Rethinking assumptions about delivery of healthcare: implications for universal health coverage

Simply providing more resources for universal coverage is not enough to improve health, argue Jishnu Das and colleagues. We also need to ensure good quality of care.

We are at an inflection point in global health. People are living longer, healthier lives than ever before, and we are rightly celebrating disease-focused programmes that have greatly reduced or eradicated diseases such as smallpox and river blindness. Better diagnosis and treatment of HIV/AIDS, malaria, and other diseases have saved countless lives. Yet, as populations age and the burden of morbidity grows more complex, the limitations of programmes focused on single diseases have become increasingly evident.

Policy makers have shifted towards a broader “systems” view of universal health coverage (UHC)—one that seeks to provide all people with access to essential health services without financial hardship—as the defining approach to improve the health of the world’s poorest people. As one of the key focuses of the sustainable development goals, UHC has become a rallying principle for all countries. Indeed, the new director general of the World Health Organization has made UHC his top priority for the agency. UHC can achieve its primary objective of creating better health, but to do so, patients must have access to services that are high quality. This idea of “effective UHC” is not new. It has long been recognised that translating healthcare into health outcomes requires that services meet some basic standard of quality. However, without systematic data on quality, the working assumption has been that adequately trained doctors and nurses with access to infrastructure (such as well equipped facilities and medicines) will be sufficient to guarantee adequate quality. Emerging data suggest that this understanding may be incorrect. For example, even when resources are in place in countries as far afield as Bangladesh and Uganda, health systems are unable to ensure that doctors show up to work, with absence rates ranging from 40% to 60%. And when they do, the services they provide are below any acceptable standard.

We focus on one aspect of quality—effectiveness, or the degree to which patients receive timely and accurate diagnoses and evidence based treatments for their conditions. Other domains of quality, such as patient safety and patient centredness (table 1), are equally important. However, the effective provision of necessary services is foundational to the performance of health systems; a system that cannot accurately diagnose or manage patients will not deliver the improved health outcomes implicit in the UHC agenda.

### Table 1 Essential elements of quality healthcare (adapted from Scott and Jha 1)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Subcategorisation</th>
<th>Example measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Adverse events—e.g., due to medical devices or medicines, including standard and falsified medicines</td>
<td>Rate of prescptions above the maximum daily dose</td>
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<tr>
<td></td>
<td>Healthcare acquired conditions</td>
<td>Cases of hospital acquired pneumonia among inpatients</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Timely and accurate diagnosis</td>
<td>Rate of correct diagnosis of cervical cancer</td>
</tr>
<tr>
<td></td>
<td>Evidence based treatment, including appropriate follow-up and management</td>
<td>Rate of appropriate treatment for patients presenting with childhood diarrhoea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rate of glycaemic control among patients diagnosed with diabetes</td>
</tr>
<tr>
<td>Patient centredness</td>
<td>Patient experience</td>
<td>Rate of patients who would recommend their provider to a family or friend</td>
</tr>
<tr>
<td></td>
<td>Patient reported outcomes</td>
<td>Patients reporting adequate or high functional status after surgery</td>
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</table>
Qualifications do not equal clinical knowledge
Poor quality is often assumed to be due to
the large number of informal (ie, untrained) providers. However, even fully trained providers with adequate access to infrastructure often fail to deliver high quality care. This weak link between qualifications and quality reflects two related but conceptually separate issues. Firstly, the quality of medical training varies considerably in many countries. Tests of medical knowledge among physicians and non-physician clinicians in India, 13 Vietnam, 14 Nigeria, 15 Eastern Europe, 16 and several countries in sub-Saharan Africa consistently show large variations in within-country knowledge, with sizeable numbers of untrained, non-physician clinicians who are more knowledgeable than their fully trained counterparts.

Table 2 | Key findings of studies using standardised patients 13-17

<table>
<thead>
<tr>
<th>Location of study</th>
<th>Conditions studied</th>
<th>No of standardised patients</th>
<th>No of healthcare visits/practitioners included</th>
<th>% With correct diagnosis</th>
<th>% Correctly managed or referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>India:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delhi (urban)</td>
<td>Angina, asthma, and diarrhoea</td>
<td>17</td>
<td>250</td>
<td>23</td>
<td>46 NA</td>
</tr>
<tr>
<td></td>
<td>Tuberculosis</td>
<td>17</td>
<td>250</td>
<td>8</td>
<td>21 NA</td>
</tr>
<tr>
<td>Madhya Pradesh (rural)</td>
<td>Angina, asthma and diarrhoea</td>
<td>22</td>
<td>677</td>
<td>12*</td>
<td>8 36 NA</td>
</tr>
<tr>
<td>Bihar (rural)</td>
<td>Childhood diarrhoea</td>
<td>NA</td>
<td>340</td>
<td>3</td>
<td>0 17 NA</td>
</tr>
<tr>
<td></td>
<td>Childhood pneumonia</td>
<td>NA</td>
<td>340</td>
<td>8</td>
<td>14 60 NA</td>
</tr>
<tr>
<td>China:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaanxi Province (rural)</td>
<td>Dysentery and angina</td>
<td>4</td>
<td>82</td>
<td>37</td>
<td>24 52 NA</td>
</tr>
<tr>
<td>Sichuan, Shaanxi, and Anhui Provinces (rural)</td>
<td>Tuberculosis</td>
<td>4</td>
<td>138</td>
<td>15</td>
<td>25 40 51</td>
</tr>
<tr>
<td>Kenya:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nairobi (urban)</td>
<td>Angina, asthma, diarrhoea, and tuberculosis</td>
<td>14</td>
<td>166</td>
<td>32*</td>
<td>22 53 NA</td>
</tr>
</tbody>
</table>

*Denominators for denoted percentages are limited to cases in which a diagnosis was given. All other rates have a denominator of overall cases. The proportion of presentations that received a diagnosis ranged from 6% in the Bihar childhood diarrhoea case to 90% in the China tuberculosis case.

providers with varying qualifications and connections to the formal healthcare sector. The average village in rural Madhya Pradesh—one of the poorest states in India—has 11 healthcare providers within 3 km of the village, 12 most of whom have no formal training. 16 However, informal providers are often not counted when assessing key measures of access such as the ratio of clinicians to patients.

In other countries, non-physician clinicians are an integral and sizeable part of the state machinery but are often excluded when assessing in human resources. 13 14 Studies that count all providers show that access to healthcare is often better than historically imagined in low resource settings. Official statistics that focus only on formal physicians per population miss this important point.

Given that access, more leniently defined, is less of a problem, where do the challenges lie? Primarily, it is the quality of care that patients receive when they access healthcare providers. Table 2 summarises the results of studies that use standardised patients—people recruited from local communities and extensively trained to present the same set of standard symptoms to multiple providers—to assess quality. The standardised patients presented with simple clinical conditions to ensure no disagreement on the correct diagnosis or treatment. This method facilitates a “blind audit” since the same clinical cases can be presented to providers with a wide range of training and qualifications. 13 14

In India, China, and Kenya most cases were incorrectly diagnosed, and, even using a very lenient definition, simple medical conditions were correctly managed a minority of the time. Although standardised patients in Kenya generally received higher quality care than those in India and China, 90% of angina presentations in Nairobi were still misdiagnosed as pneumonia. 15 Across the board, studies find frequent misdiagnosis, overseuse of antibiotics and other drugs, and underuse of inexpensive but potentially lifesaving diagnostics and therapies in both public and private sector clinics; all have serious repercussions for health outcomes and expenditure.

Poor quality is not unique to institutional childbirth. Incentive schemes to encourage women to deliver in public facilities increased the number of institutional deliveries in countries such as Malawi, 16 India, 17 18 and Rwanda 19 but did not improve child or maternal outcomes. Why not? It is not for the lack of availability of infrastructure and medicines. According to WHO surveys, lifesaving treatments for women giving birth are widely available and used in most health facilities across countries. However, the availability of these essential treatments is not associated with better maternal outcomes. 20 Poor implementation, delays in diagnosis and treatment, and silos of care have been hypothesised to at least partly explain excessive mortality and morbidity.

Finally, the hypothesis that poor quality may be due to overwhelmed primary care providers who see too many patients and do not have the time to carefully evaluate or manage them may be incorrect. Clinical observation studies show that most primary care providers see too few patients, rather than too many (fig 1). The average healthcare provider working in a public clinic in rural India, who provides services that are free at the point of use, sees 5.7 patients a day, spending only three minutes with each. In Tanzania, Senegal, and rural Madhya Pradesh (India), doctors in public primary health clinics spend a mere 30 to 40 minutes a day seeing patients.
25% in Tanzania, and 63% in Uganda (fig 2). There are also wide differences across states in India: informal providers in high performing states like Tamil Nadu are more knowledgeable than fully trained doctors in low performing states like Bihar. The link between qualifications (training) and medical knowledge is surprisingly weak. It is therefore wrong to assume that populations with access to a fully trained doctor in Madagascar enjoy better care than populations with access to a fully trained nurse in Kenya.

Clinical knowledge often fails to translate into clinical practice
Medical knowledge is only loosely tied to actual clinical practice. Providing high quality clinical care requires both knowledge and effort, and when the average clinical interaction lasts 90 seconds, as it does in Delhi’s public sector or Vietnam’s district hospitals, medical knowledge often does not translate into high quality clinical interactions. A recent systematic review of consultation time, our best measure of effort, across 68 countries and 28 million consultations found that the average consultation “varied from 48 seconds in Bangladesh to 22.5 minutes in Sweden.” In most countries, consultation times averaged less than 10 minutes, and in 15 countries less than 5 minutes. Short consultation times were more prevalent in low income countries, even in contexts where doctors were seeing just a few patients a day.

Short consultation times imply that even when doctors know what to do, they often fail to do it. There is a persistent, often sizeable, gap between what providers say they will do when faced with a hypothetical patient and what they actually do when they see such a patient (fig 4). Emerging evidence finds large “know-do” gaps in countries as diverse as Rwanda, Tanzania, India, China, and Vietnam. This know-do gap can be so large that the providers without any formal medical training can provide higher quality care than fully trained doctors.

The idea that the medical profession “has special knowledge ... and will self-regulate” has already been questioned. We are learning that doctors are humans who operate within complex systems. Because they respond to incentives, the same doctors seem to provide more effort (and deliver higher quality care) in private clinics than in public ones, even when structural resources are held equal. In a Beijing hospital, when standardised patients presenting with viral pharyngitis told doctors they would purchase medicines from an external pharmacist (rather than the hospital pharmacy from which the prescriber receives a salary bonus), antibiotic prescriptions fell from 77% to 11%. This 66 percentage point difference suggests doctors knew that prescribing antibiotics was unhelpful but were swayed by financial incentives.

Potential solutions
We have focused on just one component of quality: effectiveness. Understanding whether similar patterns arise for safety and patient centred care is critical, although there is little reason to believe it would not. The data come from only around a dozen countries, but they include India and China, where a large proportion of the world’s poorest people live. Although standardised patients cannot fully capture all clinical scenarios (for practical and ethical reasons), the data that have emerged in recent years suggest the same patterns: big quality problems, a weak link between qualifications and knowledge, and a large gap between knowledge and practice. The evidence suggests that countries need to incorporate quality into their UHC plans at an early stage.

Whether efforts to achieve UHC will translate into better health outcomes depends on how we execute these efforts, and this in turn will determine whether we are able to move from a simple access oriented definition of UHC to truly effective UHC. Emerging data challenge models of care that assume that qualified providers in well resourced clinics guarantee quality. New approaches are needed to ensure that broader investments in healthcare actually lead to better health outcomes, especially for poorer people.

New approaches need to tackle systems that produce medical professionals who are poorly trained, undermotivated, and often assigned to clinics with no peers or mentors and insufficient patient volume to hone skills. These providers consequently leave
many patients, particularly those with few resources, receiving care that is unhelpful and often harmful.

This will not be an easy process. But clear examples are emerging where these efforts are bearing fruit: mid-level providers who provide high quality care, whether they are anaesthesia assistants in rural Nepalese hospitals or nurses managing HIV care in large parts of Africa.37,39 Initiatives to tackle the availability of doctors in rural areas can focus on non-physician providers and training them to be as good, if not better, at providing certain types of care.40-42

Similarly, countries are realising that placing doctors in rural areas may mean that they see only few patients a day. An alternative is to bring patients from rural areas to urban centres with better facilities, as has been tried with considerable success using ambulance systems in India and medical buses in Brazil.37,41

Unfortunately, there are other systematic design problems where our knowledge base remains low. For instance, evidence shows that when diagnosis and treatment are “bundled” so that healthcare providers can earn higher incomes by ordering tests or prescribing drugs, their tendency to do so increases.36 Breaking the link between diagnoses, drug sales, and laboratory tests can reduce unnecessary tests and drug usage. How to do so in an efficient manner, however, remains an open question.

Conclusion

Task shifting and new approaches to delivery are just two examples of the kind of innovation needed to achieve effective UHC. Reaching the goals of UHC requires not just more money, but better money. We need additional research and policy work that questions baseline assumptions and normative, or prescriptive, frameworks. We must understand the world as it is, not as we wish it to be. Healthcare providers may make errors, but they often make the same errors again and again, and therefore make “predictable” mistakes; these mistakes are indicative of a broken system. If this predictability is recognised and modelled in policies and strategies to improve global health, we can make important advances. Such recognition has the potential to transform how healthcare is delivered in low income contexts, ultimately improving the lives of billions.

Additional material available on bmj.com: Methods for collecting data on effectiveness of healthcare

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Jishnu Das, lead economist1 Liana Woskle, assistant director2 Ruma Rajbhandari, instructor3 Kamran Abbasi, executive editor4 Ashish Jha, KT KI, professor of international health1 World Bank, Washington, DC, USA

Harvard Initiative on Global Health Quality, Cambridge, MA 02138, USA

Harvard Medical School, Boston, MA, USA

1The BMJ, London, UK

2Department of Health Policy and Management, Harvard T H Chan School of Public Health, Harvard Global Health Institute, Boston

Correspondence to: AK Jha

cajha@hsph.harvard.edu


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