Strengthening the quality agenda in health care in low- and middle-income countries: questions to consider

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Abstract

There is a widespread interest in strengthening the quality agenda in low- and middle-income countries, but the optimal strategies for achieving this are not well defined. We offer an appraisal of the health challenges these countries are confronting, the resources and services provided by their health systems and the spectrum of options between policy and practice. Global health context section presents a brief discussion of the global health context. A descriptive picture of health and health care in LMIC section discusses the specific health conditions and the health-care environment in developing nations, using traditional health and health services indicators as reference points. Questions to consider for strengthening the quality improvement agenda in low and middle-income countries section sets forth key questions that quality improvement professionals should consider in the design of a quality agenda for low- and middle-income countries.

Keywords: quality improvement, quality management

Introduction

We are witnessing a major transformation in global health. During the 20th century, the world experienced a larger gain in life expectancy than in all the previously accumulated history of humankind, whereas the causes of death shifted to chronic conditions affecting older age groups. These changes are imposing unprecedented pressures on health systems worldwide. In developing regions, health systems are struggling to provide health services to a population suffering from a triple burden of disease: the backlog of common infections, undernutrition and maternal mortality, the emerging non-communicable diseases (NCDs), such as diabetes, heart disease and cancer and the problems related to globalization such as pandemics and the consequences of climate change. To meet these complex challenges, developing nations need to dedicate additional resources to health and implement strategies to increase access to comprehensive health care. Such strategies should include evidence-based quality improvement to guarantee a reasonable and sustainable level of effectiveness and responsiveness in health care.

The purpose of this perspective is to offer a set of questions that should be addressed by those seeking to strengthen the quality agenda in low- and middle-income countries (L&MIC). These questions stem from a basic understanding of the health challenges that these countries are confronting, the conditions in which their health systems are presently functioning and the spectrum of options between policy and practice. Global Health context section of this study presents a brief discussion of the global health context. A descriptive picture of health and health care in LMIC section discusses the specific health conditions and the health-care environment in developing nations, using traditional health and health services indicators as reference points. Questions to consider for strengthening the quality improvement agenda in low and middle-income countries section sets forth key questions that quality improvement professionals should consider in the design of a quality agenda for L&MIC.

Global health context

Over the past century, improvements in life expectancy at birth were unprecedented. In 1900, the world average was 30 years. By 1985, it had more than doubled to 62 years. In 2012, the average life expectancy at birth reached almost 70
years, but with a huge spread among countries from 89 years in Monaco to 47 years in Malawi [1].

Thanks to the gains made against infectious diseases and the increases in child survival, populations started living long enough to experience the effects of unhealthy habits and other risks related to modern living, such as lack of physical activity, consumption of unhealthy diets, tobacco use, alcohol abuse, stress and social isolation, all of which increased the prevalence of NCDs. These diseases are now responsible for 36 million deaths worldwide (63% of total deaths), 80% of which occur in developing regions [2]. The consequences of this new pandemic are so vast that NCDs are now considered a 'development challenge' [3].

In developing nations, this transition has occurred while communicable, maternal, perinatal and nutritional conditions (CMPNCs) are still serious threats, thus creating a 'double burden' of ill health. Strictly speaking, this is a triple burden because it includes those challenges directly related to globalization, including pandemics such as AIDS and influenza, the health consequences of climate change and the dissemination of harmful lifestyle changes that lead to overweight and obesity, a global threat that is already affecting 1.4 billion adults globally and rapidly becoming a condition of the poor [4, 5].

Global health institutions have responded to the health challenges related to CMPNCs through the Millennium Development Goals (MDGs) initiative, which all United Nations member states have agreed to achieve by 2015 [6]. Goals 4 (reduce child mortality rates), 5 (improve maternal health) and 6 (combat HIV/AIDS, malaria and other diseases) are explicitly health related and are being addressed through the expansion of immunization coverage, increased maternal services and focused interventions to deal with HIV/AIDS, malaria and tuberculosis. NCDs, in turn, are starting to be addressed by global health initiatives, as shown by the recent UN summit on the prevention and control of NCDs [7]. However, these diseases still lack the focus and resources that their increasing importance demands. Several groups have argued that it is possible to mobilize national and global resources to expand access to comprehensive services for NCDs and discussed the need to integrate them with CMPNCs in the global health agenda [8].

There is a consensus around the idea that health systems must be strengthened to predictably meet the MDGs and address the health risks related to NCDs and other health threats derived from globalization [9, 10]. Several actors (WHO, United States Agency for International Development, UK Department for International Development), in fact, are advancing initiatives to strengthen health systems to increase their capacity to respond to the new multifaceted challenges. These initiatives are being complemented by a global movement to recognize health care as a human right and a WHO initiative to move toward universal health coverage in poor nations [11, 12]. Each of these initiatives should explicitly address the specific needs and contexts for strengthening quality in health care in developing regions.

A descriptive picture of health and health care in L&MIC

The global health transition described in the previous section is, unsurprisingly, developing in distinct ways in individual countries. To inform the design of quality improvement strategies, we offer a descriptive overview of health conditions and health care based on traditional indicators. Developing countries were stratified using the World Bank classification into four groups: low-income countries (LIC) (US$1005 or less), lower-middle-income countries (LMIC) (US$1006–$3975), upper-middle-income countries (UMIC) (US$3976–12,275) and high-income countries (HIC) (US$12,276 or more) [13].

Differences in health needs and health-care resources among L&MIC

Data presented in this section indicate that there are important differences in health and health-care resources and services among the three groups of countries (Table 1). Life expectancy at birth in LIC is low, maternal mortality and mortality in children under 5 years of age are high and general mortality is still dominated by CMPNCs (Fig. 1). In LMIC and UMIC, life expectancy at birth is much higher, maternal mortality and mortality in children under 5 years of age are much lower and most deaths are due to NCDs and injuries.

Health expenditure per capita in LIC is very low and is reflected in a deficient supply of human (physicians and nurses) and physical (hospital beds) resources and an inadequate capacity to provide basic health services (births attended by qualified personnel). In contrast, health expenditure in middle-income countries is increasing and is reflected in a much higher availability of health resources and services.

Differences in health needs and health-care resources within L&MIC

There are also important differences within these groups of countries. The differences in life expectancy at birth in the two extreme values in LIC amount to 20 years (Table 1). There are also major differences in mortality, both in children under 5 years of age and maternal mortality. Wide variation exists in the epidemiological transition; in Bangladesh, only 38% of deaths are due to CMPNCs, but in Niger, these diseases produce 81% of total deaths [2].

The differences in health expenditure per capita among LIC are also considerable, ranging from just US$10 in Eritrea to US$68 in Zimbabwe (Table 1). These spending differences explain the enormous gaps in resources for health, especially regarding physicians, and also for essential health services. For example, births attended by trained personnel range from 6% in Ethiopia to 78% in Benin [14].

The state of health and health care conditions in LMIC is considerably better than that in LIC (Table 1). Life expectancy at birth is 13 years higher than in LIC. However,
The mortality rate for those under 5 years of age is less than half of that in LIC, but again, with important differences among countries. The maternal mortality ratio is more than two times lower than in LIC, but some LMIC countries show ratios that are similar or higher than that of LIC such as Angola (610), Cameroon (600), Nigeria (840) and Sudan (750) [14]. An important characteristic of the health transition in LMIC is that NCDs already dominate their health profile (Fig. 1).

Health expenditure per capita in LMIC is three times higher than in LIC, but with huge variations (Table 1). The number of physicians and nurses per 10 000 population is more than 12 and 3 times higher than in LIC, respectively, but with huge differences. The ratio of hospital beds per 10 000 populations ranges from 3 in Solomon Islands to 87 in Ukraine [14]. Finally, the percentage of births attended by trained personnel in LMIC varies from only 20% in Lao PDR to 100% in Moldova, Turkmenistan and Uzbekistan [14].

UMIC present a health profile similar to that of HIC. There are nations in this group, such as Chile and Costa Rica, where life expectancy at birth (79 years) is close to the mean of developed countries (80) [1]. However, there are two countries in this group, Namibia and South Africa, with a life expectancy at birth lower than the mean of both of LIC and LMIC [14]. Mortality rates for those under 5 years of age in UMIC have improved considerably, reaching a mean of 22 per 1000 live births, but with substantial variation between countries. Differences in maternal mortality are even greater ranging from 8 maternal deaths per 100 000 in Serbia to 410 per 100 000 in South Africa [14]. One of the most interesting features of the health profile of UMIC is the increasing prevalence of NCDs that constitute 75.4% of all deaths [2].

Health expenditure per capita in UMIC presents huge variations: US$164 in Thailand and US$961 in Palau [14]. Human resources for health, especially physicians, are much more available in UMIC than in LIC, and a high percentage of births are attended by qualified personnel.

### Table 1 Basic health and health-care indicators in low-, lower-middle-income and upper-middle-income nations, 2009

<table>
<thead>
<tr>
<th>Indicator</th>
<th>LIC&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Lower-middle-income countries</th>
<th>UMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy at birth</td>
<td>55.2</td>
<td>68</td>
<td>71</td>
</tr>
<tr>
<td>Range in life expectancy at birth</td>
<td>47–67</td>
<td>48–75</td>
<td>54–79</td>
</tr>
<tr>
<td>Under-5 mortality rate&lt;sup&gt;a&lt;/sup&gt;</td>
<td>125</td>
<td>57</td>
<td>22</td>
</tr>
<tr>
<td>Range in under-5 mortality rate</td>
<td>48–209</td>
<td>13–141</td>
<td>6–69</td>
</tr>
<tr>
<td>Maternal mortality ratio&lt;sup&gt;b&lt;/sup&gt;</td>
<td>635.9</td>
<td>230</td>
<td>82</td>
</tr>
<tr>
<td>Range in maternal mortality ratio</td>
<td>280–1400</td>
<td>26–840</td>
<td>8–410</td>
</tr>
<tr>
<td>Health expenditure per capita (2008) (US$)</td>
<td>30.4</td>
<td>99</td>
<td>570</td>
</tr>
<tr>
<td>Range in health expenditure per capita</td>
<td>10–68</td>
<td>22–351</td>
<td>146–961</td>
</tr>
<tr>
<td>Physicians per 10 000 population (2000–2010)</td>
<td>0.8</td>
<td>10.1</td>
<td>22.4</td>
</tr>
<tr>
<td>Range in physicians per 10 000 population</td>
<td>0.1–3.0</td>
<td>0.2–45.4</td>
<td>2.9–64.0</td>
</tr>
<tr>
<td>Nurses per 10 000 population (2000–2010)</td>
<td>4.5</td>
<td>16.8</td>
<td>44.5</td>
</tr>
<tr>
<td>Range in nurses per 10 000 population</td>
<td>0.4–13.1</td>
<td>3.2–108.1</td>
<td>4.8–125.6</td>
</tr>
<tr>
<td>Beds per 10 000 populations</td>
<td>9.6</td>
<td>22</td>
<td>36</td>
</tr>
<tr>
<td>Range in beds per 10 000 population</td>
<td>2–50</td>
<td>3–87</td>
<td>12–112</td>
</tr>
<tr>
<td>Births attended by trained personnel (%)</td>
<td>42.8</td>
<td>64</td>
<td>96</td>
</tr>
<tr>
<td>Range in percentage of births attended by trained personnel</td>
<td>6–78</td>
<td>20–100</td>
<td>74–100</td>
</tr>
</tbody>
</table>

Source: World Health Organization [14].

<sup>a</sup>Probability of dying by age 5 per 1000 live births.

<sup>b</sup>Maternal deaths per 100 000 live births.

<sup>c</sup>Kyrgyzstan and Tajikistan were excluded from the list of LIC as they behave as outliers.

![Figure 1](https://academic.oup.com/intqhc/article-abstract/24/6/553/1824734/555)
Table 2 Questions to consider for strengthening the quality improvement agenda in low- and middle-income countries

Contextual
- What are the main health needs and expectations of the population according to the level of development of the country?
- What is the position and accountability of the Ministry of Health (MoH) regarding the need to improve quality of care?
- Is quality improvement an explicit value and a commitment of health-care leaders widely?
- If the MoH is not promoting actions to improve quality, what groups are promoting them and with what authority or leverage to do so?
- Are the basic operational definitions and concepts regarding quality improvement of health care known by health policy leaders and health-care providers?
- Are internal or external funds available to implement quality improvement actions?
- Are there adequate mechanisms to align external financing aid (donor provided) with internal needs and actions?
- To what extent do local organizations facilitate or hinder the implementation of the necessary actions to improve quality?

Strategic
- Are there explicit priorities for the health-care system and is quality improvement among them?
- Is there a strategic plan in place within the health-care system to improve the quality of care?
- What should be the scope of interventions to be designed in terms of health conditions to be addressed, geography, number and type of organizations, health workers involved and actions to be implemented?
- Will the actions taken be predominantly aimed at awareness building, capacity building or performance enhancement?
- What should be the critical mass of health workers and organizations involved to facilitate change in the system?
- Is there a legislative framework to induce and support quality improvement activities?
- Is the community somehow involved in efforts to improve the quality of health care?
- Are there identified leaders at different levels of the system to promote and provide direction to quality improvement actions in the country?
- Is quality improvement an explicit value and a commitment of health-care leaders?
- Are the basic operational definitions and concepts regarding quality improvement of health care known by health policy leaders and health-care providers?

Structural
- Is there sufficient capacity in the country to meet population health needs?
  - Number and skills of health-care professionals enough and well distributed to provide adequate care?
  - Are facilities adequate both in number and physical conditions?
  - Is supply of medicines, laboratory and technologies enough and timely?
  - Are organizational structures within the MoH and/or in health-care facilities devoted specifically to quality improvement?
  - Are there incentives for health-care leaders to be committed toward quality improvement and for health workers to provide good care?
  - Are there financial resources allocated to implement quality improvement activities?
- Are there national or foreign expert organizations willing to provide or providing technical assistance for quality improvement?
- Are patients formally involved in assessing or helping health-care organizations to improve?
- Are managers at different levels of the system adequately trained as such?
- Are there adequate execution skills within the system?
- Are there adequately designed and validated information systems to allow quality measurement?
- Are there reporting mechanisms to provide transparency to quality improvement within the country?
- Could the changes implemented be locally sustainable?

Questions to consider for strengthening the quality improvement agenda in L&MIC

The need to apply quality improvement thinking and methods may be compelling in L&MIC, but how best to apply them remains a challenge. Developing a common framework for the discussion of population health needs and options for improving the responsiveness of health systems could be a first step toward a shared understanding of what is both feasible and desirable.

In designing quality improvement approaches for health-care systems, there are likely differences in the exposure of professionals to the field of health-care quality and the development of this capability across and within the three groups of countries. In most UMIC, some quality improvement activities are likely in place, so the national agenda could be designed around performance enhancement activities. However, the quality agenda in LMIC may be less evolved and should be focused on capacity-building activities. Finally, in many LIC, the quality agenda may be focused initially on interventions that enhance awareness of quality improvement methods.
A common assessment framework applicable across countries may provide a useful diagnostic tool for developing and implementing a national quality strategy in L&MIC. The questions that could be useful in building this framework correspond to different types of challenges that could arise in each country (Table 2). These questions are grouped into three categories: contextual questions that refer to the general characteristic of the country, its health needs and its health-care delivery system, strategic questions that refer to the priority given to quality in the local health agenda and to key elements necessary to implement a local strategy and structural questions that refer to the types of organizations and availability of professionals, non-professionals and other resources available to implement quality improvement interventions. The questions included in this framework could also serve as the basis for tracking progress on context, strategy and structural contributors to improvement.

These questions may have a differential usefulness depending on the level of development of a country. Contextual questions are relevant for any type of country. However, structural questions are critical for the poorest nations because the availability of basic resources is a requisite for the proper delivery of health care and the expansion of coverage. According to a recent Lancet editorial, ‘universal health coverage requires sufficient numbers of well-trained and motivated staff with adequate resources for prevention, diagnosis, treatment, and professional development’ [15]. As resources become more available, strategic questions tend to increase in importance. In any case, professional groups in LMIC interested in improving the quality of care should strive to answer all of them as an initial step to design a plan to increase the effectiveness, security and responsiveness of health-care services.

Conclusions

There is a growing belief that quality improvement can strengthen health systems and improve performance in both the public and private health sectors [16]. The prevailing health conditions, the type of personnel involved in the provision of health care and the level of development of health-care facilities in a particular country can provide a basis for designing and implementing quality improvement initiatives in L&MIC. Based on key indicator data, initial quality initiatives in LIC might prioritize CMPNCs and be mostly directed toward nurses, health workers and health-care administrators working in community environments. In contrast, quality improvement initiatives in LMIC and UMIC might address a mixture of CMPNCs and NCDs and be inclusive of physicians and nurses working in health-care facilities and primary care and community environments.

Given the pressures created by the ‘triple burden,’ the growing concern about sustainability of health-care funding and the ambition for progress toward universal coverage across many countries, there is a critical need to identify and spread proven quality interventions that can reliably foster effectiveness and efficiency in health systems. An approach that tailors these interventions to local context, strategic opportunities and structural capabilities may accelerate and enhance these efforts.

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