official Development Assistance; OECD, Organisation for Economic Cooperation and Development; SNA, Standard National Accounting System; SHA, System of Health Accounts; UNDP, United Nations Development Programme; UNICEF, United Nations International Children's Education Fund; USPHS, U.S. Public Health Services; WHO, World Health Organization.

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growing recognition of the importance and need for transparent, timely, accurate, and detailed global health spending and financing data to inform policy making, strategic health-sector budgeting and resource allocation, that is often non-existent or scant at best in resource-poor settings. Despite notable progress towards improved transparency and accountability with health expenditure in the wake of the millennium development goals (MDGs), the data remain far from robust related to surgical care. The below discussion aims to characterize and highlight the evidence gaps that currently exist in global financing and funding flow for pediatric surgical care in LMICs.

## Global health financing

### *Terminology, classifications, and frameworks*

A potpourri of terms exist that have been used when discussing global health financing, which include alternative and overlapping definitions: National Health Accounting (NHA),<sup>6,7</sup> Developmental Assistance for Health (DAH),<sup>8</sup> Official Development Assistance (ODA),<sup>9</sup> government health expenditure (GHE),<sup>8</sup> and global public goods (GPG) for health.<sup>10</sup> NHA is a collection of tables that detail the various aspects of a nation's health expenditure. DAH has been defined as financial contributions provided by various global health channels for developing countries with the primary intent of improving health; DAH had an average annual growth of 11.3% from 2000 to 2010, which has plateaued since 2010 and reached an all time high of \$36.5 billion in 2013 with a slight 1.6% drop in 2014.<sup>8</sup> ODA is considered by the Organisation for Economic Cooperation and Development (OECD) to be those concessional funds provided by official agencies to OECD country and territory recipients to promote economic welfare; it is a key measure used in practically all aid targets and assessments of aid performance. GHE is an approximation of how much governments spend on health-related activities out of their own treasuries. Global public goods for health are considered by the United Nations Development Programme (UNDP) to be "a public good with benefits that are strongly universal in terms of countries (covering more than one group of countries), people (accruing to several, preferably all, population groups) and generations (extending to both current and future generations, or at least meeting the needs of current generations without foreclosing development options for future generations)."<sup>10</sup> The following is a brief summary of relevant and commonly used terminology and frameworks relevant to the discussion of global health financing.

*Low-income countries* have been defined by the World Bank as those with an annual gross national income (GNI) per capita of \$1,045 or less (34 countries) whereas *lower-middle-income countries* are those countries with a GNI per capita between \$1,046 and \$4,125, of which there are 50 countries.<sup>11</sup> Health financing is concerned with how financial resources are generated, allocated and actually used in health systems and have traditionally dichotomized into *vertical* and *horizontal* approaches. Characteristically, *vertical financing* is often disease specific, among financial resources is often disproportionately distributed and may in fact detract from general health services, lead to duplication of services, and often operates outside the local healthcare system.<sup>12</sup> In contrast, *horizontal financing* more often sharply focuses on adequate health services and long-term investment in health system infrastructure. Criticism of both approaches include: the creation of "islands of excellence in seas of under provision"<sup>13</sup> with the vertical approach while the horizontal approach lacks clear prioritization. More recently, a "*diagonal*" approach<sup>14</sup> has been advocated whereby "explicit intervention priorities are used to drive improvements of the health system."<sup>15</sup>

Another key classification scheme in global financing relates to international health organizations, which can be divided into three broad categories: multilateral organizations, bilateral organizations, and non-governmental organizations (NGOs). *Multilateral organizations* receive funding from multiple sources (government as well as non-governmental sources) and is distributed to many different countries; prime examples include the World Health Organization (WHO), the World Bank, UNICEF (United Nations International Children's Education Fund) and the United Nations Development Programme. *Bilateral organizations* receive funding from their home countries and in turn use that to fund aiding to developing countries, examples include USAID (United States Agency for International Development), USPHS (U.S. Public Health Service), and the Center for Disease Control (CDC). *Non-governmental organizations* (NGOs), is neither a part of a government nor a conventional for-profit business; they are a highly diverse group of organizations that may be funded by governments, foundations, businesses, or private persons. NGOs can be further categorized by orientation (i.e., charitable, service, participatory, and empowering) or by level of operation (i.e., community-based, city-wide, national, and international).

A helpful framework in discussing funding flow involves three key components: funding sources, funding channels, and implementing institutions; this is the main framework used by the Institute for Health Metrics and Evaluation (IHME) to describe funding flow for global health (Figure). *Sources* have been defined by the Institute for Health Metrics and Evaluation (IHME) as "the origins of funding, which are generally government treasuries, the endowments of philanthropic entities, or other private pools, including direct contributions from private parties to non-governmental organizations (NGOs)" while *channels* are intermediaries in funding flow and traditionally have included bilateral aid agencies, multilateral organizations, NGOs, UN agencies, global health partnerships (e.g., GAVI and the Global Fund to fight AIDS, Tuberculosis and Malaria) public-private partnerships, and private foundations. *Implementing institutions* actively "promote health and prevent and treat diseases" in LMIC; its work may include government (e.g., national ministries of health, national disease control programs) and non-government programs (e.g., national NGOs, private sector contractors, universities, and research institutions).<sup>8</sup> Far from a simple and linear framework, framework elements may overlap and occupy more than one role, for example, the Bill and Melinda Gates Foundation may serve as both a funding source receiving funding as well as a channel in its sponsoring and support of other global initiatives such as the Global Fund or the Global Alliance for Vaccines and Immunizations (GAVI). The WHO may serve as both a funding channel, drawing funding from bilateral organizations and also as an implementing institution by deploying health workers.

### *Current situation*

Tremendous variation in national expenditure on health exists globally where per capita health expenditure may range anywhere from USD 3000 on average in HICs to only USD 30 per capita in LMICs<sup>16</sup>; similar variation exists with economic development for health as some countries spend as little as 1–2% of its Gross Domestic Product (GDP, Timor-Leste 1.3%, Myanmar 1.8%), while others spend almost one-fifth of its GDP (U.S. 17.1%, Tuvalu 19.7%)<sup>17</sup>; the country with highest total spending per person per year on health is the U.S. at USD 8362 while Myanmar has the lowest government spending per person per year on health at USD2.<sup>18</sup> The WHO estimate of the minimum spending per person per year needed to provide basic, life-saving services is USD44.<sup>18</sup> Financing challenges include competing priorities with

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