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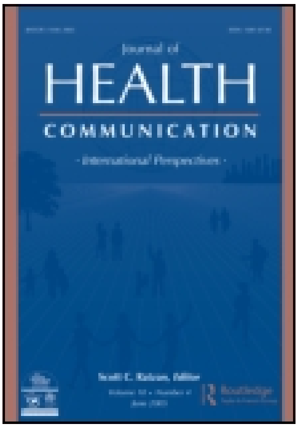

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Towards a Collective Understanding of the Information Needs of Health Care Providers in Low-Income Countries, and How to Meet Them

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Commentary

Towards a Collective Understanding of the Information Needs of Health Care Providers in Low-Income Countries, and How to Meet Them

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Poor knowledge among health care providers (including health workers and citizens) leads to poor health outcomes. This article discusses current linear research-to-practice paradigms and argues that these approaches are not meeting the needs of health care providers in low- and middle-income countries. It suggests a broader, needs-led approach. This approach must look beyond perceived needs and identify actual needs in relation to knowledge and practice, including learning needs and point-of-use needs. The article argues that systems thinking is required. The availability of reliable, appropriate health care information for providers is dependent on the integrity of the global health care knowledge system, which embraces health professionals, policymakers, researchers, publishers, librarians, information specialists, and others. Three intrinsic weaknesses of the system need to be addressed: communication among stakeholders; an evolving, collective understanding of the system's components and how they interrelate; and effective advocacy to raise awareness of this issue and the need for funders and governments to support collective efforts to strengthen the knowledge system. This can be done at the country level but must be accompanied by an international effort including knowledge networks such as Healthcare Information for All by 2015 involving diverse individuals and organizations.

The four current dominant paradigms that aim to inform health care providers may all be described as push paradigms: research-led, evidence-led, technology-led, and/or subject-led. These approaches are not working. They are especially ineffective where the information needs are greatest, namely in poorly-resourced settings in community, primary, and district-level health care facilities in low-income countries.

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In these settings, the needs are often basic and are associated with profound knowledge disempowerment of health care providers.

To improve the availability of relevant, reliable health care information in such settings, which are the reality for most of the world's population, I suggest that we require a more needs-led approach—an approach where the information is based on research, informed by evidence, enabled by technology, and organized by subject (where appropriate)—but fundamentally *led* by needs. A needs-led approach demands a collective understanding of the diverse range of information needs of different health care providers in different settings, and how to meet them.

The needs-led approach is illustrated by the three studies published in this issue of the *Journal of Health Communication.* Each study focuses on understanding the information needs of end users. Studies of this kind are a necessary basis for a broader, global needs-led approach that brings together all stakeholders—health communication specialists, health professionals, policymakers, researchers, publishers, information specialists, citizen representatives—in a professional interdisciplinary learning network around a common purpose: a future where people are no longer dying for lack of basic health care knowledge. This approach is described below and is currently being implemented as a global initiative: Healthcare Information For All by 2015 (HIFA2015; http://www.hifa2015.org).

People Are Dying for Lack of Knowledge

Whether a person becomes ill depends largely on social determinants: "The conditions in which people are born, grow, live, work and age, including the health system" (World Health Organization, 2005). Whether a person subsequently lives or dies depends largely on what we may call *sequential determinants*: the sequence of events, decisions, and actions leading to recovery or death, and, in particular, the sequential health care decisions and actions of family members and health workers. Improving social determinants for the world's poor and disadvantaged requires major geopolitical and economic change, which continues to be elusive—health and economic inequities are deepening rather than improving in most countries. By contrast, improving sequential determinants is readily achievable (and complementary to continuing efforts to address social determinants).

Social determinants of health influence whether an individual person will have access to care and, if access is available, whether the quality of care that is provided is adequate. Whether the person survives an illness also depends on social determinants of health, and on decisions and actions made previously by health service managers and policymakers. However, survival depends most directly and immediately on the decisions and actions made by citizens, parents, and family caregivers, especially during the hours, days, and weeks before accessing formal health care, as well as the subsequent decisions and actions of health workers.

The decisions and actions of citizens, and especially family members, are paramount. In some countries, particularly in Africa, more than 80% of avoidable child deaths occur before even reaching a health facility. Many factors contribute, but health care knowledge, timely recognition of danger signs, and appropriate action are fundamental.

As listed in the Appendix, the knowledge, decisions and actions of citizens and health workers are often, tragically, life-threatening rather than life-saving: a failure to recognize danger signs of severe illness; a delay in bringing a sick child to a health worker; a misdiagnosis; an ineffective or harmful medical intervention. To get these decisions right, health care providers require timely access to relevant, reliable information, which may be learned or available at the point of care.

Examples of learned information (knowledge) and its sources include: previous reading of a nursing text book; a previous training session for health workers on integrated management of child illness; a previous discussion in a community women's group about recognition of complications in pregnancy; or knowledge about hand-washing passed from parent to child, or vice versa. Examples of point-of-care information include: a drug formulary on a hospital ward that provides specific data to guide prescribing; advice over a mobile phone from a senior health professional; or consultation of a manual of first-aid care. Learned and point-of-care information and their sources are not mutually exclusive and are complementary. In low-resource settings, the availability of reliable, appropriate learning and reference materials is often limited, with dangerous consequences for patients.

Why Focus on the Needs of Health Care Providers?

Health care providers are the heart of any health system. Current health systems, especially in low- and middle-income countries, fail adequately to listen to, understand, and address the needs of health care providers. Consequently, health care providers in general, and health workers in particular, are not empowered to deliver safe, effective health care—and people are denied basic health interventions or are given unnecessary or harmful treatments, contributing to tens of thousands of needless deaths every day. From a global economic and social justice perspective, the billions of dollars spent on health research and delivery systems abjectly fail to provide significant benefits for a majority of the global population. The poorest 2 billion of our world derive the least benefit from the fruits of health research and are trapped in a cycle of ill health and poverty.

Of all the basic needs of health workers, the need for reliable, appropriate health care information and knowledge is fundamental. Improving the availability of relevant, reliable information for health care providers is potentially the single most cost-effective strategy to sustainably improve the quality of health care in developing countries (Pakenham-Walsh, Priestley, & Smith, 1997).

Much has been written in the past decade about the need to scale up the health workforce. What is at least as important (and also fundamental in terms of attraction and retention, and therefore numbers) is to meet the needs of the *existing* health workforce.

Health workers have a spectrum of seven basic needs that have been described by the acronym SEISMIC (http://www.hifa2015.org/about/hifa2015-in-context):

- Skills
- Equipment
- Information
- Structural support
- Medicines
- Incentives (including a decent salary)
- Communication facilities

As we strive to meet the information and learning needs of health care providers, we need to take into account to what extent their other vital needs are being met, and we need to link our efforts with those of others who may be primarily focused on non-informational needs.

In the past few years, there has been a welcome and increasing emphasis on the needs of the existing health workforce, by initiatives such as the Global Health Workforce Alliance, the Positive Practice Environments campaign, IntraHealth International, the Knowledge for Health Project, Hands Up for Health Workers and, most recently, the Frontline Health Workers Coalition, supported by the Bill & Melinda Gates Foundation. Melinda Gates herself has emphasized that we "should ensure better support for those already on the front lines—health workers who sometimes lack the information, skills, equipment and supplies they need to save more lives" (Frontline Health Workers, 2012).

How to Promote Informed Health Care: From Push to Pull, From Directives to Empowerment

The five paradigms to address information needs of health care providers may be described as research-led, evidence-led, subject-led, technology-led, and needs-led approaches. These approaches are not mutually exclusive. Any project or initiative may include elements of two or more.

Research-Led Approaches

The buzzwords of the past two decades have been *research communication*, *research to practice*, and *evidence to practice*. The paradigms are essentially linear. Information is generated by researchers and then published. Successful research communication is commonly (and in my view erroneously) defined by the direct effect of a specific piece of research on policy and practice, rather than by its contribution to the existing available evidence; the emphasis is on the new; the aim is to be cited, to be credited, to win further funding. There is an air of competition: competition to get into the highest impact factor journals; competition to show direct effect on policy and practice; and competition to satisfy the funders of research and encourage them to provide funding for the next project.

It is potentially dangerous to promote uncritically the findings of single research studies into policy and practice. A health care provider or policymaker may be unduly influenced simply because it is the latest study, or because it has been communicated more effectively than other studies on the same subject, or because its findings are newsworthy or sensational (and therefore more likely to be published). Rarely are single research studies reported in the media with adequate recognition of the cumulative evidence of preexisting research on the same topic.

Another flaw of the research-to-practice paradigm is that it is inherently vertical. The approach typically focuses on getting the findings of a single research study, or ideally a specific guideline based on cumulative evidence (see the Evidence-Led Approaches section), into policy and practice. This inevitably means that, in any given health system or health facility, there will always be a relative failure to address the broader health care knowledge needs of health workers, in favor of a piecemeal approach that may reflect the priorities of funding agencies and researchers. This is analogous to the failure of vertical, single-disease-based approaches in international health and development, which are widely criticized for ignoring the fundamental challenge of strengthening health systems as a whole.

Furthermore, even if we consider the translation of a single piece of evidence, “research to practice” is difficult, expensive, and only partially effective. As Glasziou and others have pointed out, the approach is an uphill struggle, requiring evidence to be pushed through a knowledge pipeline, where final implementation depends on a sequence of awareness, acceptance, applicability, ability (to implement), action, agreement (including by the patient), and adherence (Glasziou & Haynes, 2005). At each stage in the pipeline, knowledge “leaks out” and the end result is limited.

Evidence-Led Approaches

An evidence-led approach implies that the cumulative evidence of preexisting research on the topic in question is collated as a systematic review, which may help inform the development of a guideline. The systematic review or guideline is then pushed to health care providers, policymakers, and others to help inform decision making. Cumulation of evidence and formulation of guidelines is clearly essential and fundamental. What I am questioning—especially in low-resource settings—is the effectiveness of attempting to push individual reviews and/or guidelines into policy and practice. More emphasis is needed to ensure that such reviews and guidelines reflect actual needs and priorities, that their content is appropriate to the available resources in the health systems where they will be applied, and that there is continuity with the myriad producers of reference and learning materials on which the vast majority of health care providers rely.

Subject-Led Approaches

This paradigm implies that there is a predominance of information flow on specific topics, driven by the preferences of the organizations that are funding or producing health information. As a result, there may be overproduction on some topics and underproduction on others.

The majority of health care providers work in primary care settings and are confronted with the full range of primary health challenges. A subject-led approach to meet their needs will, by definition, fail because it will at best equip the provider to deal with a small subset of the challenges they face. Subject-led approaches are also influenced by the priorities of donors, which may not necessarily align with the needs of health care providers.

Technology-Led Approaches

Information and communication technologies have of course revolutionized the availability of health care information. For example, the ubiquity of mobile phones in the past few years holds the promise that, by 2015, every person worldwide could potentially have access to a mobile phone preloaded with basic health care information in the local language, perhaps even in video format. As such technological barriers to information are being overcome, other challenges loom large, such as overload with irrelevant, unreliable, or commercially biased information.

Needs-Led Approaches

The last paradigm, a needs-led approach, looks at what information people need to do their work. In practice, each individual has a range of needs, covering multiple subjects. Primary health workers, in particular, require basic information on the full range of health issues, whether for prevention or management of illness. The focus is on enabling access to relevant, reliable information from the perspective of the end user.

Relevance and Reliability

Health care providers need information that is relevant and reliable. Relevant information in this context is information that is understandable, in the right language, actionable with the medicines and resources available, appropriate to the geographic, epidemiologic, and sociocultural context, and in the right format (e.g., book, CD-ROM, website, voice). Reliable information is up-to-date, objective, and—most important—based on cumulative available evidence (rather than on single research studies or, worse, opinion or belief).

Understanding Information Needs

Every health care provider, whether a mother or doctor, must have or obtain appropriate health care knowledge to make an appropriate health care decision. Their information needs may be described as *perceived* and *actual*. The three research articles in this issue of *Journal of Health Communications* look especially at perceived needs.

When considering information needs, it is important to distinguish between perceived needs and actual needs. A primary health worker, for example, may perceive that she needs better information on the management of childhood illness, whereas an assessment of actual needs may demonstrate that she has a sound knowledge of management of childhood illness but has important knowledge deficits in relation to infant feeding and prevention of illness.

Perceived needs are assessed using methods illustrated in the three original articles in this publication: in-depth interviews and focus group discussions. Actual needs require, in addition, objective knowledge testing or observation of health care in practice.

There has been relatively little research into the information needs of health care providers in low-income countries, and even less in the way of synthesis of such research. A literature review (Pakenham-Walsh & Bukachi, 2009) with a focus on low-income countries and especially Africa, identified 35 studies and concluded: “The studies suggest a gross lack of knowledge about the basics of how to diagnose and manage common diseases, going right across the health workforce and often associated with suboptimal, ineffective, and dangerous health care practices.” More research is needed that looks at perceived and actual needs.

Conclusion

No single solution will, on its own, meet the health care information needs of all the world’s citizens and health workers (despite the attempts of the technologist to design the ultimate mobile phone app, or the database developer to devise the ultimate web gateway, or the open access proponent to make electronic content available via Creative Commons, or the TV program producer to create an *edutainment* soap opera, or the academic publisher to provide free electronic access to journals for low-income countries, or the non-profit publisher to provide low-cost manuals for every primary care worker). A diverse combination of approaches is clearly needed. The success and effect of each of them is in turn dependent on others working within the global health care knowledge system.

The global health care knowledge system represents the totality of processes and structures that underlie the production, exchange, availability, and use of relevant, reliable health care information, and can be described and explored using a systems thinking approach. A simplified conceptual model of the global health care knowledge system is described by Godlee et al. (2004) and a later annotated version is available on the HIFA2015 website (http://www.hifa2015.org/knowledge-base/healthcare-knowledge-cycle).

HIFA2015 aims to address three intrinsic areas of weakness of the global health care knowledge system: (a) communication among stakeholders within the system, (b) understanding of information needs and how to meet them, and (c) advocacy to promote increased investment by funders and governments in health information products and services.

One of the recommendations from the three studies of health information needs in this issue of *Journal of Health Communication* is to strengthen knowledge networks at the country level, such as professional associations that build trusting relationships and allow health professionals and knowledge workers from the public and private sector to share evidence-based and experiential information. At the global level, communities of practice committed to increasing access to and use of information are also essential. For example, HIFA Global Forums (including HIFA2015) comprise more than 8,000 health professionals, policymakers, researchers, publishers, information specialists, and other professionals who explore information and learning needs and how to meet them, across five global e-mail discussion forums in three different languages. Partners include the World Health Organization, and the forums are supported by more than 130 health and development organizations worldwide.

All stakeholders need to work together to develop a better understanding of information needs and to support one another, through sharing of expertise and experience, to improve our individual and collective effectiveness in meeting the information needs of health care providers in low- and middle-income countries. The needs of health care providers are central to the realization of universal access to evidence-informed health care and to achieve the Millennium Development Goals for health.

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Appendix: Poor Knowledge Among Health Care Providers Leads to Poor Health Outcomes

It is estimated that 1.3 billion people worldwide do not have access to basic health care services. Poor people are more likely to receive low-quality care, in health facilities that are underresourced and understaffed. Few health care providers in low-income countries have access to relevant, reliable information when it is needed. Situations where information is irrelevant, unreliable, or absent are likely to result in poor decision making, inappropriate actions, and negative health outcomes.

- **8 in 10 caregivers in developing countries do not know the two key symptoms of childhood pneumonia**—fast and difficult breathing—which indicate the need for urgent treatment (only 20% of children with pneumonia receive antibiotics despite wide availability, and 1.6 million die each year) (Wardlaw et al., 2006).

- **4 in 10 mothers in India believed that they should *withhold* fluids if their baby develops diarrhea** (Wadhwani, 2005) contributing to the deaths of 1.5 million children every year from dehydration.

- **3 in 4 doctors caring for sick children in district hospitals** in Bangladesh, the Dominican Republic, Ethiopia, Indonesia, the Philippines, Tanzania, and Uganda had poor basic knowledge of leading causes of child death such as childhood pneumonia, severe malnutrition, and sepsis (Nolan et al., 2001).

- **4 in 10 family doctors** in Pakistan used tranquilizers as their first-line treatment for hypertension (Jafar et al., 2005).

- **7 in 10 children with malaria treated at home are mismanaged** (Mozumder & Marathe, 2007) contributing to 2,000 deaths every day in Africa alone.

- **7 in 10 women giving birth in health facilities in Africa and South Asia were incorrectly managed** during the third stage of labor, predisposing them to postpartum hemorrhage (Stanton et al., 2009). Postpartum hemorrhage kills more than 300 young women every day in the developing world.