

Transforming the Global Health Workforce

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Editors

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Front: hands of woman and child, Huichol Indian tribe, Mexico.

Back: second row, left to right: healer and two boys, Niger; clinical nurse specialist, neonatal ICU, United States; community health worker with tele-health practice, Xixuau-Xiparina Ecological Reserve, Brazil; third row, center: hospice nurse, rural United States; right: doctor Mzuzu, Malawi; fourth row: community health worker and children, Sakatpur, India.

IntraHealth International, Trevor Snapp, photographer

Back: first row, left: nursing officer and clinical officer with child, Uganda; right: nurse, auxiliary nurse midwives, and skilled birth attendants with woman, district hospital, Hazaribagh, India; third row, left: clinical counselor with patients, Escuintla, Guatemala.

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To all who work tirelessly for the health and
well-being of others ...

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FOREWORD

Without the people who provide care—the health workforce—there can be no health improvement for individuals, families, and communities. Recognizing this foundational issue, on October 13, 2011, New York University and the NYU College of Nursing sponsored the Global Summit, *Strengthening 21st Century Global Health Systems: Investing Strategically in the Health Care Workforce*, in partnership with the Global Health Workforce Alliance. The productive meeting with its three panels and three keynotes by leading experts explored key issues and presented case exemplars in human resources for health (HRH) investment. Along with a working discussion session the following day, this Summit produced focused recommendations including principles for effective global HRH investment.¹

From the energy generated at that Summit this book evolved into the comprehensive resource that you now have in your hands. Editors Marilyn DeLuca and Agnes Soucat have done a superb job of drawing forth new and important contributions to the fundamental question of how to grow, deploy, and retain the global health workforce. Their commitment, the work of the contributing chapter authors, and this resulting book add substantially to the literature.

We are grateful to have had a small part to play in what has become a repository of lessons learned and a roadmap to the urgent conversation on improving the health of populations around the globe.

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¹ Summit program, documents, and video are at http://www.who.int/workforcealliance/media/news/2011/nyusummit_story/en/index.html or can be obtained by contacting NYU College of Nursing Global: nyucn.global@nyu.edu.

PREFACE

These are promising times for global health.

Governments and multiple stakeholders are engaged with unprecedented energy to improve the health of populations. Over the last decade, significant strides have been made towards reaching the Millennium Development Goal (MDG) targets, marked achievements were realized in managing and preventing infectious diseases, and Africa experienced the fastest decrease in child mortality historically observed. A number of countries have made progress improving human resources for health.

Yet, much remains to be done.

Across the globe, there are mounting demands on the health sector. The MDG agenda is unfinished, particularly for the poorest populations, and the challenge of providing equitable services persists in many countries. The prevalence of noncommunicable diseases is on the rise. Medical and technological advances are allowing people in low-, middle-, and high-income settings to live longer, and these populations are driving new demands on stretched health systems. Resounding calls for universal health coverage urge that national governments and other stakeholders adopt a systems approach as they respond. New actors are emerging as the private sector expands and the number of nongovernmental organizations increases in low- and middle-income countries. Current debate on the post-2015 agenda is focused on new targets to reduce inequities, improve economic conditions, especially for women and young people, strengthen social protections, and continue to support health improvements globally.

The capacity to adequately address these myriad issues, however, depends on the availability of and access to competent, motivated health workers. Strengthening the health workforce is a country-by-country endeavor. It requires setting-sensitive diagnostics of local health labor market issues. Various policy options on how to address workforce issues need to be envisioned and tested. Public-private partnerships that add value and efficiency are necessary. And, importantly, policies and programs must be critically evaluated and appropriately adjusted. Commitment to results with a focus on improved health measures—especially among the poor—serves as the foundation of effective programs.

The aim of this book is to further engage stakeholders in transforming the global health workforce. Inspired by the dialogue generated at the October 2011 Global Summit, *Strengthening 21st Century Global Health Systems: Investing Strategically in the Health Care Workforce*, this book addresses key issues that countries face today in building, retaining, and deploying a competent and skilled workforce in an increasingly globalized environment. In the chapters that follow, the authors examine critical issues and discuss how countries and stakeholders are incorporating innovative responses to the health workforce supply and demand challenges of the 21st century.

In the introductory chapter, authors DeLuca, Kurth, and Hagopian focus on strategic investing in the health workforce. They discuss the health workforce framework and its component drivers.

Stressing the essential role of national governments, they argue that sustainable transformation of the workforce requires long-term strategic planning, engagement of cross-sector stakeholders, and appropriation of adequate resources. They make the case that strategic partnerships, especially with the private sector, are key to accelerating the growth of human resources for health.

Education and training of health workers is fundamental to competent, skilled practice. Two chapters focus on foundation-supported professional education programs. Bzdak shares his experiences with Johnson & Johnson's social responsibility programs, which support health care delivery capacity through education and training of health professionals, attracting new entrants into the health workforce and increasing competence. Thibault and Schoenbaum thoughtfully describe the sole mission of the Josiah Macy Jr. Foundation: education of health professionals. They share how, through various innovative grant programs, the Macy Foundation aligns its support of health professions education with contemporary population health needs. In doing so, they set forth a model of private foundation investing that is instructive to other funders and stakeholders.

Access to nursing and midwifery skills is critical to reducing maternal and infant morbidity and mortality. Health systems, especially in low- and middle-income countries, have shortages of these skilled providers despite targeted funding and demand. Bandazi and colleagues present early findings from the collaboration between Malawi's Ministry of Health and the US President's Emergency Plan for AIDS Relief's (PEPFAR) Nursing Education Partnership Initiative (NEPI) to strengthen nurse and midwifery pre-service education.

Skilled community health workers comprise a vital and growing cadre of health care providers in many countries. Yet, there is a paucity of evidence on how to educate, retain, evaluate, and compensate these important workers. Dakkak and co-authors address these issues through a roundtable discussion among leaders of community health workers that draws on data they gathered through semi-structured interviews and surveys in four different community health worker programs across twelve settings.

Bold and innovative health reform can deliver dramatic results. Campos, de Araujo Oliveira, and Soares describe how Brazil's recent health reforms restructured the education of health professionals. The authors provide an inside look at Brazil's sweeping reforms and report how policymakers engaged educational institutions and professions in changes that improved access to health workers for the poorest segments of society.

Labor market dynamics and economic and cultural systems influence the supply of health workers and confound the production and retention of the health workforce. Squires, Kovner, and Kurth suggest a model for human resources for the nursing profession. Using this model, they examine nursing in three settings—Tanzania, Mexico, and the United States—and argue how socioeconomic, cultural, and other local variables impact nursing human resources for

health. Countries need additional resources to build a skilled health workforce and the ability to direct resources in line with their strategic plans. El Maghraby and Zhao call for the adoption of strategies that, as they suggest, would allow more effective use of development aid for health by national governments.

Health systems are complex and require skilled leadership and management. Middleberg and colleagues examined health indices and health worker data from multiple countries. They posit that progress toward country-level achievements of health targets may depend more on leadership and models of health worker deployment than on the sheer number of health workers. Productive and effective organizations invest in developing leadership skills among their workers. In the final chapter, O'Neil and co-authors describe changes in health service delivery and workforce productivity following participation of health workers in leadership development programs.

Reaching the Millennium Development Goals and readying health systems to tackle the post-2015 health challenges will require a robust, retained, motivated, and competent workforce. Many countries still face constraints in production, yet others are developing successful examples of new ways to scale up a workforce that delivers the most essential services to those who need them the most. Innovative approaches can also generate new and better financing as well as improved retention and productivity. Transforming the health workforce is an ongoing and iterative process. It requires long-term vision, commitment, and resources; it demands national leadership, political will, and the participation of engaged stakeholders. This transformation is crucial if we are to actualize the various opportunities that these promising times offer population health.

Marilyn A. DeLuca, PhD, RN, and Agnes Soucat, MD, MPH, PhD

Editors

ABOUT THE EDITORS

Dr. Marilyn A. DeLuca is an adjunct associate professor, College of Nursing, and research assistant professor, School of Medicine, at New York University (NYU). A consultant in global health, health systems, and philanthropy, she has expertise in global and domestic health care systems, reform, and workforce. She advises donors, health care organizations, and others, and manages philanthropic portfolios in these areas as well as in the basic sciences.

Dr. DeLuca led and co-chaired the Global Summit, *Strengthening 21st Century Global Health Systems: Investing Strategically in the Health Care Workforce* convened in New York City by NYU, College of Nursing, which drew over ninety cross-sector leaders from multilateral organizations, industry, foundations, governments, and academe. Dr. DeLuca participated in the inaugural meeting of the *Human Resources for Health Community of Practice—Africa* in Tunisia, November 2011, organized by the African Development Bank. She works regularly with the Clinton Global Initiative (CGI) and other stakeholders on health issues with an emphasis on growing the global frontline health workforce and universal health coverage. Dr. DeLuca is a member of the Third Global Forum on Human Resources for Health, Forum Working Group, which is planning the forum that will be held in Recife, Brazil, on November 1, 2013.

As founding executive director of the Jonas Center for Nursing, Dr. DeLuca led innovative philanthropic grant programs specific to the professional nursing shortage. Her work there included building systems-oriented, cross-organizational grant programs to address the nursing shortage in the United States and fostering a philanthropically supported major network program on the US nursing shortage (PBS 2008). She led and organized a summit on Capitol Hill, in Washington, DC, in May 2008, to help inform members of Congress on the issues underlying the professional nursing shortage and to encourage programs to provide tuition support for undergraduate and graduate studies. A registered professional nurse, Dr. DeLuca practiced and held leadership roles in critical care and health systems management in the Veterans Health Administration (VA); her last position was as chief operations officer of the NY/NJ Veterans Integrated Service Network (VISN).

Dr. DeLuca is a career-long member of Sigma Theta Tau and recipient of numerous awards for creative leadership. She is an active member of the steering committee for the New York State Action Coalition for the Future of Nursing, part of the national campaign inspired by the IOM study on the future of nursing and supported by the Robert Wood Johnson Foundation. She is a member of the American Public Health Association and the International Council on Women's Health Issues and a founding member of the National Nurse Funders Collaborative. Since 2006, she has served and is currently a member of the Board of Directors of Shine Global, Inc., an Academy Award-winning nonprofit that makes documentary films focused on serious issues affecting the health and well-being of children across the globe. She is a member of the Senior Advisory Board, Heyman Center for Fundraising and Philanthropy at NYU.

Dr. DeLuca holds a masters in public administration and a masters in nursing from NYU and a bachelor of science in nursing from Hunter College, CUNY. She earned a PhD in public

administration with a concentration in comparative health systems and reform politics from NYU. Her dissertation examines the impact of market-based reform models on national health systems. In May 2008, she was inducted into the Hunter College Alumni Hall of Fame, and in 2012, was featured in *The American Nurse* (Welcome Books) and *The American Nurse Project* (<http://americannurseproject.com>).

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Dr. Agnes Soucat is the director for human development for the African Development Bank, where she is responsible for health, education, and social protection for Africa, including fifty-three countries in sub-Saharan Africa and the Maghreb. Previously she worked at the World Bank, where she variously served as lead economist and advisor to the director for human development for Africa and as advisor to the director for health of the World Bank. She has been leading the Health Systems for Outcomes (HSO) program of the World Bank, a program focused on health systems strengthening to reach the MDGs.

Dr. Soucat has over twenty-five years of experience in international health directly covering more than thirty countries in Africa, Asia, and Europe. She is a public sector and public finance specialist and has worked extensively on designing and implementing community-based financing programs, poverty reduction strategies, social services decentralization, and performance-based financing. She has been responsible for multi-sectoral and results-based budget support programs covering sectors such as agriculture, education, health, water, and energy, and focusing on reaching the MDGs in several countries, particularly Rwanda. Dr. Soucat is the co-author of, among others, the PRSP toolkit and the World Development Report 2004: *Making Services Work for Poor People*, as well as a main author of the background reports to the High Level Task Force on Innovative Financing (HLTIF). She recently co-edited a book on the health worker in Africa, *The Labor Market for Health Workers in Africa: A New Look at the Crisis* (Agnes Soucat, Richard Scheffler, with Tedros Adhamon Ghebreyesus, eds. 2013. Washington, DC: World Bank). Dr. Soucat was also a member of the Global Expert Team on Health Systems of the World Bank. Before joining the Bank, she worked for UNAIDS, UNICEF, and the European Commission.

Dr. Soucat holds an MD and a masters in nutrition from the University of Nancy in France as well as a masters in public health and a PhD in health economics from Johns Hopkins University. She is a member of the Delta Omega Honorary Public Health Society.

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A number of forces enabled this book to grow from concept to reality. From the earliest days of planning the October 2011 Global Summit, *Strengthening 21st Century Global Health Systems: Investing Strategically in the Health Care Workforce*, Terry Fulmer, recent dean, NYU College of Nursing, and Robert Berne, NYU executive vice president for health, generously provided their support, for which we are ever grateful. To Ann Kurth, professor, NYU College of Nursing, your enthusiasm and shared vision contributed to the Summit's success. Eileen Sullivan Marx, dean, NYU College of Nursing, thank you for your guidance and enthusiasm as the book became a tangible work. To the Partners who helped to plan the Summit, you have our sincere appreciation. Your commitment to strengthening the global health workforce continues to focus attention on the myriad issues pertinent to human resources for health.

To our authors, we offer our heartfelt appreciation. Despite, and alongside, your busy professional lives, you enthusiastically journeyed with us and devoted time to write thought-provoking papers that will continue to inform stakeholders in global health.

Special gratitude goes to our colleagues at the Milbank Memorial Fund. To Carmen Hooker Odom, past president, we greatly value your belief in this work and generously providing the production and editorial support of your staff. And to Christopher Koller, Milbank's new president, our sincere appreciation for sustaining that commitment. To Heidi Bresnahan, we extend our esteem and gratitude for your wisdom and persistence.

To the many others, thank you for your advice, critical comments, encouragement, and friendship.

Marilyn A. DeLuca, PhD, RN, and Agnes Soucat, MD, MPH, PhD

Editors

PART I.

GLOBAL HEALTH AND HUMAN RESOURCES FOR HEALTH

1. INVESTING STRATEGICALLY IN THE GLOBAL HEALTH WORKFORCE

Marilyn A. DeLuca, PhD, RN; Ann E. Kurth, PhD, CNM, FAAN; and Amy Hagopian, PhD

The Global Summit, *Strengthening 21st Century Global Health Systems: Investing Strategically in the Health Care Workforce* in October 2011, brought together more than ninety leaders from multilateral organizations, governments, academia, and foundations. The Summit, convened by New York University, College of Nursing, aimed to educate and catalyze funders, especially foundations, on the need for resources to strengthen the health care workforce. In the course of our review of health systems strengthening and health workforce initiatives, we observed that there is a dearth of information on funding human resources for health (HRH), especially from private donors. The gaps in the literature include a compendium of what has been funded; the number of resources that has been invested at local, national, and global levels and by cadre; the outcomes of funding; and finally, the specific areas that need support to grow and develop the global health workforce. The goal of this paper is to help fill those gaps to inform funders and organizations interested in investing in human resources for health. We suggest that increased, strategically directed resources, especially from private funders, are the necessary investments needed to accelerate achievement of health targets.

Private funders can further the agenda to improve population health by strategically partnering with governments in low- and middle-income countries to complement their investments in HRH. The specific aims of this paper are to (1) examine the key issues challenging global health workforce development, recruitment, deployment, and retention; (2) review the progress and effectiveness of interventions related to strengthening the global health workforce; (3) identify funding gaps, strategies, and opportunities to inform funders; and (4) stimulate funders and catalyze productive cross-sector collaborations that will contribute to the production and retention of skilled health care providers working for efficient health systems.

A robust health workforce is a core element of health systems in all countries, and critical to achieving the Millennium Development Goals and Universal Health Coverage. (—GHWA 2011a, 1)

IMPORTANCE OF THE HEALTH CARE WORKFORCE

Population health depends on the availability of a competent health workforce. Yet globally, estimates report from 1 billion to 3 billion people are without access to health services due to shortages of health workers (WHO 2011c, 3; ILO 2010, 1). In 2000, world leaders at the United Nations General Assembly agreed to targets to improve health, reduce poverty, and improve education and sanitation by 2015 (UN 2000). These targets, the Millennium Development Goals (MDGs), have attracted worldwide attention to improve the stark extremes that exist in health and access to health care, especially among individuals living in low- and middle-income countries

(LMICs) and rural areas. The health-related MDGs aim to reduce child mortality (MDG 4); improve maternal health (MDG 5); reduce the rates of HIV/AIDS, malaria, and other diseases (MDG 6); and promote gender equality and empower women (MDG 3).

The 2006 World Health Report detailed the perilous state of health care delivery in LMICs, particularly among those located in sub-Saharan Africa (WHO 2006b). Thirty-six of the fifty-seven “crisis” countries that fall below the minimum target of 2.3 health workers (nurses, midwives, doctors) per 1,000 population are on the African continent (WHO 2012c). This minimum ratio assumes that 2.3 health workers can provide the population with basic health services, such as child immunizations and maternal and infant care, including attended births (ibid.). Extremes in the number of health workers per population are sobering: over half of the crisis countries report ratios of less than 1 health worker per 1,000 population (WHO 2011a, 2012a).

During the past decade, bilateral and multilateral organizations, together with civil society, mobilized resources to work toward the MDG targets. These investments reduced child mortality, expanded access to HIV care, and reduced rates of tuberculosis in some areas (UN 2011; WHO 2012b). Still, the lack of health workers has been widely recognized as a significant barrier to achieving the MDGs or meeting basic health needs. Fifty-three countries continue to have severe shortages of health workers and most of the fifty-seven crisis countries are not expected to reach the MDG health targets (GHW 2012a; WHO 2012a). Of seventy-four countries reporting data, only twenty-three are on track to achieve MDG 4, and just nine to reach MDG 5 (WHO 2012a). With 2015 approaching, there remains a long way to go. Each day 1,000 women die in childbirth and 19,000 children die from preventable causes (UN-IGME 2012); each year more than 36 million people die from noncommunicable diseases (NCDs) (WHO 2010a, 2010e, 2012a). Groups are convening to develop new targets and metrics for the post-2015 era, and universal health coverage is moving into center stage. Achieving new targets and health system reforms that improve access to and use of health services will depend on the fundamental strength of the health workforce in LMICs’ health systems. Public and private resources strategically focused on health systems strengthening and HRH are essential to save lives, prevent disease, and improve health across the globe. These investments must be ramped up and sustained (Middleberg 2010; MSH 2010; Scheffler et al. 2009).

CONTEXT AND CHALLENGES

Sustained improvements in health depend on commitments by donors, both public and private, to grow, educate, and retain a competent health workforce.

Building a competent workforce is complex; it requires long-term commitments from national governments and their partners. To engage funders, they must appreciate the complexities of a

well-performing health system and not view a health system as a misconceived “black hole, black box or laundry list” (Frenk 2010). Compounding the workforce challenge is that the most extreme shortages of health workers exist in countries with the largest burdens of disease and most limited resources. Key observations illuminate the complex factors that affect health systems and the production of a health care workforce (box 1):

BOX 1. HEALTH SYSTEMS FRAMEWORK AND HUMAN RESOURCES FOR HEALTH

1. Both supply of and demand for health professionals in low-income countries are driven by internal and external economic, demographic, and environmental conditions. The supply of health care workers—especially nurses, midwives, and physicians—is often undermined by local practice conditions that “push” migration of professionals from their home countries to other health systems and active recruitment that “pulls” them to high-income countries (Mullan 2002).
2. Across the globe, nurses and midwives and those they supervise provide more than 85 percent of patient care and constitute 80 percent of the health workforce (WHO 2006b). Relative shortages of nurses exist in nearly every country, including high-income settings that have high ratios of nurses per population.
3. Locally and globally, health care workers are inefficiently and inequitably distributed. On national and regional levels, health care workers typically migrate to practice in urban settings, leaving rural areas minimally staffed. This is not just a low-income country phenomenon; it is also typical in high-income settings that have high health worker-to-population ratios.
4. There is a proven relationship between health workforce staffing levels and health outcomes in both low- (Anand and Bärnighausen 2004, 2007; Speybroeck et al. 2006) and high-income settings (Aiken et al. 2002; Altman, Clancy, and Blendon 2004; Estabrooks et al. 2005; IOM 2004; JCAHO 2002; Needleman et al. 2002; Needleman and Buerhaus 2003; Needleman et al. 2006; Rothberg et al. 2005; Tourangeau and Cranley 2006). Multiple Millennium Development Goals and other health priority targets can be achieved by tackling health workforce issues.
5. Despite the need for health workers in low- and many middle-income countries, public sector appropriations for health typically are insufficient to employ the required number of health workers across cadres, let alone employ the many unemployed (APHA 2005; Bossert and Ono 2010; Odaga and Lochoro 2006). In a number of countries, inefficient investment decisions compound worker shortages by supporting an expensive skill mix of specialists and providers in affluent areas.

Continued

Box 1, continued

6. Professional health workers, such as physicians, nurses, midwives, and associate clinicians,¹ take a long time to educate and train, including secondary school preparation. To ensure an adequate supply of competent health workers, a sound approach to HRH management calls for strategic, long-term, national planning and consistent, sustained implementation.
7. The world population is growing; now at more than 7 billion people, it nearly doubled over the last fifty years. Advances made in the recent half century treating and preventing infectious diseases, improving maternal-infant care, and other interventions are increasing life expectancies in low- and high-income countries alike.
8. Increased demand for health care services and prevention strategies, along with perennial concerns over health care costs, are driving the demand for associate clinicians and nonprofessional, community, and lay health workers. Attention to skill mix through task sharing or task shifting can allow more efficient use of human resources, especially in resource-constrained settings (Fulton et al. 2011; Mullan and Frehywot 2007; WHO 2008a, 2012b). Community health workers particularly require ongoing support and supervision and integration into health systems. Evidence indicates the need to address community health worker education, retention, and remuneration (Fulton et al. 2011; GHWA 2010d; Hermann et al. 2009; Lewin et al. 2010; Silbey and Sipe 2004).
9. Health technology production has proven to be a productive and satisfying area for donor investment. Yet, successful delivery of vaccines, diagnostics, or other biomedical and technological interventions requires, at some point in their application, one or more health workers to administer or utilize them.
10. Health workers contribute skills and leadership to the health systems in which they work and to the communities in which they live. Employment in the health sector can help reduce poverty. As women fill the majority of health care jobs globally, addressing gender bias and investing in education of women and girls concretely empower women.

Leadership in Human Resources for Health

Governments, entrusted with the public's interest, are charged with ensuring conditions that promote health. Multiple World Health Organization reports (WHO 2000, 2006b, 2007, 2008b, 2010d), the MDG targets, and the Kampala Declaration and Agenda for Global Action recognize the

importance of strong health systems and call on governments to provide leadership and resources to build their health care workforce (GHWA 2008b). Ownership by national governments is essential; the pivotal role of governments to commit resources and support policies and programs for health was reasserted at Abuja in 2000 and documented in the Abuja Declaration (WHO 2003). Ongoing consensus underscores the essential leadership role that national governments have to allocate resources for health and to strengthen their health systems (Frenk 2010; OECD, WP-EFF, and TT HATS 2011).

Several organizations have designated roles related to the global health workforce. At the WHO, health systems and workforce issues are organized under the Department of Health Systems Policies and Workforce (WHO 2013b). The Global Health Workforce Alliance (GHWA, the Alliance) is responsible for advocacy, convening stakeholders, and knowledge brokering around human resources for health. GHWA, established in 2006 by the World Health Assembly with a ten-year mandate, is a partnership of national governments, civil society, international agencies, financial institutions, researchers, educators, and professional associations dedicated to identifying, implementing, and advocating for solutions (WHO 2006a). The Health Workforce Advocacy Initiative, established in 2007, is the civil society advocacy arm of the Alliance. The Global Code of Practice in International Recruitment of Health Personnel, adopted in 2010 by the World Health Assembly, presents an opportunity to catalyze investments in workforce planning, training, deployment, retention, leadership, and research for health systems improvement (WHO 2010c). Emphasizing results and partnerships and synergy among its stakeholders, GHWA recently expanded its inaugural mission to include a post-2015 agenda: “to advocate and catalyze country and global actions to address human resources for health challenges contributing towards and beyond the health-related Millennium Development Goals and universal health coverage” (GHWA 2012d). The Alliance’s vision for success by 2016 includes (1) that funding commitments by governments and donors are sufficient to train and deploy an additional 2.6 million to 3.5 million health workers, (2) that 75 percent of the priority countries implement quality HRH plans, and (3) that HRH is embedded in the post-2015 framework (ibid.).

Partners in health care delivery. While governments have primary responsibility for health, nongovernmental organizations (NGOs), including faith-based organizations, maintain a long and important role in advancing health. In recent years, the number of health-related NGOs that work in low-income countries rapidly increased. These include “faith-based organizations, foreign universities that register as NGOs in local settings, for-profit public health agencies, and donors that act as service providers” (Pfeiffer et al. 2008, 2135). Observers call for NGOs to (1) increase collaboration with other organizations and local sectors; (2) integrate programs and investments in the local ministry of health; (3) improve coordination and synergy across like-minded programs; and (4) abide by ethical practices set through a code of conduct for NGOs (ibid.).

In 2011, a number of advocacy groups concerned over the shortage of health workers formed the coalition Health Workers Count (Save the Children 2011a). Their campaign calls for 2.5 million more doctors, nurses, and midwives and 1 million more community health workers across the sixty highest-need countries. The coalition includes more than 300 member organizations (ibid.).

Examples of other recent advocacy efforts include formation of the Frontline Health Workers Coalition, which includes twenty-seven cross-sectoral member organizations (FHCW 2012a, 2012b), and health worker campaigns such as Every Beat Matters, led by Save the Children, and Hands Up for Health Workers, a Merlin initiative (Merlin 2013; Save the Children 2011b). Organizations such as IntraHealth, which heads up the Capacity Plus project that is funded by USAID, and Management Sciences for Health provide leadership, advocacy, and technical expertise in HRH.

Milestones in Research and Policy

Key milestones, generated through the support of multi- and bilateral organizations and foundations, highlight the progress made during recent years (box 2). For the most part, these activities followed setting MDG targets. As there is no single database on health systems strengthening and HRH initiatives and policies, this list is not all-inclusive.

BOX 2. MILESTONES IN HEALTH WORKFORCE RESEARCH AND POLICY

2004

The Joint Learning Initiative's *Human Resources for Health: Overcoming the Crisis*, supported by the Rockefeller Foundation, which compiled important evidence on HRH, is published. It notes that "Human survival gains are being lost because of feeble national health systems," and that "overburdened and overstressed health workers—too few in number, without the support they so badly need [are] losing the fight" (JLI 2004).

Physicians for Human Rights report, *Action Plan to Prevent Brain Drain: Building Equitable Health Systems in Africa*, is issued at World AIDS conference, Thailand.

UK's National Health System adopts *Code of Practice for International Recruitment of Healthcare Professionals* that replaces a weaker 2001 version and is viewed to be more effective (Buchan et al. 2009; UK DOH 2004).

Continued

Box 2, continued

2005

African Platform for HRH is established to provide network for strengthening HRH in Africa (GHWA 2010c).

Asian-Pacific Action Alliance on Human Resources for Health is established to provide network for regional collaboration around HRH (AAAH 2013).

2006

The World Health Report *Working Together for Health* (WHO 2006b) is published.

American Public Health Association members adopt the resolution *Ethical Restrictions on International Recruitment of Health Professionals to the United States* (APHA 2006). This resolution, which relies heavily on the JLI report around health worker migration, creates bedrock for subsequent research and policy work.

Fifty-ninth World Health Assembly announces Resolution WHA59: 23, *Rapid Scaling-up of Health Workforce Production* (WHO 2006a).

Global Health Workforce Alliance (GHWA) is established, May 2006.

2007

Global Health Workforce Alliance establishes the Health Workforce Advocacy Initiative.

2008

Global Health Workforce Alliance convenes the First Global Forum on Human Resources for Health in Kampala; delegates adopt a twelve-point plan (GHWA 2008b).

The Global Fund joins the GAVI Alliance, the World Bank, and the World Health Organization to create a new health systems funding platform to make better use of new and existing funds for health systems strengthening, including a focus on the health workforce (The Global Fund 2011).

Continued

Box 2, continued

World Health Organization report, *Task Shifting Guidelines*, describes best practices for short-term management of essential HIV/AIDS-related tasks by less intensively trained cadres (WHO 2008a).

Global Health Workforce Alliance releases report with guidance on health worker education and training, *Scaling Up, Saving Lives* (GHW 2008a).

G8 Summit leaders in Toyako commit to strengthening the health workforce (G8 2008).

US government reauthorizes President's Emergency Plan for AIDS Relief (PEPFAR) commitment from 2009 through 2013 and includes a new commitment to train 140,000 new health workers.

2009

Institute of Medicine issues report, *The U.S. Commitment to Global Health: Recommendations for the Public and Private Sectors*, with guidance on health workforce issues (IOM 2009).

Obama administration (US) sets forth the Global Health Initiative in May 2009, which recognizes the need for resources to strengthen global health systems and grow the workforce (US GHI 2012).

2010

World Health Assembly adopts the Global Code of Practice on the International Recruitment of Health Personnel, which creates an international system for managing problems associated with health worker migration from low- to high-income countries (WHO 2010c).

The Rockefeller Foundation study, *Strong Ministries for Strong Health Systems*, reiterates the importance of government stewardship and governance and identifies seven action areas aimed to support the effective Health Ministries (Omaswa and Boufford 2010).

Continued

Box 2, continued

Sub-Saharan African Medical School study draws attention to ubiquitous faculty shortages in basic and clinical sciences and weak physical infrastructures; it calls for external accreditation and recommends strategies to strengthen medical education in sub-Saharan Africa (Mullan et al. 2011).

Global Health Workforce Alliance issues *Human Resources for Health—Country Coordination and Facilitation (CCF): Principles and Process*. Recognizing the multiple actors involved in HRH, the report establishes a single plan for coordination of policies and programs and outlines responsibilities and actions needed from national governments (GHWA 2010b).

WHO issues *Increasing Access to Health Workers in Remote and Rural Areas through Retention: Global Policy Recommendations* (WHO 2010b).

Landmark report on education is released by an independent Global Commission: *Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World*. The report sets forth key recommendations for improving the education and training of health professionals: nurses, midwives, doctors, and public health professionals (Frenk et al. 2010).

2011

Global Health Workforce Alliance convenes the Second Global Forum on Human Resources for Health in Bangkok.

Global Health Workforce Alliance releases report, *Reviewing Progress, Renewing Commitments*, on progress achieved toward reaching the 2008 Kampala goals. The report concludes, “While actions on the ground in a number of countries are starting to make a difference, considerable work remains to be done to implement fully the Kampala Declaration and Agenda for Global Action in the majority of priority countries” (GHWA 2011c, 10).

G8 renews 2008 workforce commitments in *Deauville Accountability Report: G8 Commitments on Health and Food Security* (G8 2011).

Continued

Box 2, continued

World leaders from 135 countries, convened at the Sixty-sixth UN General Assembly, support resolution to control and prevent noncommunicable diseases (NCDs) that include cancer, cardiac diseases, chronic respiratory diseases, and diabetes (UN 2011). The assembly stated that “[they] recognize the critical importance of strengthening health systems, including health-care infrastructure, human resources for health, health and social protection systems, particularly in developing countries to respond effectively and equitably to the health-care needs of people with [NCDs]” (ibid.).

2012

Global Health Workforce Alliance issues *The Global Health Workforce Alliance Strategy, 2013–2016: Advancing the Health Workforce Agenda within Universal Coverage* (GHWAA 2012d).

World leaders at the Sixty-seventh UN General Assembly adopt resolution for governments to plan and pursue transition to universal health coverage (UN 2012).

WHO issues guidelines on task shifting titled *Optimizing Health Worker Roles to Improve Access to Key Maternal and Newborn Health Interventions through Task Shifting* (WHO 2012b).

2013

Third Global Forum on HRH planned for November 2013, Recife, aims to elicit “new HRH commitments to accelerate progress, and to update the HRH agenda to make it relevant to the current global health policy discourse, including the final push to accelerate progress towards attainment of the health MDGs, the universal health coverage objective, and the discussion on post-2015 health development priorities” (Recife FWG 2012, 2). Further, “countries, development partners and HRH stakeholders . . . will be invited to make explicit commitments, whether funding- or policy-related, around the actions required to overcome HRH barriers, improve coverage and attain UHC” (ibid., 3).

GLOBAL HEALTH CARE WORKFORCE

The close correlation between access to skilled, motivated and supported health workers, and maternal and child health is well established—the message is inescapable when 53 countries out of the 68 with the highest burden of maternal and child deaths suffer from an acute shortage of health workers. (—M. Sheikh, GHWA 2010a, 26)

Health workers, from community-based providers to health professionals, contribute to the infrastructure that defines a health care system. The WHO defines health workers as individuals “whose main activities are aimed at enhancing health” (WHO 2006b). This definition appropriately includes family members or friends who provide a substantive amount of home care without compensation. This broad definition, however, confounds clear assessment and tracking of HRH data. Regulatory issues, such as licensure, vary from country to country and further complicate assessment of the stock of the workforce. Health care administrators and managers, as well as finance and information specialists, are also key members of the workforce.

WHO tracks health workers by category and reports these data in its Global Atlas (WHO 2011a). This aggregated dataset includes estimates of the number and density of health workers for nine occupational categories: (1) nurses and midwives; (2) physicians; (3) dentistry workers; (4) pharmacy workers; (5) laboratory workers; (6) environmental and public health workers; (7) community and traditional health workers; (8) other health service providers; and (9) health management and support workers. For some countries, disaggregated data estimates of the stock of health workers are available for up to eighteen occupational categories.

Nurses, midwives, and doctors are the core of the professional health workforce, and as of 2013, these three cadres comprise the minimum target of 2.3 health workers per 1,000 population. The recent report, *Health Professionals for a New Century*, focuses on nurses, physicians, and public health workers as three cadres of professional health workers that require improved, modernized education and training to meet the demands of our era (Frenk et al. 2010). The majority of health workers in most LMICs are employed as civil servants. Macroeconomic policies, generally imposed by agreements with international lenders, establish budget ceilings on public expenditures in many countries (Brownbridge 2004), and/or wage ceilings in the public sector (Odaga and Lochoro 2006). Under these conditions, Ministers of Health are particularly challenged to secure budget approvals to support the needed numbers and adequate remuneration of health care workers. Working with their fellow Ministers of Finance and Education, Ministers of Health are typically required to provide compelling evidence to overcome the fiscal restrictions to increase budgets. The G8 and the Kampala Declaration support removal of these policy restrictions (G8

2008; GHWA 2008b). The American Public Health Association and others have also called for removal of these structural budget limits (APHA 2005; Vujicic, Ohiri, and Sparkes 2009). These are among a number of obstacles that undermine retention of health workers and leave them underpaid, undersupported, and in some settings, unemployed despite the paradoxical HRH shortages and public sector vacancies.

Health Care Professionals

Nurses and midwives. Professional nurses and nurse midwives constitute the backbone of health systems and are particularly affected by health worker shortages and weak health systems. Nurses and those health workers they supervise provide an estimated 85 percent of health care globally (WHO 2006b). The lack of nurses prepared at advanced levels in LMICs to serve as faculty contributes to nurse shortages, limits the availability of doctoral programs to educate new faculty, and creates gaps in the production pipeline in these settings (Ketefian 2008; Ketefian et al. 2005). Advocacy is often essential to drive an agenda to advance the profession (IOM 2010; Ketefian et al. 2005). In recent years, attention to and advocacy for nursing workforce issues have increased in low- and high-income settings alike (ICN 2008; IOM 2010; NYAM and JCNE 2006; Reid and Weller 2010).

Physicians. The physician cadre constitutes the smallest available number of health workers in health systems, which is in large part attributed to the intensive time and resources needed for their training. In most settings, physicians dominate leadership lines. Ministries of Health, international health and policy entities, such as the WHO, and health systems are often led by physicians.

Associate clinicians. Increased demand for health services is prompting the education and training of greater numbers of associate/advanced associate clinicians and others as providers of primary care. These include nurse practitioners and physician assistants, and in LMICs, “clinical officers” and similarly named professionals. These professionals are often nurses with an additional one or two years of education. In low-income settings, individuals are often recruited from rural and poor areas, and some have specialty training. Associate clinicians have delivered “essential clinical services in countries around the globe for decades, as part of a comprehensive health workforce system that includes doctors, nurses, midwives, managers and administrators” (HSSE 2013). A growing number of studies demonstrate equivalent, or sometimes improved, quality of care and patient outcomes for those under the care of associate clinicians (Laurant et al. 2009; WHO 2012b). Lower educational costs, shorter training time, and successful rural placements suggest that these practitioners could have substantial roles in the scale-up of health workforces in sub-Saharan African countries (Dovlo 2004; Laurant et al. 2005; McAuliffe, Bowie et al. 2009; McAuliffe, Manafa et al. 2009; Mullan and Frehywot 2007). A study of job satisfaction among this cadre indicates that, while pay is an important element, career ladder opportunities and

satisfaction with work assignments are also significant (McAuliffe, Manafa et al. 2009). As these health workers become an increasingly important component of the workforce, more investment is needed in their education, training, deployment, and retention.

Other cadres. While we focus much attention on nurses, physicians, and midwives, the health pyramid includes other important frontline health workers with specialty skills. These cadres include dentists and other dental professionals, laboratory workers, radiology and imaging technicians, physical therapists, pharmacy workers, public health workers of all kinds, administrators and managers, health information specialists, and others. Staffing a complex health delivery institution requires attention to all these groups (Ozgediz et al. 2008).

Community health workers. Countries are increasingly investing in community health worker programs and learning important lessons about what works and what does not. Community health workers require resources for ongoing training and supervision (Fulton et al. 2011; Hermann et al. 2009; Sibley and Sipe 2004). These programs should be aligned with the broader goals for health systems strengthening (Frenk et al. 2010; Hermann et al. 2009). Retention of this vital cadre is key. Attention to and evaluation of various strategies, including adequate remuneration, are important to retaining these locally connected workers (Perry and Zulliger 2012; Stilwell 2011).

Moving beyond cadre-specific models, providing the right skill mix from combinations of cadres at the right location has potential to increase access to and efficiency of the delivery of health services by distributing tasks and functions across the health workforce (GHWA 2010d; Lewin et al. 2010; WHO 2012b). Important research questions related to task sharing include what is an appropriate regulatory framework for various provider types including associate clinicians, what is the appropriate balance between quality and cost, and what is politically, practically, or fiscally feasible (Fulton et al. 2011; WHO 2008a).

Education and Training

The total global expenditure for health professional education is about US\$100 billion per year, again with great disparities between countries. This amount is less than 2% of health expenditures worldwide, which is pitifully modest for a labour-intensive and talent-driven industry. . . . Stewardship, accreditation, and learning systems are weak and unevenly practised around the world. (—Frenk et al. 2010, 2)

Education of professional health care workers. Any effort to increase the number of health workers requires a significant investments in pre-service training provided by universities, schools of nursing, and other training institutions. The primary barriers to expansion of these institutions are the lack of available faculty and resources to support them (Mullan et al. 2011). The Global Commission's report on education cites multiple shortfalls in the health system but singled out the

failure of many nations to protect and advance their higher education systems (Frenk et al. 2010). In recent years, private sector programs have expanded, sometimes with corollary quality concerns. For-profit schools attract individuals who will pay substantial tuition to obtain education and training that allows them to migrate to high-income countries. The WHO is developing guidelines to assist countries in aligning health education efforts with population needs (WHO 2010b).

Competence and regulatory issues. Quality of care is intertwined with clinical competence. The quality of pre-service and continuing education and training, as well as periodic evaluation of training programs, are integral to the competence of health care workers. Governments and professional organizations are the responsible agents to ensure effective regulatory standards, such as accrediting professional training programs and licensure. In this spirit, the International Council of Nurses calls for countries to adopt competence-based approaches in setting practice standards (ICN 2008; Reid and Weller 2010). Debate over scope of practice, lack of political voice, and lack of clear leadership often confound regulatory change (IOM 2010). And, changes in regulatory frameworks are often challenging to implement at the country level (Bateganya et al. 2009).

Retention of Health Workers

Financial incentives alone are not enough to motivate health workers. It is clear that recognition is highly influential in health worker motivation and that adequate resources and appropriate infrastructure can improve morale significantly. (—Willis-Shattuck et al. 2008, 247)

Migration of professional health workers is a growing phenomenon with serious consequences for the communities left behind (Xu and Zhang 2005). Ultimately, the ideal way to stem migration driven by worker dissatisfaction is to improve the health system in which they work (Hongoro and Normand 2006; Mills et al. 2008). Often frustrated by a weak health system, infrastructure, and poor living conditions, health workers who choose to migrate to high-income countries are typically drawn by the promise of higher salaries and better working conditions (Adelberger, Neely-Smith, and Hagopian 2011; Hagopian et al. 2003; Hagopian, Thompson, Kaltenbach et al. 2004; Hagopian, Thompson, Fordyce et al. 2004; Hagopian et al. 2005; Hagopian et al. 2009; Hart et al. 2007; Hongoro and Normand 2006; Mullan 2002; Nguyen et al. 2008; Perrin et al. 2007). The loss of health professionals from poor to rich countries is associated with high costs. The overall loss of returns from investment for African doctors working in four English-speaking destination countries was estimated to exceed \$2 billion, with costs for each of nine countries ranging from \$2.16 million for Malawi to \$1.41 billion for South Africa (Mills et al. 2011).

While many high-income countries are heavily reliant on nurses and physicians from lower-income countries (Dumont and Zurn 2010), leaders and professional groups have advocated for an end to unethical recruitment (AEIRP 2011; AONE 2003; WHO 2010c). Problems with retention are also a within-country issue that can lead to internal brain drain as workers move within-country from public to private or NGO health settings (Pfeiffer et al. 2008). National and international health workforce tracking systems are needed to better understand and manage worker retention (Middleberg 2010).

As part of their strategic planning, national and local leaders, together with all cadres of health workers, need to adopt and evaluate strategies that incentivize health workers to work in geographic areas where they are needed, including attention to fair compensation (Hongoro and Normand 2006; Stilwell 2011). Historically, Ministries of Health have been marginally successful in systematically incorporating retention mechanisms into strategic plans and practices. We know that assigning health workers with roots in their home rural areas is more likely to be successful. We also know health workers value strong primary and secondary education for their children, which is hard to come by in rural areas; we know they value access to good practice information, resources, and collegial relations; and we know that they value remuneration and recognition. A comprehensive study of motivational factors associated with health workforce retention identified several significant themes: financial rewards, career development, continuing education, clinical infrastructure, resource availability, facility management, and recognition/appreciation (Zurn et al. 2004). A systematic review of twenty retention studies in low-income settings similarly identified that workers value and are motivated by recognition, adequate resources, and infrastructure (Willis-Shattuck et al. 2008).

Although access to health care for those living in both rural and urban settings depends on retaining health workers where they are needed (APHA 2005; Mullan 2002; Zurn et al. 2010), most countries struggle to attract and retain health workers in rural areas. And while the majority of the population in most poor countries resides in rural areas, people living in LMICs are increasingly migrating to urban areas. It is now estimated that 75 percent of all people will spend some of their lifetime in a city. These urban centers are ill equipped, especially in terms of infrastructure—water, power, and housing—to accommodate a growing influx of citizens.

Across settings, retention requires sound domestic practices and foreign policies (WHO 2010b, 2010c). Such policies include self-sufficiency strategies that reward clinical practice in rural and underserved areas for in-country medical graduates (WHO 2010b), and strategic, long-term models to tackle the shortage of professional nurses in high-income settings (Hagopian, Thompson, Fordyce et al. 2004; Kahn, Hagopian, and Johnson 2010; Mullan, Frehywot, and Jolley 2008). High-income countries need to incorporate domestic strategies to locally educate and retain physicians to reduce the reliance on importing health professionals from low- and middle-income countries (IOM 2010). The challenge before all health leaders is to implement practices

that are responsive to the needs of their health workers and the populations they serve and are considerate of the larger global community.

STRATEGIC PLANNING TO STRENGTHEN HRH

Ministries of Health

Ministries of Health have the fundamental responsibility for health in their countries. Governments, as stewards of the public's interest, have the ultimate responsibility for ensuring conditions that foster health. The essential role of government was underscored in the Abuja Declaration, wherein heads of African Union countries agreed to increase their expenditures on health to 15 percent of their total budget (WHO 2003). Yet, follow-up data to assess achieving this target are disappointing: just three of the forty-six countries are on track, sixteen are making progress, and the remaining twenty-seven countries have made insufficient progress (WHO 2011b).

Building effective health systems requires multiple skills, including policy development, financial management, regulation, evaluation, quality assurance, surveillance and research, supply chain, data management, information technology, health promotion, disaster management, and of course, human resources development and training (Omaswa and Boufford 2010). Given health systems' complexities, a systems-based approach is seen as fostering more effective strengthening of health systems (de Savigny and Adam 2009). Country-level ownership is fundamental to strengthening HRH. Country HRH plans should (1) include financing mechanisms for salaries and other supports; (2) set forth regulatory frameworks regarding scope of practice by cadre and address working conditions and safety matters; (3) provide for accountability and management; (4) ensure pre-service and in-service training; (5) prioritize community mobilization and outreach; (6) make provision for private/public sector alignment; (7) mobilize leadership for strategy; and (8) establish information and reporting systems (GHWA 2010b). These plans are the critical first steps to making and measuring country progress. The 2008 Kampala Declaration established the Agenda for Global Action on health workforce issues (GHWA 2008b) and has tasked the Alliance with monitoring progress (table 1).

TABLE 1. AGENDA FOR GLOBAL ACTION: STRATEGIES AND INDICATORS

Strategy	Measure
1. Build coherent national and global leadership for health workforce solutions	Number of countries that have developed costed evidence-based HRH plans
	Number of countries with an intersectoral coordination mechanism for involving relevant stakeholders in HRH development
2. Ensure capacity for an informed response based on evidence and joint learning	Number of countries with a national mechanism with processes or tools for HRH data users and producers to inform policymaking and management of the health workforce (e.g., HRH observatory)
	Number of countries that have a well-functioning HRH information system
3. Scale up health worker education and training	Number of countries having implemented programs to increase the production of doctors, nurses, midwives, and/or community health workers
4. Retain an effective, responsive, and equitably distributed health workforce	Number of countries implementing strategies and approaches for attracting and retaining the health workforce in underserved areas
5. Manage the pressures of the international health workforce market and its impact on migration	Number of countries implementing policies to favor in-country retention of personnel

Continued

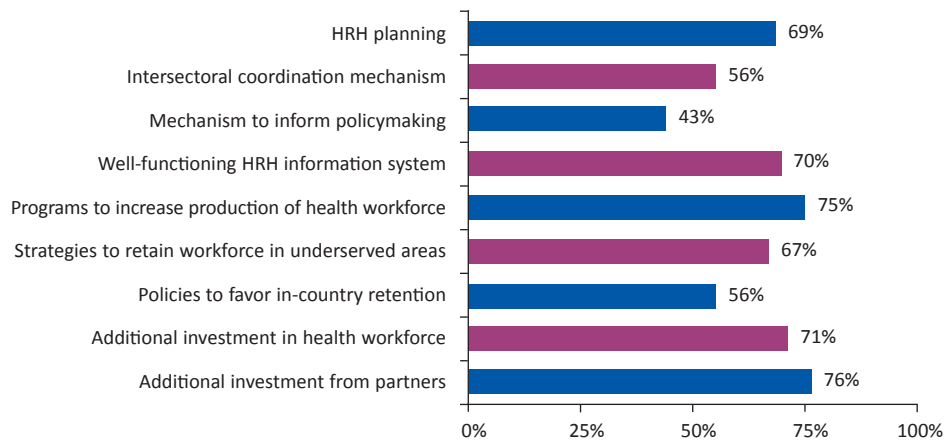
Table 1 continued

Strategy	Measure
6. Secure additional and more productive investment in the health workforce	Number of countries in which budgetary allocations for community health workers as a proportion of the health sector budget have increased
	Number of countries that have received additional investment from multilateral and bilateral partners for the implementation of HRH plans

Source: Adapted from GHWA 2011c, 16.

In preparation for the Second Global Forum on HRH in Bangkok, the Alliance surveyed the fifty-seven crisis countries to assess their progress toward these goals. Of the fifty-one countries responding, forty-four (86 percent) indicated progress in developing their HRH plans; of these, twenty-nine countries reported that they had begun to implement their plans (figure 1) (GHWA 2011b; IRIN 2011). Of the countries responding to this same survey, thirty-two indicated that they were adopting strategies to retain health workers in underserved areas (GHWA 2011b).

FIGURE 1. COUNTRY PROGRESS IN HRH INDICATORS



Notes: Consolidated scores across the nine HRH indicators show highest performance in securing support from development partners for HRH plans and increasing HRH production. Lowest scores are in existence of mechanisms to inform policymaking through data, the inclusiveness of HRH coordination mechanisms, and strategies to favor in-country retention.

Source: GHWA 2011c. *Reviewing Progress, Renewing Commitments: Progress Report on the Kampala Declaration and Agenda for Global Action*, 17, http://www.who.int/workforcealliance/knowledge/resources/KDAGAprogressreport_2011.pdf. Geneva: Global Health Workforce Alliance. Reprinted with permission.

Further analyses of these same data suggest that presence and implementation of a health workforce plan is important to stimulate related action despite other contextual conditions such as resources and available health workers (Witter et al. 2013). In 2008, the G8 reiterated the importance of country-level HRH strategies coupled with long-term commitments by donors in its declaration on the importance of health systems strengthening as part of the international agenda. The declaration is significant for its strong stand on two controversial issues: opposing macroeconomic policies that limit the ability of low-income countries to spend public sector funds on health and education, and limiting health workforce migration (G8 2008). Additional recommendations to the G8 were identified through the cross-sectoral efforts of interest groups and civil society and outlined in the Track 2 strategy (box 3) (Reich and Takemi 2009).

BOX 3. OPPORTUNITIES FOR G8 TO STRENGTHEN THE GLOBAL HEALTH WORKFORCE

Strengthen capacity of countries to plan, implement, and assess health workforce programs so that they can more effectively use existing health workforce and G8 commitments:

- Develop assessment mechanisms for health workforce progress within countries.
- Identify ways to change macroeconomic policies to reduce constraints on expanding the health workforce.
- Strengthen international networks of higher education institutions to provide access to health and medical education in areas with few resources.

Address demand-side causes of international health worker migration:

- Increase number of health workers in their own countries with their own resources.
- Support the WHO code of practice to address migration issues.
- Seek practical solutions that protect both the right of individuals to seek employment through migration and the right to health for all people.

Undertake a yearly review of actions by G8 countries to improve the health workforce:

- Assess what G8 countries are doing, what has worked along with evidence of effective strategies, with a standard set of common measures.
- Use this review to assess how health systems are doing, to identify gaps in financing and information, to develop evidence-based best practices, and to increase knowledge about how to improve health systems performance through strengthening human resources, as well as to see how well G8 countries are carrying through on what they pledged.

Source: Reich and Takemi 2009, 509–10.

Follow-up reports on G8 member activities in health workforce indicate their support, especially in the African region, with bilateral and multilateral organizations and the Alliance (G8 2011, 3). The Deauville Accountability Report indicates that more than 40 percent of the \$60 billion pledge (years 2008–2012) by G8 member countries was dispersed in 2008 and 2009 (ibid.).

The Institute of Medicine (IOM) similarly emphasized the importance of country-level HRH planning and urged bilateral and multilateral donors to make long-term, dependable investments toward the progress of country-led plans (box 4) (IOM 2009).

BOX 4. INSTITUTE OF MEDICINE RECOMMENDATIONS FOR GLOBAL HEALTH

Support country-led health sector workforce plans:

The IOM found that while low-income countries are the owners and drivers behind national strategic plans to improve the health workforce, in many instances, the success of these plans is dependent on external donor assistance. As much as 50 percent to 85 percent of the recurrent health care budget of some countries in sub-Saharan Africa is consumed by salaries for health care providers. Large increases in funding, no matter what the source, are therefore necessary to scale up human resources for health.

The current model of donor assistance does not support the long-term, country-led investment that is required to help finance nationally owned strategies for developing human resources for health. Development assistance and donor grants tend to be unpredictable, volatile, and short-term, making it difficult for recipient governments to make long-term investments or to plan budgets using external assistance. Funds for hiring workers need to be stable and long-term in order to cover recurrent costs, such as salaries. Governments, therefore, may not wish to expand their health workforce any faster than is sustainable in the long term with domestic resources.

Source: IOM 2009, 123.

Health systems use a variety of methods to determine the appropriate level of staffing required to meet the needs of their respective populations. While some call for increasing the minimum ratio of health professionals to 2.5 doctors, nurses, and midwives per 1,000 population, a revised ratio ideally would include other clinical cadres, including midlevel and community health workers. While one may quibble about 2.3 or 2.5 as the minimum ratio to provide immunizations and attend births, and some have,² if all countries achieve the goal of 2.3 health professionals it would demonstrably advance health status in countries with greatest need. Debate about the minimum ratio of workers to population is germane given the relationship of health worker density to key population health outcomes (figure 2). What remains undisputed is that better HRH information and reporting systems are needed.

FIGURE 2. HEALTH WORKER DENSITY AND HEALTH OUTCOMES



Source: Speybroeck, N., Y. Kinfu, M.R. Dal Poz, and D.B. Evans. 2006. *Reassessing the Relationship between Human Resources for Health, Intervention Coverage and Health Outcomes*, 8, www.who.int/hrh/documents/reassessing_relationship.pdf. Background Paper for *The World Health Report 2006*. Geneva: World Health Organization. [Author calculations based on WHO data.] Reprinted with permission.

A reliable information system to track health workforce is essential to a functioning health system. One of the six “building blocks” of health systems (WHO 2006b), health information allows managers and researchers to track and evaluate the effect of health systems interventions. These systems require adequate energy sources and technical investment (Lucas 2008; Nyamtema 2010). Ministries of Health are starting to invest in information systems to track licensed health professionals; however, links to other systems, such as degree-granting schools, job deployment assignments, or continuing education systems, are limited (Spero, McQuide, and Matte 2011). This is an area of need ripe for capacity building in low-income settings.

Nontraditional approaches to strengthening health systems and human resources are being adopted in some settings (Acumen Fund 2013; Sekhri, Feachem, and Ni 2011). These include performance-based incentives (Soeters and Vroeg 2011) and entrepreneurial models funded with private investments. Evaluations of the effect of pay for performance have been

mixed, showing short-term benefits, but are unclear on long-term effectiveness (Oxman and Fretheim 2009). Some critics of profit-generating models view them as antithetical to public service-based and traditional NGO-driven efforts. Others believe that heterogeneous strategies have potential to stimulate innovation and effectively engage new actors (Soeters and Vroeg 2011).

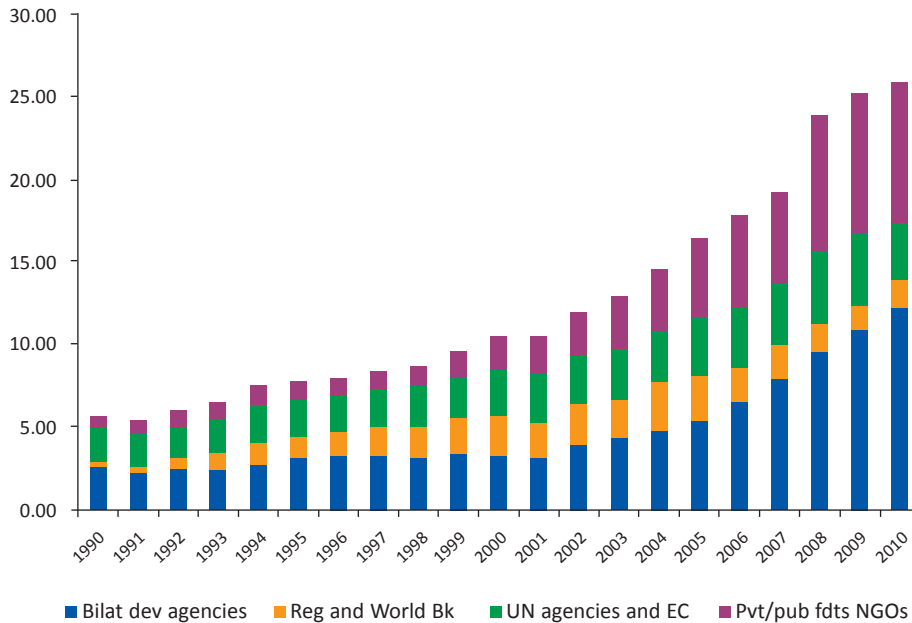
INVESTING IN THE HEALTH WORKFORCE

The Millennium Development Goals are not achievable without investments to educate and retain a competent global health workforce.

Health care is, by definition, a human resource-intensive enterprise. Substantive improvements in health status require complex, strategic, sustained, cross-sectoral investments of resources and technical assistance. Neither the numerous advances in technology nor a more informed patient population can replace the competent health care provider, who, through her skilled practice, assesses, intervenes on behalf of, and educates patients. In some LMICs health workers' salaries account for 50 to 85 percent of health care costs (IOM 2009). Often donor funding of human resources is absent or, at best, modest despite the cost of employing a health workforce. Donors need to be informed about HRH needs and engaged to fund the health workforce broadly or as a proportion of their support of specific vertical programs. These resources, directed through Ministries of Health and other government divisions, are necessary for real progress (McCoy et al. 2005; Pfeiffer et al. 2008).

Currently, multilaterals and governments provide the major proportion of global health support through official development assistance (ODA) (figure 3). Low-income countries vary in their dependence on ODA for health. While most sub-Saharan and a number of Southeast Asian countries are largely aid-dependent, there are several that receive relatively little aid. In 2010, India received just 1.23 percent and Nigeria 9.2 percent of their total expenditures on health through ODA. However, private out-of-pocket spending on health during the same year in these countries was 70.8 percent and 62.1 percent, respectively (WHO 2013a).

FIGURE 3. DEVELOPMENT ASSISTANCE FOR HEALTH BY SOURCE 1990–2010



Notes: Figures are US\$ billions (2008). Data for 2009 and 2010 and NGO data for 2008 were updated using data from IHME.

Sources: Figure adapted from Murray et al. 2011, 8; data from IHME 2010, Statistical Annex, Table 1.

The ability to track investments in health systems strengthening and HRH from donors or national government funding is important to inform leaders, funders, and policymakers. Funders appropriately expect responsible stewardship, accountability, transparency, and, more recently, evaluation metrics. Multi- and bilateral donor investments in specific programs have the potential to influence government commitments if recipient governments subsequently reduce the amount of funding appropriated to the targeted programs following an influx of external funds. To ensure that donor funds provide “additionality” to these programs, it is incumbent on leaders, on both the donor and recipient sides, to develop mechanisms that track investments and promote transparency (Garg et al. 2012). However, as the following OECD example demonstrates, it is difficult to assess global HRH funding.

The OECD annually tracks, by sector, the ODA funding support from the twenty-four member governments that comprise the Development Assistance Committee (DAC) and

multilaterals. Currently, the ability to map funding of HRH from OECD's health sector reporting is limited by the taxonomy that defines the sectors and subsectors. There is no discrete subsector for HRH-associated funds. For example, reports of ODA funding for health in LMICs combine the *health* and *population policies* sectors with the *program* and *reproductive health* sectors, and the subsectors *other social infrastructures* with *services-social mitigation of HIV/AIDS* (Kates, Wexler, and Valentine 2011). The *management and workforce* subsector includes data for five CSR subsection codes: health policy and administrative management; medical education and training; medical research; basic health infrastructure; and health personnel development. In addition, costs associated with HRH are included in other subsectors, such as the *family planning/reproductive health* subsector (ibid.). Finally, there is no centralized source of data for non-DAC nations funding of HRH and no repository for private funding for HRH from foundations or private industry. In sum, we cannot directly track the funds invested into the health workforce

While major donors such as GAVI, The Global Fund, and the World Bank support short-term training of health workers and provide remuneration for health services delivered through their programs, improved coordination between these organizations and national governments is called for to improve the efficiency and effectiveness of their support (Vujicic et al. 2012).

There are several strong examples of donor contribution to HRH, both in terms of funds and as contributions to policy. Norway has invested in the Global Health Workforce Alliance. It provided leadership in negotiating a stronger Code of Conduct on the International Recruitment of Health Personnel (the Code) and committed to not actively recruit health workers from low-stock countries and to fund the training of its own health care workforce. Britain developed its own code eschewing the recruitment of health personnel from abroad (UK DOH 2004). Canada has invested considerably in becoming more self-sufficient to avoid recruiting health workers from low-income countries. India and Japan hosted health workforce sessions at the UN General Assembly in September 2011. An analysis of the UK's ODA support for health in 2008–2009 reports that the Department for International Development provided £90 million, and of this, 25 percent was directed to HRH (Campbell, Jones, and Whyms 2011). The United States continues to make significant investments in global health, including funding of PEPFAR, which began in 2004 during the Bush administration and continues with a health systems strengthening approach during the Obama administration (US OGAC 2005; US GHI 2012).

Initial analysis of PEPFAR efforts appears to support a health systems strengthening effect related to HIV and life expectancy, but further study is needed to assess other, more distal health outcomes (Cohen et al. 2012). Under PEPFAR's Reauthorization Act of 2008, the US government committed to train 140,000 new health workers. The PEPFAR Medical and Nursing Education Partnership Initiatives (MEPI, NEPI) pair health-training universities in low-income countries with collaborating universities in the United States. In 2012, US government funds were committed

directly to the Rwanda Ministry of Health for a seven-year, national HRH program that aims to strengthen health professional education and production (Rwanda MOH 2012).

Investments by interest groups and NGOs, such as Health Workers Count, Save the Children, and the Frontline Health Workers Coalition, include campaigns to promote the health workforce and raise awareness of global HRH issues (FHWC 2012b; Save the Children 2011a, 2011b). In 2011, Save the Children launched a campaign, The Good Goes, since renamed Every Beat Counts, which employs the message that health care workers are central to the health and saving lives of children across the globe (Save the Children 2011b).

Health Care Workforce and Population Health

Health depends on access to prevention, health promotion, treatment, and rehabilitation. Efforts to achieve the MDGs have brought new understanding of the complexities that define health systems and the irreplaceable roles of health care workers. The decision to invest in the workforce has long-term payback value. Compared to investments in technology, workers do not become obsolete. They multiply investments by teaching others, improving their own and others' socioeconomic status, benefiting the community, and supporting salutary, systemic change. While there are good arguments to be made that the most important investments to advance population health status are in the structural determinants of health such as poverty reduction, education, narrowing of the income gap, and the like, data suggest that the health system itself, and health workers in particular, make unique and substantial contributions to health status (GHWA 2011a; WHO 2011a).

The infectious diseases HIV, tuberculosis, and malaria received the largest proportion of funding in recent years with demonstrated results (Salaam-Blyther 2010). Although targeted funding of such programs introduced some unintended consequences, including redistributing scarce health workers, it has allowed for the notable progress made in the prevention and treatment of HIV/AIDS, malaria, and TB. Today, other health challenges loom. NCDs are increasing the disease burden and health costs, especially in lower- and middle-income countries. There are 36 million deaths per year from NCDs, which account for more than half (58 percent) of the deaths worldwide (Abegunde et al. 2007; WHO 2010a, 2012c). And, NCDs were the focus of a high-level meeting of the UN General Assembly in September 2011 (UN 2011).

The debate continues over the competing benefits of vertical health programming that focuses on single disease issues versus systems-wide investments that integrate care of specific diseases into existing primary care systems (Gostin et al. 2010; Hill et al. 2011). Those who advocate for a vertical funding approach argue that donors are not generally motivated by broad systemic investments and rather seek immediate results from their contributions. Yet, as

life expectancies and the prevalence of chronic diseases increase, funding integrated care models can minimize the unintended consequences and higher costs associated with siloed programs, and offer the potential for more efficient use of funding and human resources for health.

Progress on maternal, newborn, and child health outcomes is heavily reliant on the health workforce. We have learned that childbirth emergencies, the leading cause of maternal deaths, can only be managed by competent professional health workers, including midwives (box 5) (Bhutta et al. 2008; WHO 2012b). Further, childhood immunizations along with the management of childhood illnesses are extremely reliant on health workforce staffing levels (ibid.).

BOX 5. MATERNAL, NEWBORN, AND CHILD SURVIVAL

Measures to shift complex tasks to low-level health workers merely a stopgap:

Although the development of a cadre of community health workers might be an appropriate short-term solution to pervasive MNCH [maternal, newborn, and child health] problems, this effort should not detract from the need to strengthen the health system and the training of staff. Thus, such community-based approaches must be seen in the context of evolving health systems and roles. . . . Barefoot doctors in China have been phased out as the health system strengthened. In Iran, the role of Behvarz workers has evolved from providing curative services to a largely promotive role as literacy rates have improved and the health system strengthened. Thus, although alternative strategies exist, such as training technicians to do caesarean sections in situations where surgeons are not available, these measures must not replace concerted efforts to train an appropriate health workforce.

Source: Bhutta et al. 2008, 985.

Public health workers who can address health promotion and prevention of disease and injuries are in short supply and poorly supported worldwide (Beaglehole and Dal Poz 2003; Petrakova and Sadana 2007). The reduction of unintentional injuries is highly reliant on public health professionals (Alwan et al. 2010). Implementing a comprehensive health systems strengthening agenda requires ramping up the production of skilled public health professionals to meet the health challenges of this century (Horton 2009).

Foundations

While the fundamentals of workforce planning, production, placement, and retention are in the purview of government, private foundations, family funds, and individual philanthropists historically have supported and continue to support workforce innovations. Foundations have a long and productive history of investing in leadership development in related sectors. Wealthy industrial leaders of the last century made especially significant investments. In the United States, philanthropists Rockefeller, Ford, and Carnegie viewed their gifts as a means to “change the human condition by, for example, addressing inequities, improving health, and spurring education and research” (Spero 2010). Comparative advantages of private funders include their flexibility, capacity to be innovative, and ability to make and implement funding decisions more rapidly than government funds can be mobilized.

Many US donors follow this philanthropic legacy. From 1990 through 2008, philanthropic giving dramatically expanded. Reflecting the healthy US economic conditions during the 1990s and well into the decade that followed, both foundation assets and giving increased. In 1990, foundation assets tallied \$143 billion; by 2008, foundations reported assets of \$565 billion. Giving increased from \$8.7 billion in 1990 to \$46.8 billion by 2008 (Spero 2010). Since 2008, volatile economic conditions in the United States and globally have slowed philanthropic giving, and undermine future predictions. Total giving by the 76,000 US-based foundations dropped by 2.2 percent in 2009, remained flat in 2010, and increased by 2.2 percent to \$46.9 billion in 2011, although below the 2008 peak after adjusting for inflation (Lawrence 2012).

Today, with the exception of a relatively short list of foundations, the majority of private philanthropies lack experience funding global health. Advocates of HRH stress the importance of evidence to guide funders and call for increased resources to build the global health workforce (Frenk et al. 2010; FHWC 2012b; GHWA 2008a, 2011a, 2012b, 2012d; WHO 2006b, 2012a). Even among those funders with an interest in global health, few understand the resource needs associated with human resources for health. And, recent studies document the paucity of information on funding for and tracking of human resources for health (Garg et al. 2012; Murray et al. 2011; Kates, Wexler, and Valentine 2011).

Evidence-based investments by foundations and the private sector can be effective. There are a number of programs that have targeted the health workforce. Some have made progress on a country level; others have focused on the growth of particular cadres. Select examples of foundation and corporate philanthropy investments are included here, but this listing is by no means all-inclusive. A key challenge is how to better track both the programmatic experience in HRH and the collective resources that are invested in the health care workforce from all funding sources.

The Aga Khan Foundation has played a leading role in establishing nursing schools in Pakistan, Kenya, Uganda, and Tanzania since 1980. The Aspen Institute Ministerial Leadership

Initiative is using a practice-based model of leadership development to strengthen capacity within Ministries of Health (MOH). The Atlantic Philanthropies invested in Vietnam's public health and primary care systems as well as in medical education in Cuba. The Bill & Melinda Gates Foundation contributes to the field of HRH. For example, it supported the Rockefeller Foundation–led JLI Report, and in partnership with the Packard Foundation, the Gates Foundation funded a fellowship program for midlevel public health officials from low-income countries. The Gates Foundation maintains its prime focus is on technological solutions to health problems, most notably through vaccine development. However, it has a program under way in India to address health systems issues.

The Clinton Health Access Initiative (CHAI) works by invitation from national governments. Specific programs in HRH include hospital staff productivity in Ethiopia; nursing deployment in Kenya; task shifting in Lesotho; workforce pipeline analysis in Zambia; a new cadre of laboratory technicians in Malawi; the use of “expert patients” to enhance counseling and testing in Nigeria; and a major partnership with the government of Rwanda and US schools of nursing, medicine, and dentistry (CHAI 2012). Started in 2005 by US President Bill Clinton, the Clinton Global Initiative (CGI) has leveraged 2,300 commitments that, when fully funded and implemented, will be valued at \$73.1 billion (CGI 2012). Many of these commitments target or affect the health workforce.

The Doris Duke Charitable Foundation specifically noted the importance of strengthening health systems in low-income countries. In 2009, the Duke African Health Initiative granted roughly \$44 million over five to seven years to support four research partnerships to design and implement large-scale primary health care programs in sub-Saharan Africa. Johnson & Johnson's primary investments in Africa are related to direct service and support nursing and medical education programs.

The Rockefeller Foundation is notable for its support of the groundbreaking Joint Learning Initiative report on the global HRH crisis described earlier, as well as its important work to strengthen the capacities of Ministries of Health. Rockefeller, in collaboration with the Ford Foundation, is also known for its early work to establish demographic research programs in low-income countries in the second half of the 1900s.

Small foundations are also working in HRH and health systems strengthening. The Touch Foundation, working with Tanzania's Minister of Health, leverages funding to grow the health workforce and strengthen management in that country. Malawi's Health Research Capacity Strengthening Initiative, funded in 2009 by the Wellcome Trust, is a five-year project to develop medical research capacity and health systems research. A sampling of foundation-supported programs that is inclusive neither within or across foundations further illustrates donor funding of global human resources for health (Appendix 1).

GOING FORWARD

Guidance for Investing in Human Resources for Health

The Agenda for Action established in 2008 at the first Global Health Workforce Alliance Forum in Kampala and reiterated in 2011 in Bangkok provides a strategic foundation for donor investment opportunities in six key areas (Bhutta et al. 2008; GHWA 2008b, 2011a; MSH 2009):

1. **Leadership:** Build coherent national and global leadership for health workforce solutions.
2. **Evidence and joint learning:** Ensure capacity for an informed response, based on evidence and joint learning.
3. **Education:** Scale up education and training of health workers, including interprofessional and core competency training models.
4. **Retention, performance, distribution:** Retain an effective, responsive, and equitably distributed health workforce.
5. **Migration:** Manage the pressures of the international health workforce market and its effects on migration.
6. **Investments:** Secure additional and more productive investment in the health workforce.

The collective experience of foundations, the work of concerned bilateral and multilateral organizations, and the efforts of civil society to build long-term, sustainable collaborations in health systems strengthening and human resources for health are generating a growing list of best practices to guide donors:

Program design

- Align HRH programs to address the needs of the specific setting and workforce production plan while mindful of other factors that influence the HRH pipeline.
- Invest in the scale-up of proven model projects.
- Invest in infrastructure for leadership development, pre-service education and training, retention strategies, supervision, motivation, and tracking of health workers.
- Identify specific HRH needs: build a compendium of HRH needs by country, cadre, and category (education; retention) for funders to enter into collaborations of existing or new programs.
- Invest according to the most cost-effective strategy and skill mix required to address high-priority country needs.
- Invest long term: progress in HRH takes time and requires tenacity. Reliable investments allow countries to count on resources that support long-term plans.

Due diligence and program oversight

- Join in programs to strengthen health systems through HRH at the request of national governments that align and are integrated with national health strategies.
- Assess and secure interest of local stakeholders, establish accountability for HRH planning, and build country ownership.
- Assess and agree on funding priorities, scope, and duration of the program.
- From the outset, establish a recipient-donor agreement, including expectations of each collaborator. Agreements, while simple, should indicate responsibilities of stewardship, expectations on deliverables, quality measures, and program-specific metrics.
- Programs require vigilance from all actors, especially during start-up. At various stages, and typically during implementation, obstacles arise and unforeseen complications emerge that may require program adjustments.

Policy

- Generate knowledge to inform policy on recruitment, training, tracking, retention, productivity, quality, migration, and other issues.
- Build on knowledge generated by thought leaders.
- Utilize implementation science: model scalable projects that could be funded by bilateral or multilateral donors once they are found to be effective.
- Identify bottlenecks and opportunities where changes in government policy or usual practice could support the retention of health workers, such as infrastructure for training, housing, employing, supervising, motivating, and tracking health workers.
- Build enthusiasm and political support to produce and support health workers, both in countries with shortages and in countries that are pulling health workers away from their home countries.
- Invest in efforts to implement the WHO's Global Code of Practice on the International Recruitment of Health Personnel.
- Register with the Global Health Workforce Alliance so it can track best practices and lessons learned from ineffective practices and communicate these to the HRH community of practice.

Lessons

The 2011 Global Summit provided a rare, intimate, and safe place for candid discussion among its ninety participants, representing foundations, multilateral funders, US funding agencies, low- and middle-income government representatives, private for-profit corporations, and academia.

Participants concurred on the following as essential to advance the global health workforce:

1. Strong **commitments to strengthen and retain** an educated health workforce are essential to improve population health across settings.
2. Large-scale **advocacy** is needed to put a human face on health systems and workforce.
3. **Government commitments to invest in HRH** in low- and middle-income countries are essential to make progress in the health workforce crisis and to achieve country-by-country improvements.
4. Multiple, **cross-sector stakeholders** are required to improve health through human resources; private sector funders and foundations have a role to play in HRH.
5. Cross-sector players have not yet coordinated enough to effectively and efficiently respond to HRH challenges; these sectors need to **network, share resources, establish metrics, invest in research, and disseminate findings**.
6. Through necessary catalytic investments, stakeholders need to **improve networking and disseminate knowledge** more generally, tracking lessons learned and metrics of success.
7. Exciting experiments are happening in places that were not on the global health radar twenty years ago. We need to **expand the global reach to build collaborations** in different contexts to find ways to spread best practices in HRH.
8. Stakeholders should **develop centers on global human resources for health** to help advance work in health systems strengthening.

Improvements in health and the associated gains in economic indices call for strong, supported, and efficient health systems. Human resources for health are an integral part of functioning health systems; this reality must be addressed in any effective health systems strengthening effort. Health systems are complex, open systems, and efforts for sustained improvements should consider these complexities and engage key actors, including members of the community and civil society. Given current economic conditions and public sector constraints, private funders, working with national leadership, are encouraged to invest resources aligned with country priorities. Historically, foundations generated important social changes through risk taking. With their visionary leadership, ingrained ethic of social responsibility, and unique flexibility, private funders are important players in the emerging cross-sectoral partnerships in global health. As nimble and efficient funders, foundations and other donors can accelerate country-level progress in HRH that is required to achieve health targets and move health systems toward universal health coverage. Working with government leaders, they can support developing the evidence base for best practices, join in strategic cross-sector partnerships, and pilot approaches that can then be scaled up using multilateral and other large funding sources. Building a robust global health workforce requires the leadership of government officials,

including those at Ministries of Health, Education, and Finance, and the collaborative efforts of other key actors and civil society. Through collective, cross-sectoral talent, strategic investments, and political will, we can improve health for all.

ENDNOTES

¹ Associate clinicians (formerly called nonphysician clinicians) and advanced-level associate clinicians include assistant medical officers, clinical officers, clinical associates, surgical technicians, physician assistants, and advanced-practice nurses (WHO 2012b, Annex 1. Available at http://apps.who.int/iris/bitstream/10665/77764/1/9789241504843_eng.pdf).

² For example, Bossert and Ono (2010) propose targets based on devoting an achievable percentage of GDP to the health sector; maintaining an affordable level of public sector expenditure on health; using an appropriate share of health funds to pay salaries of health workers; and shifting skill mix to a more efficient and less costly combination of physicians, nurses, and midwives.

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APPENDIX 1.

EXAMPLES OF FOUNDATION INVESTMENTS IN GLOBAL HEALTH WORKFORCE

Accordia Global Health Foundation*	2001	Partners with academic medical centers in Africa to develop leadership in training, research, and clinical services to build Africa’s capacity to address infectious diseases of HIV, malaria, and tuberculosis
	2004	Establishes a Regional Center of Excellence to promote best practices in sub-Saharan Africa, the Infectious Diseases Institute (IDI) at Makerere University in Kampala. Develops training programs with innovative design and delivery elements that focus on building long-lasting capacity among the health care workforce.
	2005	With a grant from ExxonMobil’s Africa Health Initiative, launches the Joint Uganda Malaria Training Program (JUMP) with IDI at Makerere University, in partnership with Uganda Malaria Surveillance Project, UCSF, and others. The program’s aim is to build capacity among African health care workers in malaria prevention, diagnosis, and treatment.
	2008	With a \$12.5 million grant from the Bill & Melinda Gates Foundation, leads a three-year Integrated Infectious Disease Capacity-Building Evaluation (IDCAP). In partnership with the MOH and others, IDCAP aims to identify the best and most cost-effective approach to training midlevel health care providers on infectious disease prevention, care, and treatment at thirty-six sites in Uganda.
Aga Khan Foundation	1980s	Contributes to establishing nursing schools in Pakistan, Kenya, Uganda, and Tanzania.

	2010	<p>Initiates the following HRH projects:</p> <ol style="list-style-type: none"> 1. AKU Advanced Nursing Studies Program, East Africa 2. Nursing Program, Egypt 3. Community Health Program, India, Kyrgyz Republic, Mali, Syria, Tajikistan 4. Coastal Rural Support Program Health System Strengthening, Mozambique
Atlantic Philanthropies*	1998–	Vietnam: Through partnerships with national government and collaborations with provincial governments and local communities, aims to improve primary health care service delivery in regions with the most disadvantaged populations; strives to enhance the primary health care system and to build capacity of select institutions in public health, including public health training institutions and rural community-based training centers; establishes models of community-based comprehensive primary health care systems, scaling up proven models.
	2000–	Supports social justice approach to health care and health professional training in Cuba.
	2007	Global Health Education Consortium (GHEC) works to identify innovative schools of medicine and health sciences addressing the health and social needs of underserved and marginalized populations. GHEC leads to Training for Health Equity Network (THEnet).
	2009–2012	South Africa: Focuses on training health care professionals. Massive grants (R70 million over four years) support nursing education to address the shortage.
BRAC	1978	Establishes first Training and Resource Centre (TARC). As of 2013, there are twenty-two TARCs throughout Bangladesh and two BRAC Centers for Development Management (BCDM).

Carnegie Corporation	1940–1950s	Grants program focused on higher education in Africa.
	1960	Releases Ashby Commission Report, <i>Investment in Education</i> .
	1969	Establishes Association for Teacher Education in Africa (ATEA), focused on linking African and American universities.
	1988–1993	Awards more than 90 grants (~\$11 million) to reduce maternal mortality through the Strengthening Human Resources in Developing Countries program. Is involved in training more than 800 nurses, midwives, and university medical students to become master trainers capable of training others.
	2000	Provides support to allay physician migration and brain drain from African countries.
	2000–2010	Forms Partnership for Higher Education in Africa (PHEA), a ten-year initiative with contributions from seven foundations (estimated grants \$440 million).

Clinton Health Access Initiative*	2005	In partnership with the Kenyan government, addresses ways to utilize unemployed nurses.
	2006	In partnership with Lesotho’s government, addresses nurse shortage and task shifting.
		In partnership with Ethiopia’s government, aims to improve hospital management.
2007	In partnership with the Zambian government, focuses on expanding capacity and improving the quality of the national health workforce. Targeted interventions include the scale-up of pre-service training programs that aim to dramatically expand the number of qualified workers entering the health workforce.	

	2008	In partnership with the Malawi government, invests in lab service training and task shifting.
		In partnership with the Nigerian government, launches a peer model to enhance counseling and testing.
Doris Duke Charitable Foundation	2009	Grants the African Health Initiative ~\$44 million over five to seven years to support four research partnerships to design and implement large-scale primary health care programs in sub-Saharan Africa.
Ford Foundation	1950s–1960s	Awards grants that help develop demography as an independent discipline. Funds numerous demography centers in universities, especially in developing countries.
	2000–2010	Joins Partnership for Higher Education in Africa (PHEA).
Bill & Melinda Gates Foundation	2004	Contributes to Rockefeller-led Joint Learning Initiative report.
	2011	In partnership with the David and Lucile Packard Foundation, funds a fellowship program for midlevel public health officials from low-income countries.
	2008–2012	Supports the Ministerial Leadership Initiative for Global Health (MLI), a practice-based model of leadership development of the Aspen Institute to strengthen capacity with Ministries of Health in five countries: Ethiopia, Mali, Nepal, Senegal, and Sierra Leone.
		Funds Bihar India Project (US\$80 million), a five-year project launched in partnership with the state government and NGOs to improve health outcomes for mothers, newborns, and children.

William and Flora Hewlett Foundation	2005–2010	Joins Partnership for Higher Education in Africa (PHEA).
	2008	Along with Open Society Institute, supports Open Educational Resources (OER) to advance the quality and capacity of health education in Africa, developing materials that are freely available for use, reuse, adaptation, and sharing.
	2009	Supports the African Health OER Network, which is composed of University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Town, University of the Western Cape, OER Africa, and University of Michigan.
Johnson & Johnson	2001–	Has a twenty-year history of corporate social responsibility aimed at HRH. Investments include physician training support, nurse campaign for the future, and scholarships for nurse training in partnership with Aga Khan nursing schools.
W.K. Kellogg Foundation	1980s	Invests extensively in human resource development through scholarships.
		Funds a program in Malawi to train midwives and nurses. This project complements support for community development rather than serving as a means for nurses and midwives to earn higher income.
Kresge Foundation	2007–2010	Joins Partnership for Higher Education in Africa (PHEA).
John D. and Catherine T. MacArthur Foundation	2000–2010	Joins Partnership for Higher Education in Africa (PHEA).
	2009	Establishes a new program for higher education in Russia.

Andrew W. Mellon Foundation	1995	Initiates grant-making program Higher Education and Scholarship, with special emphasis on South Africa.
	2005–2010	Joins Partnership for Higher Education in Africa (PHEA).
David and Lucile Packard Foundation	2008–2012	Supports the Ministerial Leadership Initiative for Global Health (MLI), a practice-based model of leadership development of the Aspen Institute to strengthen capacity with Ministries of Health in five countries: Ethiopia, Mali, Nepal, Senegal, and Sierra Leone.
Public Health Foundation of India	2006–	Focuses on capacity building to strengthen public health training, education, and research and policy development. Programs support training and attracting public health professionals to improve population health and address shortage of health care personnel. Projects include establishing regional institutes of public health across India, postgraduate diploma programs, international training fellowships, training programs for health personnel, and technical workshops.
Rockefeller Foundation	1900s	In collaboration with the Ford Foundation, establishes demographic research programs in developing countries.
	2000–2010	Joins Partnership for Higher Education in Africa (PHEA).
	2003	Convenes the Joint Learning Initiative on Human Resources for Health (JLI-HRH). The HRH crises in developing countries and the international brain drain of doctors and nurses were brought to the top of the international agenda.
	2009	Launches Transforming Health Systems (THS) initiative in Nairobi, Kenya, to expand health coverage and provide new health and financial protections for people in low-income communities.

Save the Children*	2010	Launches the Good Goes campaign with Ad Council, focusing on improving newborn and child survival by supporting frontline local health workers.
Touch Foundation*	2004	Founded in 2004, leverages funding to grow health care worker and management resources in southern Tanzania through work with the Minister of Health and local programs.
Wellcome Trust	2009	Launches Malawi's Health Research Capacity Strengthening Initiative (HRC SI) to improve the capacity of Malawian researchers to conduct high-quality research. Goals of the five-year project are to develop the human capacity to produce health-related research and to generate health systems research products.

Note: *2011 Global Summit partner.

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Marilyn A. DeLuca conceived and developed the concept and outline for this paper, reviewed the literature, and revised this latest version of the manuscript.

Ann E. Kurth conceived and developed the concept and outline for an earlier version of this paper and contributed to this version of the manuscript.

Amy Hagopian drafted an early version of this manuscript that served as a background paper for the Global Summit and contributed to this later version.

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2. PROMISING CHOICES: HOW HEALTH WORKFORCE POLICY CHOICES DICTATE HEALTH OUTCOMES

Maurice I. Middleberg, BA; Sadana Rangarao; Laura Hoemeke, MPH; Mary Beth Powers, MPH, BSFS; Barbara Stilwell, PhD, MSc, BSSoc; and Kate Tulenko, MD, MPH, MPhil

MEASUREMENT, DIVERSITY, AND POLICY CHOICE

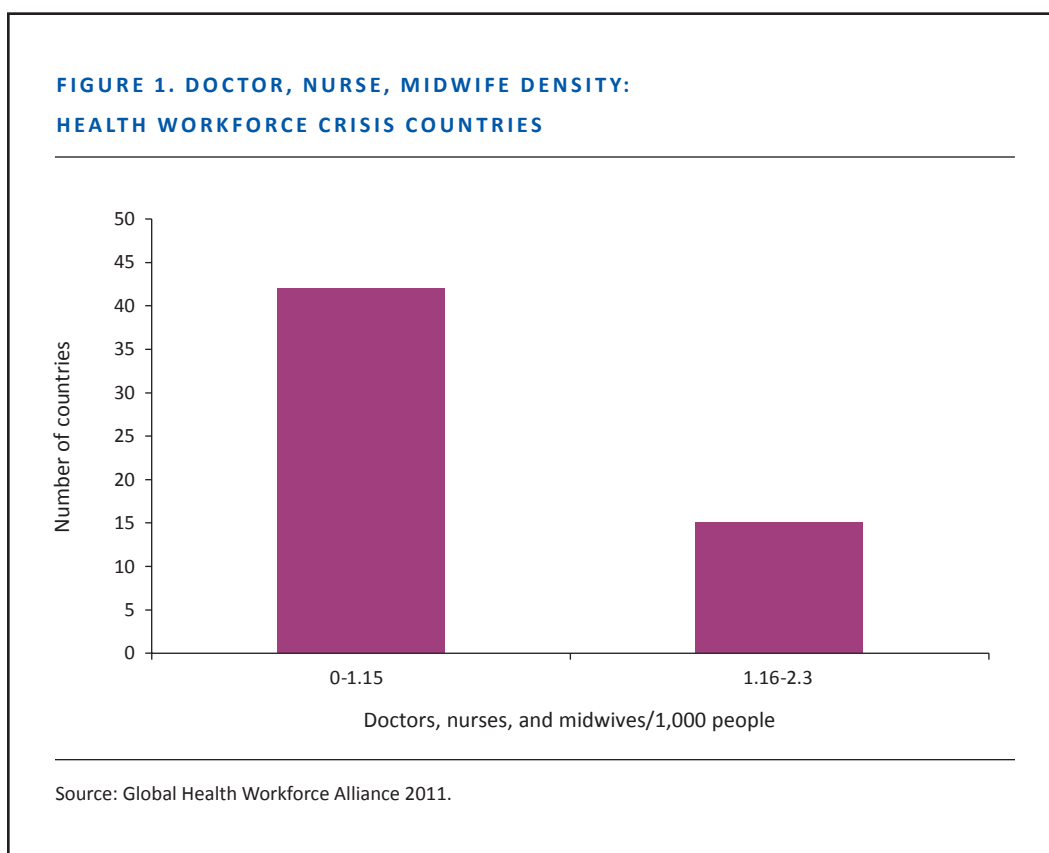
Quite properly, much attention has been given to the countries identified as having a health workforce crisis in the 2006 World Health Report (World Health Organization 2006). That report and many subsequent documents have argued that lack of access to health workers fundamentally inhibits progress toward the health-related Millennium Development Goals (MDGs) and other indicators of health progress. In this paper, we argue that this premise must be substantially refined in two ways. First, the conventional definition of which countries are in crisis, per the World Health Report, depends exclusively on the density of doctors, nurses, and midwives. However, this criterion does not take into account the much broader array of health workers who provide services that can dramatically affect health outcomes. A more comprehensive indicator or indicators of access to health workers yields a very different portrait of access to health care. There is much greater diversity in access to health care among the health workforce crisis countries than just considering doctors, nurses, and midwives might suggest. A second refinement, flowing from the first, is that countries have responded to a low density of doctors, nurses, and midwives in very different ways, yielding strikingly different health outcomes. Countries have substantial latitude to make policy choices that will mitigate shortages of high-level health professionals.

HEALTH WORKFORCE SHORTAGES: A BARRIER TO HEALTH PROGRESS

Health workers are the living bridge between the vast body of medical and public health knowledge and populations in need of health care. Access to skilled, empowered, and supported health workers has been the foundation for the improvements in child survival, maternal health, access to anti-retroviral treatment, and other health gains that have been achieved in recent years. Unfortunately, access to health workers and the skills they bring remain denied to millions of people. In this paper, we will show that countries of modest means and limited access to health professionals can still achieve major gains in health by the policy choices they make to overcome health worker deficits.

The 2006 World Health Report (WHR) identified fifty-seven countries that are deemed to have a health workforce crisis, defined as those having fewer than 2.3 doctors, nurses, and midwives (DNM) per 1,000 people (World Health Organization 2006). By late 2011, only one of the fifty-seven countries, Indonesia, had surpassed the 2.3 DNM/1,000 threshold. Of the health workforce crisis countries, forty-two have a health worker density of less than half the threshold (figure 1), according to a report released by the Global Health Workforce Alliance at the January 2011 Second Global Forum on Human Resources for Health (Global Health Workforce Alliance

2011). The report shows an average density among the crisis countries of only 0.88 DNM/1,000. These data suggest that the health workforce crisis countries tend to be clustered toward the low end of access to health workers, if one considers only DNM.



The WHO estimates a shortage of 2.4 million DNM globally, with the greatest deficit being in sub-Saharan Africa (World Health Organization 2006). According to the WHO, 24 percent of the global burden of disease lies in the African region, which hosts only 3 percent of the world’s doctors, nurses, and midwives and accounts for less than 1 percent of global health expenditures (ibid.). Despite the urgency for reforms that will lower child and maternal mortality, sub-Saharan Africa is having the most difficulty reaching the health-related MDGs, in large part because of an insufficient number of high-quality frontline health workers and an unsuccessful system of retention (Bhutta et al. 2010). By frontline health workers we mean those health providers directly engaged in service delivery, especially to people who are traditionally underserved, including rural, remote, and marginalized populations.

The global absolute shortage of DNM is compounded by maldistribution of health workers

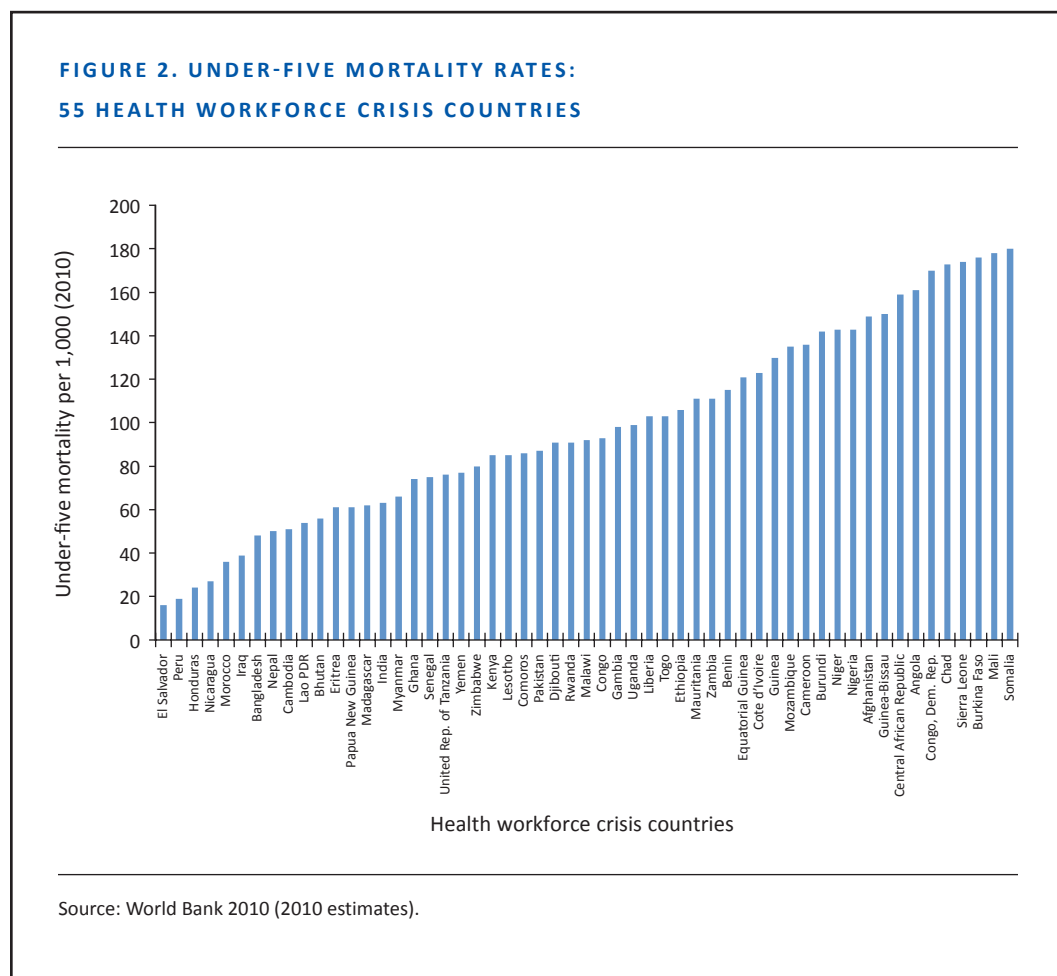
and poor quality of care. In Ghana, for example, 52 percent of the population is urban, but 87 percent of general practitioners live in urban areas (Dussault and Franceschini 2006; Foreit and Raifman 2011). Educational institutions in low-income countries often lack the capacity to produce the number of qualified health professionals needed to provide essential care (Anarfi, Quartey, and Agyei 2010; Buchan and Dovlo 2004; Foreit and Raifman 2011). Furthermore, emigration of trained professionals to North America and Europe stymies the growth of the health sector and limits the availability of health workers (Anarfi, Quartey, and Agyei 2010; Buchan and Dovlo 2004; Foreit and Raifman 2011).

ACCESS TO HEALTH WORKERS IMPROVES HEALTH OUTCOMES

Access to health workers has been shown to affect health outcomes. The WHR 2006 describes the positive impact of health worker density and quality on infant, child, and maternal survival (Bhutta et al. 2010). The report also indicates that increases in DNM density account for improvement in rates of cardiovascular diseases and decreases in the costs of TB and malaria. Conversely, there is evidence that a lack of access to community health workers is linked to poor health outcomes, especially in the developing world (ibid.); for example, staff cutbacks have been associated with a worsening of child malnutrition (World Health Organization 2006). Sudhir and Barnighausen (2004) examined the relationship between DNM density and infant mortality, under-five mortality, and maternal mortality. Controlling for the effects of income, female adult literacy, and absolute income poverty, they found a significant, negative relationship between DNM density and all three mortality rates. In a study of health interventions, Speybroeck and colleagues (2006) demonstrated a significant positive relationship between DNM density and both measles immunization coverage and use of skilled birth attendants. Following this, Sudhir and Barnighausen (2007) also examined the relationship between DNM density and measles vaccination, along with diphtheria, pertussis, and tetanus (DPT3) vaccination and poliomyelitis (polio3) vaccination. More recently, Castillo-Laborde (2011) presented evidence of a significant negative relationship between DNM density and the burden of disease, controlling for income, income distribution, health expenditure, and percentage of the rural population with access to an improved water source. In a longitudinal analysis of the relationship between health sector resources and infant mortality, Farahani, Subramanian, and Canning (2009) found a significant, negative effect in the short run and an even larger negative effect in the long run. In this study, doctor density alone was used as a proxy for all health sector resources, as data for nurse and midwife density and other health sector inputs were not available over a sufficiently long time period to measure long-run effects.

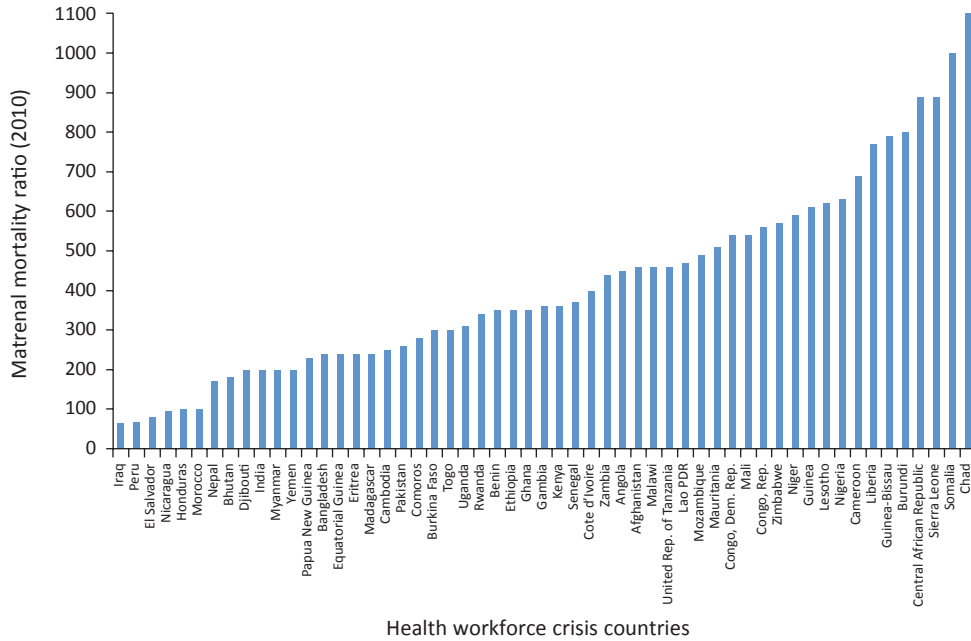
SURPRISING DIVERSITY AMONG HEALTH WORKFORCE CRISIS COUNTRIES

Given the strong relationship between DNM density and health outcomes, one might expect that the health workforce crisis countries would exhibit correspondingly poor health outcomes. However, there is great variance among the health workforce crisis countries on key health indicators, as depicted in figures 2, 3, and 4 (see appendix 1 for data and sources).



In figure 2, the health workforce crisis countries are arrayed along the horizontal axis and the child mortality rate (number of child deaths per 1,000 children aged zero to five) is shown on the vertical axis. The child mortality rates among the health workforce crisis countries range from 16 per 1,000 to 180 per 1,000 (World Bank 2010).

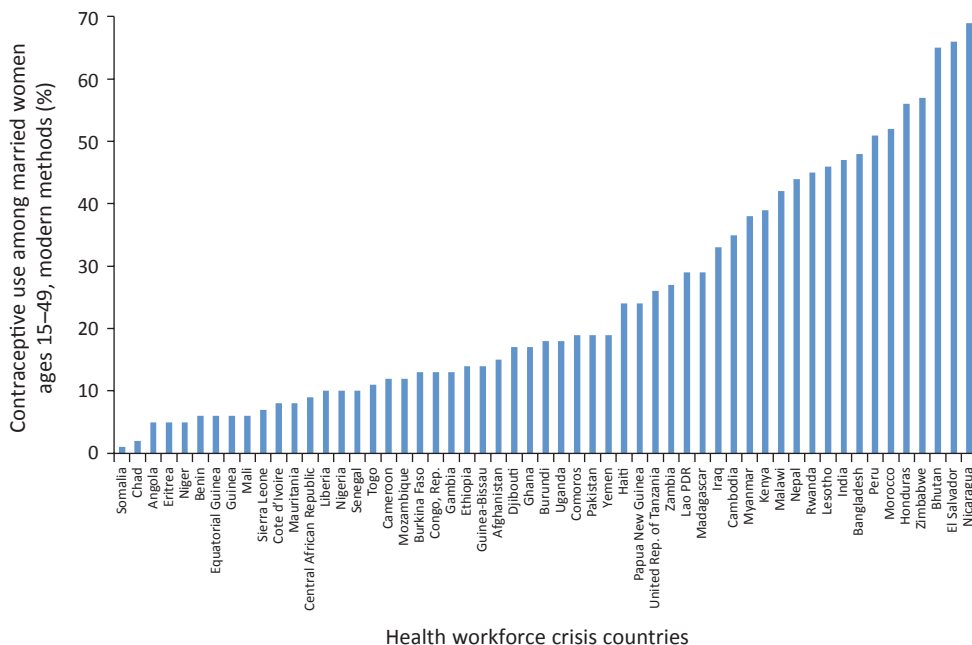
**FIGURE 3. MATERNAL MORTALITY RATIOS:
55 HEALTH WORKFORCE CRISIS COUNTRIES**



Source: World Health Organization et al. 2012.

We also looked at the maternal mortality ratio among the health workforce crisis countries. As can be seen in figure 3, there is once again enormous diversity among the health workforce crisis countries, which belies any simplistic notion that DNM density alone drives health outcomes.

**FIGURE 4. MODERN METHOD CONTRACEPTIVE PREVALENCE:
55 HEALTH WORKFORCE CRISIS COUNTRIES**



Note: Data are from the most recently available national-level surveys, such as Demographic and Health Surveys, Reproductive Health Surveys, Multiple Indicator Cluster Surveys, regional survey programs, national surveys, and the UN Population Division World Contraceptive Use 2011.

Source: Population Reference Bureau 2011.

Similar variation exists with regard to the use of contraception. Figure 4 again shows the health workforce crisis countries arrayed along the horizontal axis, while the percent of married women of reproductive age using a modern contraceptive is on the vertical axis. In this instance, modern contraceptive prevalence among married women aged 15–49 ranges from 1 percent to 69 percent (Population Reference Bureau 2011).

The findings presented in figures 2, 3, and 4 are surprising. The health workforce crisis countries are spread among a wide continuum with regard to the bellwether indicators of child mortality, maternal mortality, and contraceptive prevalence. How can it be that countries with strikingly similar limits on access to doctors, nurses, and midwives have radically different health outcomes?

In the following sections, we argue that this diversity of health outcomes is attributable to variances in the deployment of health providers other than doctors, nurses, and midwives coupled with greater equity of access to health providers. The DNM variable alone is not a very good measure of access to health workers and is not a particularly powerful predictor of health outcomes.

THINKING BEYOND DOCTORS, NURSES, AND MIDWIVES

Doctors, nurses, and midwives represent only a fraction of the health workforce in any country. Moreover, the national ratio of doctors, nurses, and midwives says nothing about equity of access to health workers. The same number of DNM could be concentrated in one city (as is often the case) or equitably distributed across the country without altering the ratio. There are many types of health workers, including community health workers, health educators, pharmacists, clinical officers, medical assistants, and others who can have an impact on health interventions and outcomes. In many countries, these other types of health providers may significantly exceed doctors, nurses, and midwives in number and coverage. However, robust, cross-national data on the density of these types of health workers are not available.

Good indicators about the health workforce, broadly defined, are essential to health policy and planning. It is very difficult for countries to set meaningful goals, make wise investment decisions, or assess progress without basic data about how many health workers there are, where they are working, and whom they are serving.

In the absence of better data, a proxy for access to a broad array of health workers is needed. Save the Children–UK developed the Health Workers Reach Index (HWRI) as a more comprehensive measure of access to health workers (Save the Children 2011). This index combines the conventional DNM/1,000 measure of access with two other indicators that serve as proxies for access for health workers. The first indicator is DPT3 coverage, which serves as a measure of access to the broader array of health workers who are generally involved in ensuring immunization coverage. Immunization usually requires the involvement of many kinds of health workers, including community health workers, health educators, social workers, and virtually any class of health workers trained to inform about or provide immunizations.

The second indicator is the percentage of births attended by a skilled birth attendant, which serves as a proxy for equity of access. High coverage by skilled birth attendants must parallel the distribution of the population in a way that the DNM/1,000 indicator does not. Women give births everywhere in a country and birth rates tend to be higher in rural areas. High levels of coverage by skilled birth attendants suggest equity of access, which the DNM ratio alone does not.

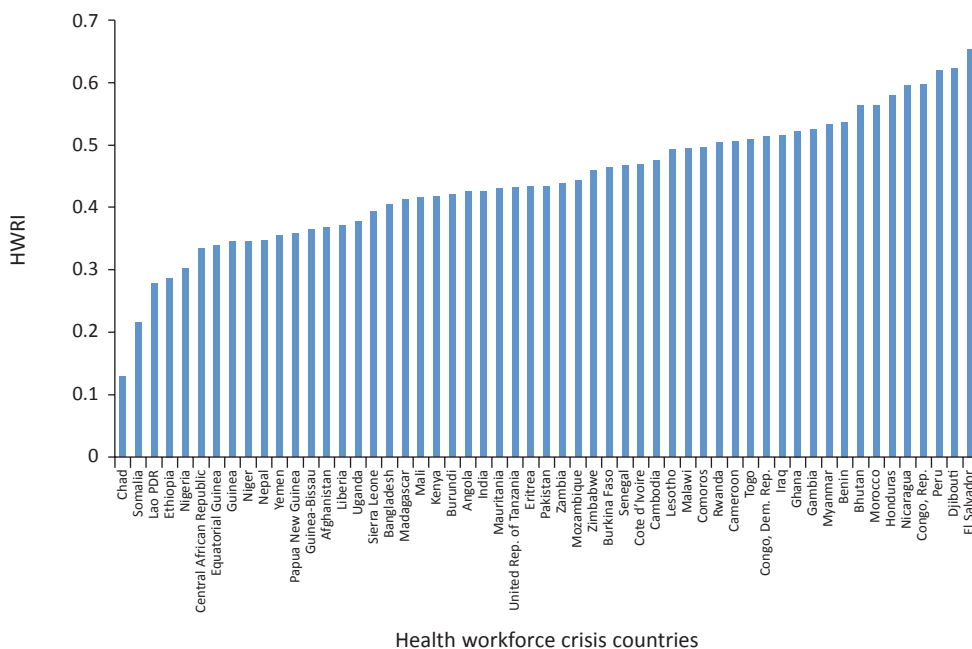
The three indicators each contribute up to a third of the HWRI score, which has a minimum value of zero and a maximum value of one. The HWRI therefore offers a more holistic measure of

access to health workers than density of doctors, nurses, and midwives alone.

Save the Children–UK derived HWRI scores for 161 countries. These scores range from .13 for Chad to .98 for Switzerland (ibid.). Figure 5 shows the HWRI scores for the fifty-five health workforce crisis countries for which data are available. The HWRI scores range from .13 for Chad to .65 for El Salvador. Countries at the higher end of this range have HWRI scores comparable to those of a number of countries that are not considered to be health workforce crisis countries, such as Costa Rica, Panama, Jamaica, Colombia, and the Dominican Republic. That is, once one considers a more comprehensive measure of access to health workers, the DNM density indicator does not appear to be truly indicative of health workforce coverage.

Interestingly, HWRI appears to have a weak to no relationship with income. There is no statistically significant relationship between the HWRI and GNI per capita (Atlas method) among the WHO health workforce crisis countries that are low-income countries. If middle-income workforce crisis countries are included in the sample, a weak but statistically significant

**FIGURE 5. HEALTH WORKERS REACH INDEX:
55 HEALTH WORKFORCE CRISIS COUNTRIES**

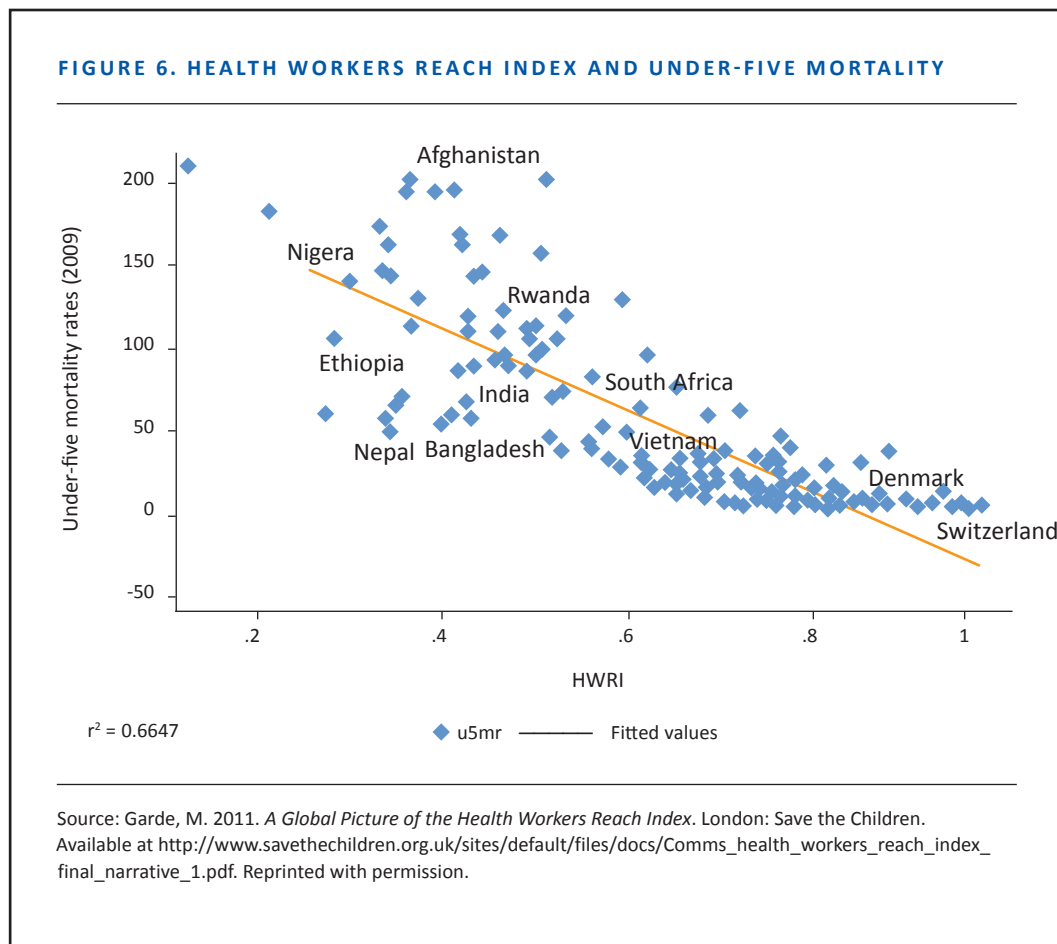


Source: Save the Children 2011.

relationship between the HWRI and per capita income does emerge ($r^2 = .18$, $p = .002$). In both samples, countries with similar incomes exhibit very different scores on the HWRI. This suggests that countries of similar income are making very different choices about maximizing access to basic health care. As we show in the following section, this has meaningful consequences for health outcomes.

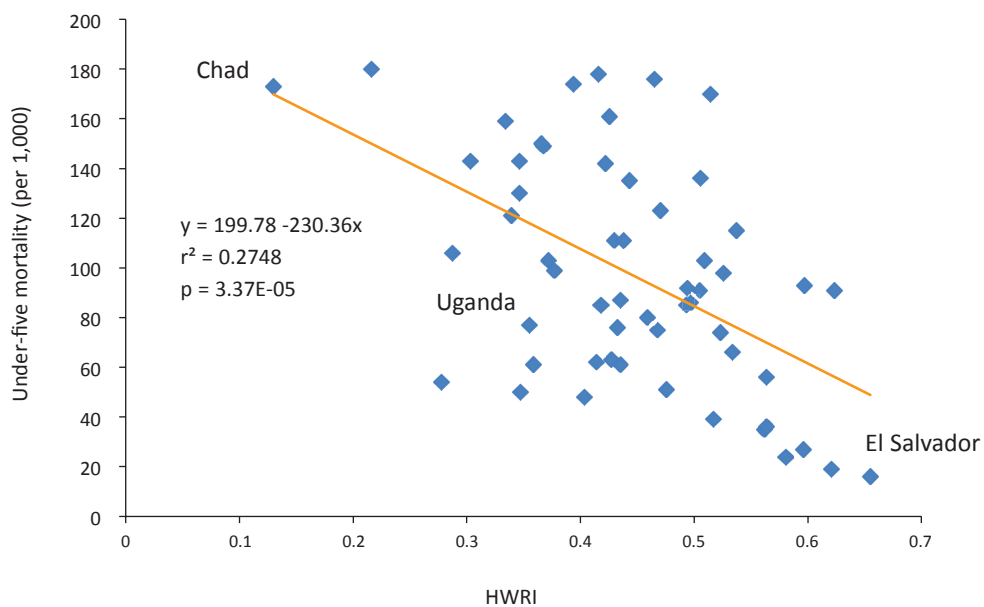
IMPACT OF ACCESS TO HEALTH WORKERS: BEYOND DOCTORS, NURSES, AND MIDWIVES

Save the Children–UK tested the relationship between the HWRI and child mortality in 161 countries, the results of which are displayed in figure 6. This shows a strong relationship between the HWRI and child mortality.



We tested the relationship between the HWRI and both child mortality and maternal mortality in the health workforce crisis countries. These results, shown in figures 7 and 8, are in the expected direction, confirming the relationship between the HWRI and child and maternal survival in this set of countries.

**FIGURE 7. HEALTH WORKERS REACH INDEX AND CHILD MORTALITY:
55 HEALTH WORKFORCE CRISIS COUNTRIES**



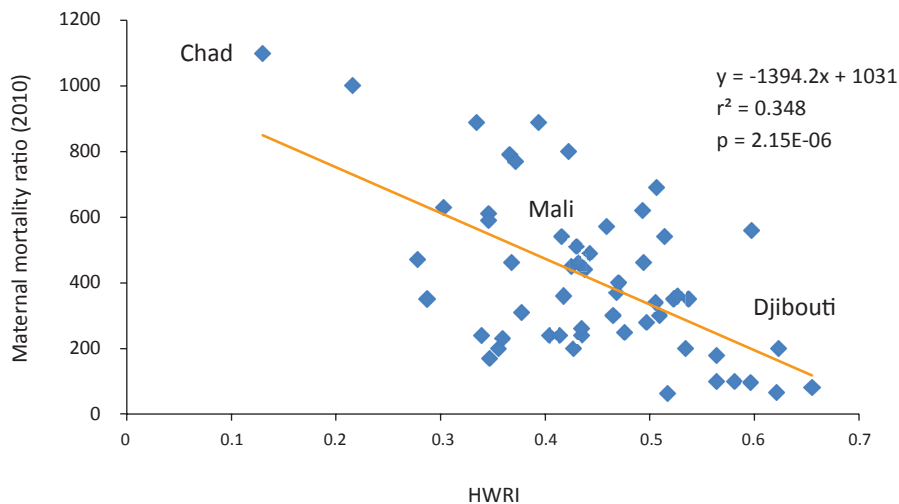
Sources: Save the Children 2011; World Bank 2010 (data are 2010 estimates).

THE POWER OF FRONTLINE HEALTH WORKERS: FEMALE COMMUNITY HEALTH VOLUNTEERS AND CHILD HEALTH IN NEPAL

The Nepal Female Community Health Volunteer (FCHV) program has been the key to dramatic reductions in child mortality in that low-income country. Trained, equipped, and supported FCHVs have extended access to critical interventions, including vitamin A supplements, diarrhea and pneumonia management, and immunization. Between 1995 and 2010, infant mortality dropped from 72/1,000 to 39/1,000 and child mortality declined from 101/1,000 to 49/1,000.

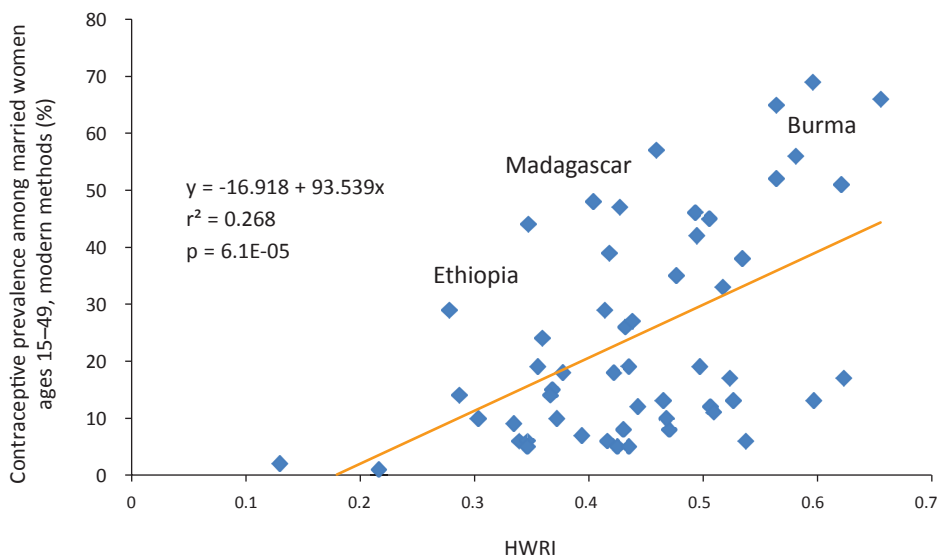
Sources: Joshi 2008; United Nations Population Division 2010.

FIGURE 8. HEALTH WORKERS REACH INDEX AND MATERNAL MORTALITY: 55 HEALTH WORKFORCE CRISIS COUNTRIES



Sources: Save the Children 2011; World Health Organization et al. 2012.

FIGURE 9. HEALTH WORKERS REACH INDEX AND CONTRACEPTIVE PREVALENCE: 54 HEALTH WORKFORCE CRISIS COUNTRIES



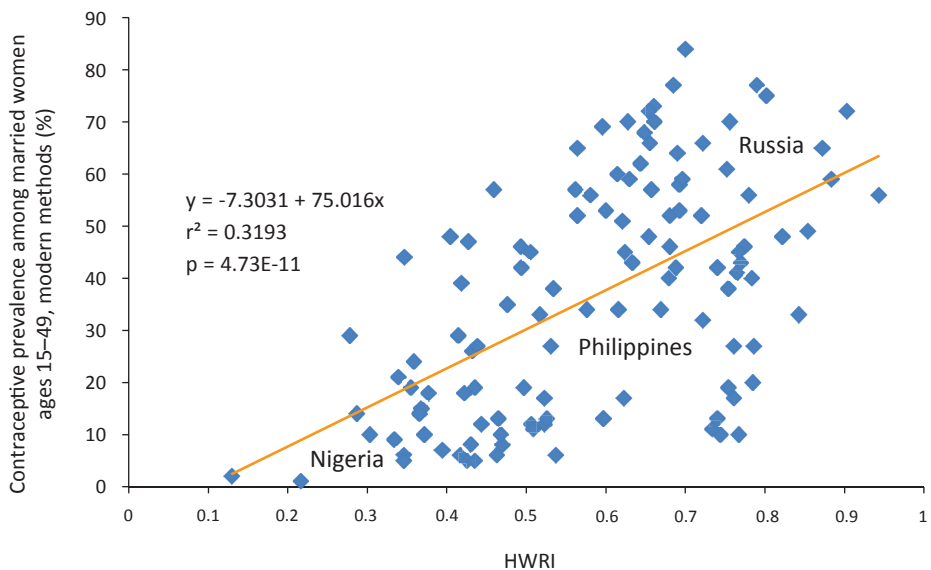
Note: Data are from the most recently available national-level surveys, such as Demographic and Health Surveys, Reproductive Health Surveys, Multiple Indicator Cluster Surveys, regional survey programs, national surveys, and the UN Population Division World Contraceptive Use 2011.

Sources: Save the Children 2011; Population Reference Bureau 2011.

We then tested the relationship between the HWRI and modern contraceptive prevalence among the fifty-four health workforce crisis countries for which data are available. The results are shown in figure 9.

As can be seen, the HWRI is strongly related to contraceptive prevalence in the health workforce crisis countries. Access to a broader and more equitably deployed array of health workers, as indicated by the HWRI, appears to increase use of family planning services.

FIGURE 10. HEALTH WORKERS REACH INDEX AND CONTRACEPTIVE PREVALENCE: 114 LOW- AND MIDDLE-INCOME COUNTRIES

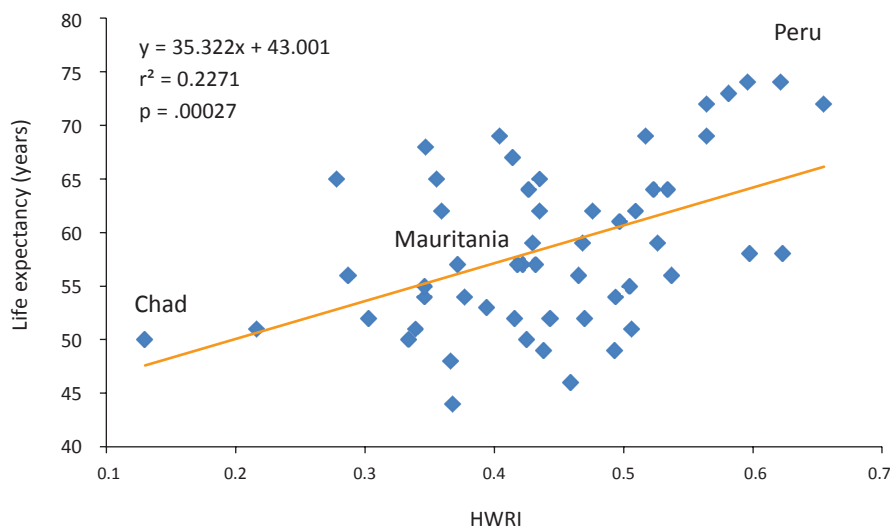


Note: Data are from the most recently available national-level surveys, such as Demographic and Health Surveys, Reproductive Health Surveys, Multiple Indicator Cluster Surveys, regional survey programs, national surveys, and the UN Population Division World Contraceptive Use 2011.

Sources: Save the Children 2011; Population Reference Bureau 2011.

The relationship also holds if the analysis is extended to all 114 low- and middle-income countries for which data are available, as can be seen in figure 10. Contraceptive prevalence is strongly related to the HWRI.

**FIGURE 11. HEALTH WORKERS REACH INDEX AND LIFE EXPECTANCY:
54 HEALTH WORKFORCE CRISIS COUNTRIES**



Sources: Save the Children 2011; Population Reference Bureau 2011.

We also looked at the relationship between the HWRI and life expectancy, which is shown in figure 11 (data were available for fifty-four countries). As can be seen, there is a statistically and substantively important relationship between access to health workers and life expectancy.

In sum, we find that access to health workers, as measured by the HWRI, is significantly related to child mortality, maternal mortality, contraceptive prevalence, and life expectancy among the health workforce crisis countries. We believe that these findings have important methodological and policy implications.

DISCUSSION

Measuring Equitable Access to a Broad Array of Health Workers

Since the release of the 2006 World Health Report, the DNM density indicator has been the key indicator used to define whether or not countries have a health workforce crisis. It is, however,

proving of limited utility. DNM data can be hard to collect. DNM density at a national level says almost nothing about access to health care as it can mask great inequities in the distribution of health professionals. It does not take into account the much broader array of frontline health workers on whom many, if not most, people in developing countries depend for health services. We note, for example, that even where data collection systems exist, community health workers are routinely omitted.

The measurement issue is a serious challenge to the human resources for health (HRH) field, as the limitations and difficulties associated with the DNM indicator make it very hard to assess whether a country is making progress, standing still, or regressing. There is no widely accepted indicator or small set of indicators of access to health workers that is used in lieu of the DNM density indicator. There is no global program of data collection on HRH to track progress comparable to the Demographic and Health Surveys. Hence, there is a real need for a small set of indicators on which data can be (or are) collected on a regular basis to track HRH progress.

Health workforce policy and planning—which are critical to expanding access to essential services—depend on good data. We believe that heightened investment in health workforce data collection is urgently needed. This can take two forms. One would be the development of human resource information systems as part of health management information systems. While some progress has been made in this area, much greater investment and attention are needed. The second approach would be to use surveys to measure access to health workers. We strongly urge the inclusion of a few health workforce questions in the standard Demographic and Health Surveys, which would be extremely helpful in shedding light using a widely respected, rigorous, and comparable data source.

In the meantime, the HWRI is one useful proxy for assessing access to health workers. We believe that the HWRI, while imperfect, has greater explanatory power with regard to the impact of health workers than DNM alone. We ran a sensitivity analysis that tested, separately, the relationship between the dependent variables (child mortality, maternal mortality, contraceptive prevalence, and life expectancy) and each component of the HWRI (DNM, DPT3 coverage, and coverage of skilled birth attendants). In every case, HWRI explained more of the variance in the dependent variable than any of the HWRI components alone. The addition of DPT3 and skilled birth attendant coverage to DNM density as proxy measures for other types of health workers and equity of access better explains the variance in health outcomes among the workforce crisis countries presented in figures 2, 3, and 4 than DNM alone. (See appendix 2 for the sensitivity analysis results.) The raw data on the components of the HWRI that were used in the sensitivity analysis are shown in appendix 3.

We also ran multiple regressions adding per capita income and adult female literacy to HWRI as independent variables, with child mortality, maternal mortality, contraceptive prevalence, and life expectancy as the dependent variables. The HWRI remained statistically significant in all cases

after controlling for these potentially confounding variables. (See appendix 4 for the results.)

The HWRI is not without its limitations, since two of its components are more reflective of the consequences of access to health workers than health workers per se. Nonetheless, it is yielding interesting and plausible findings. It should be systematically tracked over time to see if changes are taking place. In addition, other practical proxies for measuring access to health workers should be developed and tested, given the paucity of data on the health workforce and the difficulties in collecting such data.

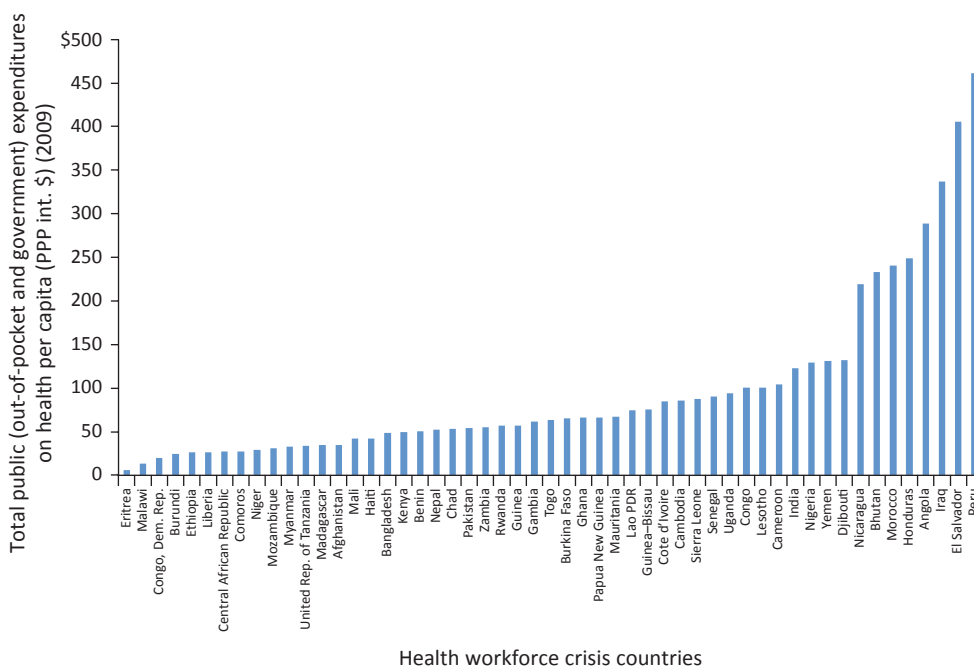
Diversity among Health Workforce Crisis Countries

The data presented in figures 2–4 lead to the conclusion that the health status of the populations in the health workforce crisis countries varies substantially as measured by key health indicators, such as child mortality, maternal mortality, contraceptive prevalence, and life expectancy. While increased DNM density has a salutary effect, countries that score similarly on this indicator exhibit very different health outcomes. One cannot draw the simple conclusion that lower DNM scores lead to worse health outcomes at a population level, without knowing whether compensating measures have been taken.

Once a more comprehensive indicator that captures a broader array of health workers is used, it becomes evident that there is much more substantial diversity of access to health care among the health workforce crisis countries than the DNM density indicator would imply. The HWRI data lead to the conclusion that some crisis countries have, in fact, found mechanisms beyond doctors and nurses for achieving reasonably high access to care, while other countries have failed to do so.

The variance in access to health workers, as measured by the HWRI, goes a long way toward explaining why there is such diversity of health outcomes among the crisis countries. Countries can and are making deliberate choices beyond producing more doctors and nurses that substantially affect access to health care and health outcomes.

FIGURE 12. TOTAL OUT-OF-POCKET AND GOVERNMENT EXPENDITURES ON HEALTH, PER CAPITA: 53 HEALTH WORKFORCE CRISIS COUNTRIES



Source: World Health Organization 2012.

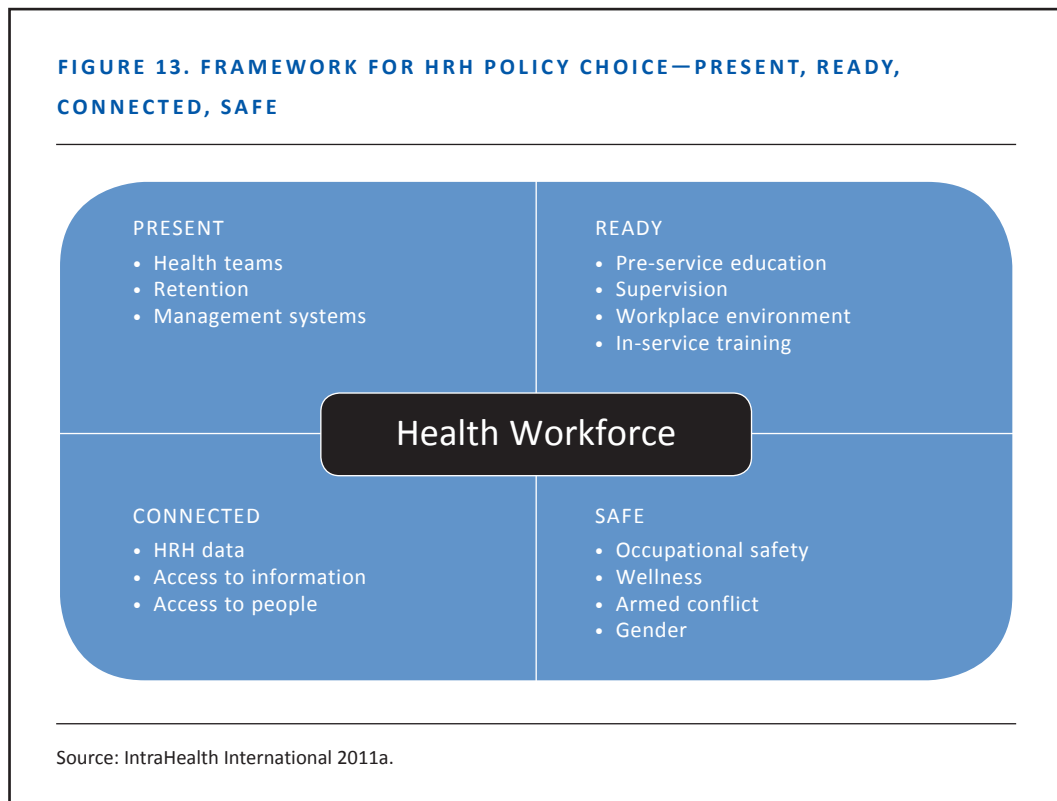
We also observe, as shown in figure 12, that twenty-eight of fifty-three of the health workforce crisis countries for which there are data have per capita health expenditures in excess of sixty dollars per capita (out-of-pocket plus government expenditures); eleven of the twenty-eight countries have government expenditures of sixty dollars per capita or more (World Health Organization 2012). This is the threshold suggested by the Taskforce on Innovative International Financing for Health Systems (2010) as the minimum needed to provide essential health care by 2015. Put another way, there are sufficient resources in the health systems of these countries to achieve access to health providers and essential services. The challenge for these nations is less an absolute dearth of resources and more the optimal allocation of available resources.

These are optimistic conclusions. A country can have modest per capita income and a low density of doctors, nurses, and midwives at a national level and achieve very substantial progress on key health indicators. Countries are not trapped by either income or the DNM density. At any

level of income or DNM density, there seems to be substantial latitude for policy choices that will affect health outcomes. Importantly, national DNM density alone is a poorer measure of health outcomes than the HWRI, which includes DNM density, DPT3 coverage, and SBA coverage and appropriately reflects a more expansive collection of health workers. Health workforce crisis countries that increase equitable access to a broader array of health workers, as measured by the HWRI, do better across a range of health indicators, including child mortality, maternal mortality, contraceptive prevalence, and life expectancy. Of course, factors other than health workers influence health outcomes, but our analysis and the literature cited earlier indicate that access to health providers has an important, independent impact.

Overcoming Shortages of Doctors, Nurses, and Midwives

What, then, are the policy choices that can help offset an unsatisfactory density of doctors, nurses, and midwives? IntraHealth International has developed an HRH policy framework called Present, Ready, Connected, Safe (IntraHealth International 2011a). This framework is depicted graphically in figure 13.



In brief, the IntraHealth framework proposes four categories of policy variables—present, ready, connected, and safe—that affect access to health workers who can provide good quality care. Here we define health workers broadly to include doctors, nurses, midwives, and the array of other providers ranging from clinical officers to health educators and community health workers.

Increasing the likelihood that health workers are present where they are most needed has three elements. The first element consists of deploying health teams composed of an array of health workers whose combined skills make the most efficient use of scarce resources to achieve the greatest public health impact (Haines et al. 1995). The allocation of responsibilities, often referred to as task shifting or task sharing, should optimize the role of each team member. Focusing on health teams gives emphasis to team members supporting each other through referral, training, supply chains, and supervision. The second element is attracting and retaining health teams where they are most needed. The WHO has developed recommendations to guide policymakers in this arena, which boil down to the observation that health worker motivations are complex and can be understood only by asking the health worker (World Health Organization 2010). The WHO report identified sixteen different types of incentives that affect retention. Appropriate incentive packages for retention can be crafted only on the basis of good evidence about health worker preferences in the context in which they are working. The third element is building effective human resource management systems that support a health workforce, including recruitment, hiring, orientation, deployment, compensation, evaluation, and performance management.

Health workers must be ready to perform. In part, this means structuring pre-service education to prepare health providers to work effectively in health teams that provide high-quality care. The report of the Commission on the Education of Health Professionals for the 21st Century (Frenk et al. 2010) emphasized that the training of health workers should reflect the fact that, in practice, they will work in teams representing health providers ranging from community health workers to physicians. Health worker readiness also requires supportive supervision that promotes good standards of performance through coaching, counseling, and training, as well as sustaining job satisfaction by helping workers manage stress and difficult situations. Health providers also need a supportive workplace environment that has the needed equipment, supplies, and other resources and the appropriate degree of latitude to make decisions within their sphere of responsibility. Regular in-service training that is responsive to the performance needs of health workers and continuously builds skills is also needed.

Health workers can also be connected to sources of support through information and communication technology (ICT). Ministries of Health and nongovernmental organizations need human resource information systems (HRIS) that maintain essential data about every health worker. A functioning HRIS is essential to staying connected with the workforce, as well

as for workforce planning and evaluation (IntraHealth International 2011b). ICT can also be used to develop peer networks among health workers that can serve as a source of support, information, professional development, and client referral. And, of course, ICT can connect health workers to vast opportunities for distance learning and accessing information resources. The increasing availability of mobile phones is making such resources accessible even to workers in remote areas.

Health providers must also be safe at work if they are to provide high-quality, accessible care. Policymakers can promote occupational safety by instituting infection prevention measures that protect health workers and establishing occupational safety standards that safeguard workers from work-related injury. Health workers and their families should also be able to access preventive and curative health care. Health workers should be protected under conditions of armed conflict. Health providers working in conflict situations are often at risk of injury or death due to violence either as a consequence of negligence or through deliberate attacks. The principle of medical neutrality must be scrupulously respected so as to ensure that health workers can serve communities in need without being imperiled. Both in the workplace and in communities, female health providers are sometimes subject to violence, harassment, and abuse, which dissuades women from accepting assignments and exacerbates attrition. Gender-based harassment and violence must be addressed through programs that detect violations of human rights and include strong measures that protect women and punish perpetrators.

More research is needed to see how these policy variables operate in different contexts and how they interact. We encourage systematic testing of the policy framework we have presented here. The model will be enriched by research exploring the relationship between the policy variables in the Present-Ready-Connected-Safe model and access to health workers, as measured by the HWRI or similar indicators. In-depth case studies comparing higher- and lower-performing countries might prove especially illuminating.

Implications for Donors and National Leaders

While acknowledging the need for further research, we believe the findings presented in this paper and the policy model suggested have important implications for donors and national leaders. Effective development assistance programs for health use epidemiological data to help guide the allocation of donor resources. They provide the basis for estimating the severity and magnitude of public health problems like child mortality, maternal mortality, the unmet need for family planning, and HIV prevalence. Donor resources can then be rationally targeted to countries and populations most in need of assistance and where the potential impact is greatest.

The analyses and policy framework presented here could contribute to the same logic in appropriately targeting HRH development assistance. The diversity among the health workforce crisis countries, as measured by the HWRI, shows that access to health workers is on a scale ranging from very poor to relatively good. Constraints on access to health workers, as measured by the HWRI, are having a greater impact on health outcomes in some of the fifty-six crisis countries relative to others. Countries that are performing poorly on the HWRI (or similar indicator) would, all other things being equal, merit special attention from donors for expanding and strengthening the health workforce. The use of donors' funds could flow from an analysis based on the Present-Ready-Connected-Safe model, which could be used to highlight the areas of greatest need and opportunity for maximizing access to qualified, supported health workers.

Most importantly, the results presented in this paper show that national leaders have the power to make real choices that will affect the health of their people. Many countries of modest means have already taken a path leading to better access to health workers and essential health services. Some poor countries are choosing to make health workers present, ready, connected, and safe. Other countries have not yet done so, though most have this possibility within their reach. This should be an empowering and hopeful message for all national leaders.

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APPENDIX 1. DATA FOR HEALTH WORKFORCE CRISIS COUNTRIES

Country	Health Workers Reach Index (HWRI)	Under-Five Mortality Rate (deaths per 1,000 children) (2010)	Maternal Mortality Ratio (deaths per 100,000 live births) (2010)	Contraceptive Prevalence in Percent among Married Women Ages 15–49, Modern Methods	Life Expectancy in Years
Afghanistan	0.368	149	460	15	44
Angola	0.425	161	450	5	50
Bangladesh	0.404	48	240	48	69
Benin	0.537	115	350	6	56
Bhutan	0.564	56	180	65	69
Burkina Faso	0.465	176	300	13	56
Burundi	0.422	142	800	18	57
Cambodia	0.476	51	250	35	62
Cameroon	0.506	136	690	12	51
Central African Republic	0.334	159	890	9	50
Chad	0.13	173	1,100	2	50
Comoros	0.497	86	280	19	61
Congo, Dem. Rep.	0.514	170	540	—	—
Congo, Rep.	0.597	93	560	13	58
Cote d'Ivoire	0.47	123	400	8	52
Djibouti	0.623	91	200	17	58
El Salvador	0.655	16	81	66	72
Equatorial Guinea	0.339	121	240	6	51
Eritrea	0.435	61	240	5	62
Ethiopia	0.287	106	350	14	56
Gambia	0.526	98	360	13	59
Ghana	0.523	74	350	17	64
Guinea	0.346	130	610	6	54
Guinea-Bissau	0.366	150	790	14	48
Haiti	—	—	—	—	—
Honduras	0.581	24	100	56	73
India	0.427	63	200	47	64
Iraq	0.517	39	63	33	69

Continued

Appendix 1, continued

Country	Health Workers Reach Index (HWRI)	Under-Five Mortality Rate (deaths per 1,000 children) (2010)	Maternal Mortality Ratio (deaths per 100,000 live births) (2010)	Contraceptive Prevalence in Percent among Married Women Ages 15–49, Modern Methods	Life Expectancy in Years
Kenya	0.418	85	360	39	57
Lao PDR	0.278	54	470	29	65
Lesotho	0.493	85	620	46	49
Liberia	0.372	103	770	10	57
Madagascar	0.414	62	240	29	67
Malawi	0.494	92	460	42	54
Mali	0.416	178	540	6	52
Mauritania	0.43	111	510	8	59
Morocco	0.564	36	100	52	72
Mozambique	0.443	135	490	12	52
Myanmar	0.534	66	200	38	64
Nepal	0.347	50	170	44	68
Nicaragua	0.596	27	95	69	74
Niger	0.346	143	590	5	55
Nigeria	0.303	143	630	10	52
Pakistan	0.435	87	260	19	65
Papua New Guinea	0.359	61	230	24	62
Peru	0.621	19	67	51	74
Rwanda	0.505	91	340	45	55
Senegal	0.468	75	370	10	59
Sierra Leone	0.394	174	890	7	53
Somalia	0.216	180	1,000	1	51
Togo	0.509	103	300	11	62
Uganda	0.377	99	310	18	54
United Rep. of Tanzania	0.432	76	460	26	57
Yemen	0.355	77	200	19	65
Zambia	0.438	111	440	27	49
Zimbabwe	0.459	80	570	57	46

Note: Dashes indicate missing data.

Sources: HWRI scores: Save the Children 2011; under-five mortality rate: World Bank 2010; maternal mortality ratio: World Health Organization 2012; contraceptive prevalence and life expectancy: Population Reference Bureau 2011.

APPENDIX 2. SENSITIVITY ANALYSIS

		Health Workers Reach Index (HWRI)	DPT 3 Coverage	Percent of SBA	DNM Density (per 1,000 people)
Child mortality	$r^2 =$	0.27480396	0.165640663	0.020053547	0.215562225
	$p =$	3.37269E-05	0.002044577	0.347854091	0.000356123
Maternal mortality	$r^2 =$	0.588898	0.152786	0.062732	0.224824
	$p =$	0.000012	0.003171	0.09318	0.000255
Contraceptive prevalence	$r^2 =$	0.267998131	0.1762312	0.057139609	0.178772693
	$p =$	6.09991E-05	0.001419754	0.109617641	0.001300202
Life expectancy	$r^2 =$	0.227101938	0.194177334	0.006141303	0.174662028
	$p =$	0.000269658	0.000759877	0.604683524	0.001498863

Notes: DPT3: three doses of the diphtheria-pertussis-tetanus vaccinations; SBA: births attended by a skilled birth attendant; DNM: doctors, nurses, midwives.

Sources: DPT3 percent: UNICEF 2010; SBA percent: United Nations Population Fund 2011; DNM density: Global Health Workforce Alliance 2011.

APPENDIX 3. HEALTH WORKERS REACH INDEX COMPONENTS

HRH Crisis Country	Percent of Children Having Received Coverage DPT3	Percent of SBA	DNM Density (per 1,000 people)
Afghanistan	66	14	0.7
Angola	91	—	1.43
Bangladesh	95	18	0.58
Benin	83	74	0.83
Bhutan	91	71	0.34
Burkina Faso	95	54	0.79
Burundi	96	34	0.22
Cambodia	92	44	1.01
Cameroon	84	63	1.79
Central African Republic	54	53	0.49
Chad	59	14	0.32
Comoros	74	62	0.89
Congo, Dem. Rep.	63	74	0.64
Cote d'Ivoire	85	57	0.62
Congo	90	—	0.91
Djibouti	88	61	0.75
El Salvador	92	—	2.04
Equatorial Guinea	33	—	0.83
Eritrea	99	—	0.63
Ethiopia	86	6	0.26
Gambia	98	57	0.61
Ghana	94	57	1.08
Guinea	57	46	0.14
Guinea-Bissau	76	39	0.6
Haiti	59	26	0.36
Honduras	98	—	1.89
India	72	47	1.85
Iraq	65	—	1.58
Kenya	83	42	1.32
Lao PDR	74	20	1.32
Lesotho	83	—	0.67

Continued

Appendix 3, continued

HRH Crisis Country	Percent of Children Having Received Coverage DPT3	Percent of SBA	DNM Density (per 1,000 people)
Liberia	64	46	0.28
Madagascar	74	51	0.48
Malawi	93	54	0.3
Mali	76	49	0.27
Mauritania	64	61	0.8
Morocco	99	63	1.34
Mozambique	74	55	0.34
Myanmar	90	57	1.34
Nepal	82	19	0.67
Nicaragua	98	74	1.44
Niger	70	33	0.16
Nigeria	69	39	2.01
Pakistan	88	39	1.16
Papua New Guinea	56	53	0.58
Peru	93	—	1.84
Rwanda	80	52	0.47
Senegal	70	52	0.48
Sierra Leone	90	42	0.19
Somalia	45	33	0.15
Togo	92	62	0.32
Uganda	60	42	1.43
United Rep. of Tanzania	91	43	0.25
Yemen	87	36	0.99
Zambia	82	47	0.77
Zimbabwe	83	80	0.88

Notes: HRH: human resources for health; DPT3: three doses of the diphtheria-pertussis-tetanus vaccinations; SBA: births attended by a skilled birth attendant; DNM: doctors, nurses, midwives. Dashes indicate missing data.

Sources: DPT3 percent: UNICEF 2010; SBA percent: United Nations Population Fund 2011; DNM density: Global Health Workforce Alliance 2011.

APPENDIX 4. HWRI, GNI PER CAPITA, AND ADULT FEMALE LITERACY MULTIPLE REGRESSION

	Health Workers Reach Index (HWRI)	Gross National Income (GNI) per Capita	Adult Female Literacy
Child mortality rate $r^2 = 0.412187$	$p = 0.005555$	$p = 0.814929$	$p = 0.077808$
Maternal mortality ratio $r^2 = 0.588898$	$p = 0.000012$	$p = 0.011835$	$p = 0.976346$
Contraceptive prevalence rate $r^2 = 0.556266$	$p = 0.024664$	$p = 0.069966$	$p = 0.000485$
Life expectancy $r^2 = 0.259988$	$p = 0.003435$	$p = 0.526998$	$p = 0.321178$

Sources: HWRI: Save the Children 2011; GNI per Capita: World Bank 2010; adult female literacy: World Bank 2009.

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Mary Beth Powers is chief of the Save the Children Newborn and Child Survival Campaign, which seeks to address the problems of the seven million children who die annually around the world from preventable or treatable causes. Powers is also the chair of the Frontline Health Workers Coalition, a group of more than twenty-five NGOs working together to urge greater and more strategic US investment in frontline health workers in the developing world. Powers has worked for twenty years to support maternal and child programs in more than twenty countries. She has a BSFS from Georgetown University and an MPH from the University of Michigan.

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AUTHOR CONTRIBUTIONS

Middleberg conceived the paper and served as lead author. **Rangarao** carried out the data analysis and developed the graphics. **Hoemeke, Powers, Stilwell, and Tulenko** contributed critical ideas and language during successive drafts of the paper.

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3. FOR MORE EFFECTIVE HEALTH AID IN AFRICA

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CHALLENGES TO HEALTH AID EFFECTIVENESS

For decades, official development aid (ODA) has helped Africa to reduce poverty, build local capacity, reduce inequality, and improve the health and well-being of the population (AfGH 2008; Hollway et al. 2011; OECD 2012a). It is widely believed that aid for health has saved millions of lives and improved the livelihood of families (Nikolov 2006).

Nevertheless, despite the aid and the remarkable developments over recent years, 350 million Africans still lack access to clean water sources and basic sanitation. Africa still has the heaviest burden of communicable and noncommunicable diseases, especially from HIV/AIDS, TB, and malaria, and child and maternal mortality (WHO 2010b). More than 48 percent of all Africans live on less than US\$1.25 a day (UNECA and AU 2012). Development health aid has been seen as arguably less successful than desired in delivering the intended results for a variety of reasons. These include dysfunctional and rudimentary local systems, complex donor bureaucracies, poor inter- and intradonor coordination, and failure of stand-alone health projects to deliver the expected tangible results (Easterly 2002; Oomman, Bernstein, and Rosenzweig 2007; Wood et al. 2008). In many cases, lack of coherent strategic planning by donors and differences in donor approaches have limited the effectiveness of aid (Easterly 2002; Hollway et al. 2011). Also, high transaction costs associated with ODA and irregular and unpredictable funding add to the challenges (Vandeninden 2012).

The purpose of this paper is to contribute to the mounting call to improve the impact and value of health aid in Africa and increase the understanding of the related obstacles that confound achieving the desired health outcomes. The paper examines key aspects of official foreign aid dynamics and management for health in Africa and identifies approaches that have potential to improve the effectiveness of ODA in terms of its impact on health and sustainable improvements in health systems.

What Is Aid Effectiveness?

Since the 2003 Rome Declaration, development aid has been increasingly on the agenda of donor agencies and national governments (OECD 2003a, 2003b). This focus grew out of the mounting concern over aid effectiveness in recent decades and pressures to improve the return on investments of donor funding.

The World Bank defines aid effectiveness thus: “It is about improving the delivery and management of aid so partner countries can more easily achieve their development objectives” (World Bank. 2012). Aid Effectiveness addresses a variety of modalities and principles for delivering and managing aid to achieve agreed development objectives cost-effectively. To realize these objectives the full engagement of both development partners and partner countries is

deemed critical and mandatory. While development needs far more than aid to be successful and sustainable, aid nonetheless still plays an important catalytic role for development in many countries and communities (World Bank 2011b).

The Fourth High Level Forum on Aid Effectiveness (HLF4) has a more tailored definition that links aid with the Millennium Development Goals (MDGs) for a more tangible and measurable approach. It states, “Aid effectiveness is about ensuring maximum impact of development aid to improve lives, cut poverty and help achieve the Millennium Development Goals” (Busan HLF4 2011).

HEALTH AID IN AFRICA

Africa benefits from a great proportion of the total amount of global foreign aid. It received an estimated US\$76.3 billion between 1960 and 1979, US\$715.9 billion from 1980 to 2004, and US\$40.1 billion in 2008 alone (Ilorah 2011). In particular, sub-Saharan Africa received the largest share of global health aid compared with any other region when it received 31.9 percent and 47.4 percent of all global health aid in 2002 and 2010, respectively (Wexler, Valentine, and Kates 2013). Yet, critics argue that the impact of these huge amounts of resources is unsatisfactory. This funding, according to many analysts, has not adequately reduced poverty, resolved major health challenges in terms of essential infrastructure, advanced sector regulatory institutions and operational systems, or secured essential health care services for the poor and vulnerable (Easterly 2002; World Bank 2007).

Unable to fully finance needed health care for their citizens, the majority of African countries are dependent on foreign aid. In fact, two-thirds of the forty-seven fragile and low-income sub-Saharan governments spend less than the US\$34 per capita per year on health recommended by WHO, which is the minimum amount required to provide basic health care services (WHO 2011a). Table 1 provides data for a selected sample of least-developed African countries and the amount of ODA they received for health.

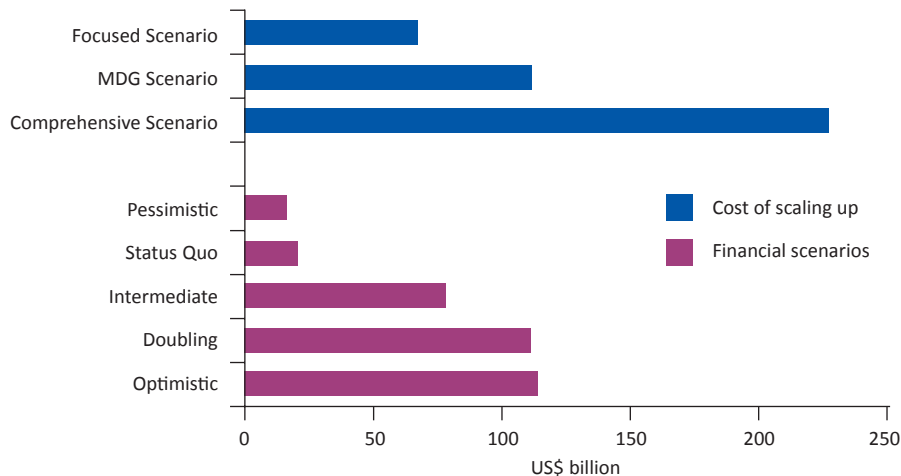
TABLE 1. HEALTH AID IN SELECT AFRICAN COUNTRIES

Country	Population (millions) 2005*	Health ODA per Capita (US\$) 2002–2006**	ODA (percent of GDP) 2005*	% GDP on Health 2008***
Ethiopia	79.0	2.9	17.3	4.3
Mozambique	20.5	9.9	19.4	4.7
Niger	13.3	3.4	15.1	5.9
Zambia	11.5	20.0	13.1	4.8

Sources: *UNDP 2007; **WHO 2008; ***WHO 2011c.

Additional resources are needed in the African region to achieve health targets. Soucat (2010) analyzed different financial scenarios to attain better health for Africans and demonstrated the substantial funding gap that needs to be filled to enable African countries to attain MDGs. Figure 1 shows that the most ambitious “comprehensive scenario” scale-up exceeds even the most optimistic financial scenario. On the other hand, the most realistic “focused scenario” scale-up is feasible under three out of five financial scenarios (World Bank et al. 2009).

FIGURE 1. FINANCIAL SCENARIOS TO ATTAIN MDGS



Source: Soucat, A. 2010. Health Financing in Africa: Buying More Health for the Money? Presentation of the African Development Bank at the Harmonizing Health for Africa (HHA) Directors Meeting, December 13, Dakar, Senegal. Reprinted with permission.

Health is a labor-intensive sector, and the health workforce crisis remains a major continental bottleneck despite global health aid (WHO 2006). Experts note that the potential benefits of aid are not fully realized due to the underperformance of service delivery (Berman and Ahuja 2008), which includes the lack of qualified health care workers. The shortage of a skilled health workforce and poorly functioning health systems limit access to quality health care services and adversely impact the health status of Africans. For aid to deliver more value for the money, countries in the region need to strategically and sustainably improve equitable access to and the quality of health care services. With pressure to deliver more for less, donors and recipient countries alike need to demonstrate results and best practices.

GLOBAL AID ARCHITECTURE IN HEALTH

Although there are more donors to health than to any other sector (WHO 2007a), the health sector is fraught with complex challenges and inefficiencies. Health is inherently complex and the structure of aid assistance and collaborations between donors and countries is critical. The proliferation of new donors such as the Global Fund, GAVI, and others, along with changing

approaches for delivering and managing aid, have precipitated a new and more diverse aid architecture that challenges donors and recipient countries as they work to improve aid effectiveness and impact (OECD 2011b). Whilst diverse aid approaches can bring benefits, they often challenge country ownership and alignment and can lead to duplicate and fragmented approaches at global and national levels (AfDB 2010; DFID 2011; OECD 2012a). Aid can also challenge (1) achieving complementarity across national, regional, and global development priorities and programs and (2) strengthening recipient countries' ability to make effective use of potentially scaled-up, rapidly disbursed health ODA.

Project-Based Aid

Project-based aid dominated development assistance for several decades. Often, planning and implementation problems can coexist in donor-driven projects. These include poorly defined project goals, inadequate local participation in planning, failure to align programs with existing structures, and lack of integration with domestic systems and norms (Dickinson 2011; WHO 2010a). In addition, recipient countries are calling for a greater voice in defining the focus of ODA so it serves their national priorities as well as respects their sovereign choices and leadership.

With many international organizations involved in health projects, frequently there are overlapping and unclear mandates that require robust coordinating mechanisms. To illustrate, during the past decade alone, the majority of health donor organizations that emerged (The Global Fund, GAVI, Bill & Melinda Gates Foundation) are disease-focused and rely on vertical programs. While these programs have achieved remarkable progress in terms of infectious disease interventions, critics of disease-specific program funding assert that such models overlook opportunities for sustainable systems strengthening. Vertically funded programs are thought to have weakened health systems (Ram 2004), created double standards within countries (Hansen and Tarp 2000), and offered incentives that other parts of the health system do not provide. Vertical donor-funded projects that run parallel to national health systems are seen by some as contributing to the distortion of an already weakened health system as they increase the loss of skilled health workers from the public sector (ibid.).

USAID, one of the largest global development programs, heavily relies on tailor-made project assistance to help countries. It uses aid and partnerships as its strategic approach in long-term development programs. USAID funding for HIV/AIDS alone was doubled between 2000 and 2004 when the US President's Emergency Plan for AIDS Relief (PEPFAR) was created to address the global HIV crisis especially in low-income countries and fragile states. Sturchio and Cohen (2012) argue that PEPFAR is an example of a successful bilateral program and that good governance can make aid projects deliver results. They conclude that setting ambitious goals and creating a culture of partnerships, collaboration, planning, monitoring, and evaluation are key to effective

aid programs. Others argue that PEPFAR support has not been adequately coordinated and can undermine national policies (Oomman, Bernstein, and Rosenzweig 2007). A 2007 review found that PEPFAR funding was channeled largely outside government systems and that host government involvement in the oversight of PEPFAR programs was limited. The review also noted that most PEPFAR funding was awarded to international—mainly US nongovernmental—entities, and while some funding is awarded to recipient governments, the major portion of funding is managed and overseen by US government personnel (*ibid.*). Earmarking support to HIV alone created a situation in which lots of resources were pooled to HIV programs while the rest of the country's health systems and services were in severe shortage of resources. For example, in 2006, when Zambia's entire Ministry of Health budget was only US\$136 million, PEPFAR provided the country with an HIV-targeted budget of US\$150 million. This unbalanced distribution of health funding occurs across sub-Saharan Africa (De Maeseneer et al. 2008).

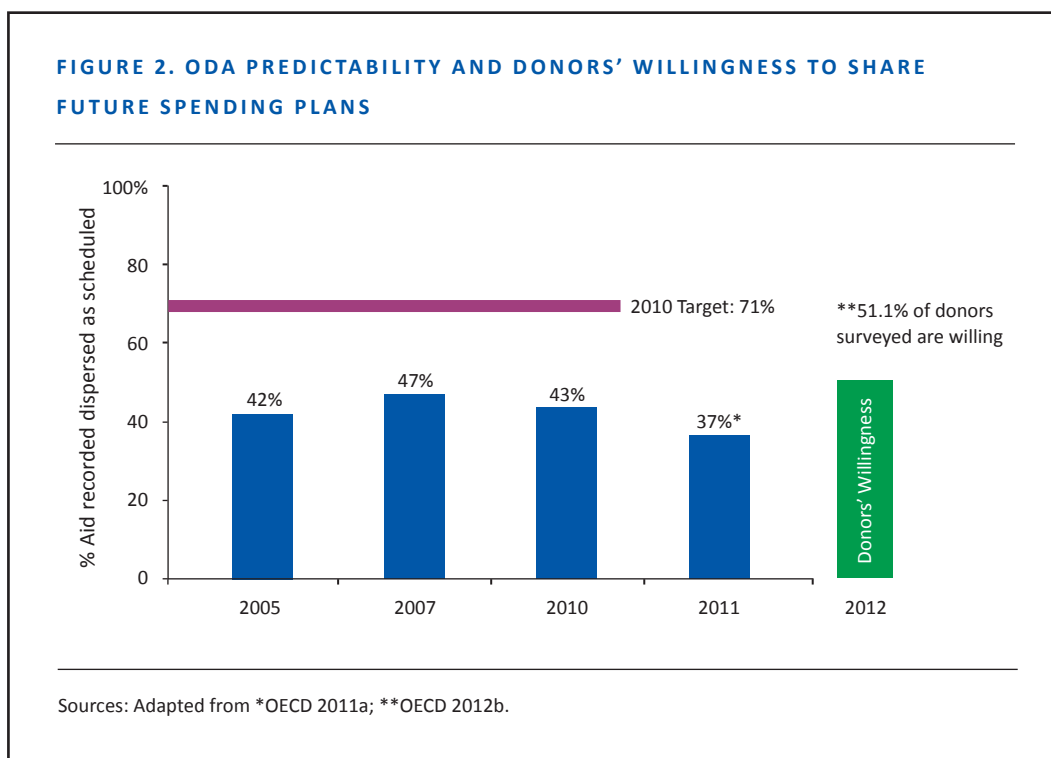
In contrast to the doubling of HIV funding, between 2000 and 2004 the funding of primary health care was reduced by half (Schneider and Garrett 2009). The emergence of new global health threats like SARS and avian and swine flu has drawn attention to the need for concerted global action to potential pandemics using a more integrated and sustainable approach with responsive regional mechanisms in place.

Aid Uncertainty

Historically, aid has often been short-term and unpredictable (AfGH 2008; OECD 2011a). In 2007, the level of OECD aid funding fell by 8.4 percent, and most donors did not fulfill their stated commitments to scale up aid to 0.7 percent GDP (OECD 2011a). Especially worrisome is the decline of aid to the health sector in many countries (AfGH 2008; Wexler, Valentine, and Kates 2013). The aid promised is not necessarily delivered (Abbott and Rwirahira 2012). An analysis of aid commitments and disbursements for the period from 2004 to 2006 found that average disbursements of ODA exceeded 80 percent of annual commitments (OECD 2011a). Although the differences between the committed and actual aid disbursed are not large, these data do not reveal delayed payments, which can cause serious disruption, especially for the least developed countries that have limited flexibility. Figure 2 shows that, on average between 2005 and 2010, only 44 percent of aid to thirty-two countries surveyed was disbursed in the year for which it was scheduled and recorded as such in partner government accounts (OECD 2011a). When all seventy-eight countries that participated in the 2011 survey are considered, this figure falls to 37 percent (*ibid.*). Figure 2 also shows the outcome of a more recent survey in 2012 where just over half the donors surveyed declared they were willing to share future spending plans (OECD 2012b).

In Accra in 2008 and in Busan in 2011, donors renewed their commitment to improve the availability of information on aid flows to support medium-term planning and increase the

transparency around conditions attached to aid. Making aid more predictable requires most donors to address structural constraints in their own planning and budgeting systems in order for them to be able to provide reliable indications of future expenditures (OECD 2011a). In addition, an article from the WHO *Bulletin* indicated that relatively small proportions of aid for health were paid in line with national fiscal cycles and administrative norms (Piva and Dodd 2009). Between 2002 and 2006, direct budget support commitments were only 6.4 percent of the total ODA, excluding debt relief (ibid.).



International Technical Assistance

The report from the Third High Level Forum on Aid Effectiveness (HLF3) held in Accra noted that in the period from 2004 to 2006, 41.7 percent of all health ODA was spent on technical assistance (World Bank, OECD, and WHO 2008). This included salaries for national staff and international short- and long-term experts, training, and related activities aimed at building human capital and strengthening local health systems. From this, a seemingly large proportion of aid then returns to donor countries in the form of remittances that international staff transfer home from the high fees they are paid.

South-to-South Aid: A New Paradigm?

New donors have emerged over the past decade, which brings exciting dynamics and a new landscape of ODA. China, India, and other mid-income countries (MICs) are now major world economic and political powers and play an increasingly important role in international cooperation. Those new MIC donors are investing in Africa through partnership agreements rather than the traditional aid modality. BRIC countries (Brazil, Russia, India, China, and South Africa) channel their support through knowledge exchange, investments, technology transfers, trade, and financial support (World Bank 2011b). China's foreign direct investment in Africa represented US\$900 million of the continent's US\$15 billion total in 2004. China is now the continent's third most important trading partner, behind the United States and France and ahead of Britain (Kohli 2009). Brazil, India, and others are also investing heavily in Africa through partnerships and expanding the paradigm of south-to-south collaboration.

BRIC countries increasingly support health and education sectors. Further, Brazil, Cuba, and Venezuela are prominent providers of teachers and doctors to other developing countries (ECOSOC 2008). By the end of 2009, China had helped to build fifty-four hospitals, set up thirty malaria prevention and treatment centers, and provided anti-malarial drugs to thirty-five African countries (AfDB 2010).

EFFORTS TOWARD HARMONIZATION

Since the 2000 Millennium Development Summit, work to improve aid effectiveness has intensified. The 2003 Rome High Level Forum on Harmonization gathered leaders of bi- and multilateral development institutions, funders, and national leaders who committed to work to this end (OECD 2003a). In the same year, findings of a study of donor missions in Vietnam reported that Vietnam received four hundred separate donor missions in one year, of which just 2 percent were jointly coordinated (Piron and Evans 2004).

The March 2005 Paris Declaration on Aid Effectiveness (box 1) aimed to achieve far-reaching reform of aid delivery and management. It emphasized that aid volume and effectiveness must increase significantly to support recipient countries' efforts to strengthen governance and systems and improve overall development performance.

The Paris Declaration put in place a framework of specific implementation measures and established a road map to harmonize plans, coordinate resource mobilization, assess progress, and ensure that donors and recipients hold each other accountable for their commitments.

BOX 1. 2005 PARIS DECLARATION

The 2005 Paris Declaration identified five main principles for improved aid outcomes:

1. Ownership: Developing countries should exercise effective leadership over their development policies and strategies and effectively coordinate development actions.
 2. Alignment: Donors should base their overall support on countries' national strategies, institutions, and systems.
 3. Harmonization: Donors' actions should be coordinated, transparent, and collectively effective.
 4. Managing for results: Aid should be managed focusing on desired results and promoting effective decision making.
 5. Mutual accountability: Donors and recipient governments should enhance mutual accountability and transparency in the use of aid resources.
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Sources: OECD 2010; Roberts 2010.

Despite the limitations of the principles as defined in the Paris Declaration and the absence of reliable indicators to assess progress, the declaration increased global awareness and interest to coordinate aid and align processes and procedures at the country level to improve effectiveness and overall development outcomes. The declaration established a global consensus on placing aid effectiveness high among global priorities so that mutual donor-recipient accountability for greater outcomes is realized.

Strengthening the Paris Framework

The momentum created by the Paris Declaration prompted analysts to suggest the following improvements for aid effectiveness (Roberts 2010; WHO 2011b):

1. Improve clarity and comprehensiveness of the indicators and monitoring process in a coherent sector policy framework.
2. Accept and manage the risk of using country and other partners' systems instead of insisting on using donor-specific systems.
3. Strengthen transparency and mutual accountability.
4. Involve all stakeholders from the donor community, civil society, and NGOs in the process.
5. Provide the political will and government leadership to ensure delivery of inclusive results.
6. Avoid bureaucracy and the incurred transaction costs for more efficiency and effectiveness.

7. Minimize long-term foreign technical assistance while strengthening domestic technical and management capacity.

Although the MDGs include an indicator to monitor reductions in tied aid, in 2009 about 15 percent of bilateral aid remained tied (Clay, Geddes, and Natali 2009). The report, produced by the Danish Institute for International Studies, found that the proportion of fully untied bilateral aid rose progressively from 46 percent in 1999–2001 to 76 percent in 2007, and for the least developed countries it has increased from 57 percent to 86 percent. Taking into account multilateral aid, the proportion of untied ODA has risen to 83 percent overall (ibid.). Untying aid is essential to reduce transaction costs and bring more value, more ownership, more competitiveness, and greater development outcomes to recipient countries.

Aligning Aid with Local Systems

Since 2005, aid instruments have slowly but steadily become more adapted to the local country systems and norms. On one hand, local systems are generally weak or rudimentary so that they are likely to slow project progress and impose hurdles on the planning and implementation teams. On the other hand, working within local systems provides the foundation for real ownership, systems strengthening, and sustainable development (InterAction 2011).

Sector-Wide Approach (SWAp), General Budget Support (GBS), and Sector Budget Support (SBS) programs significantly increased country ownership (ICAI 2012; Bakoup 2012). These instruments, which represent 30 percent of all global foreign aid (World Bank 2011b), have increased country ownership and have improved quality of planning, resource allocation, and implementation. And, they have been noted to reduce transaction costs and hence improve efficiency (Vandeninden 2012). Donors argue that General Budget Support, however small, has been influential in catalyzing and sustaining reform and has a positive impact on growth (WHO 2010a).

Notably, health programs are influenced by and delivered through other sectors like education, water resources, civil work, and environment that are largely out of the direct control of the health sector. Therefore, collaboration and coalition building across those sectors is instrumental. Bringing on board those sectors not only through government but also through the private sector and civil society is prudent in order to influence strategies and activities related to key determinants of health and to support healthy public policies. It is vital to keep the different parts connected (WHO 2007b).

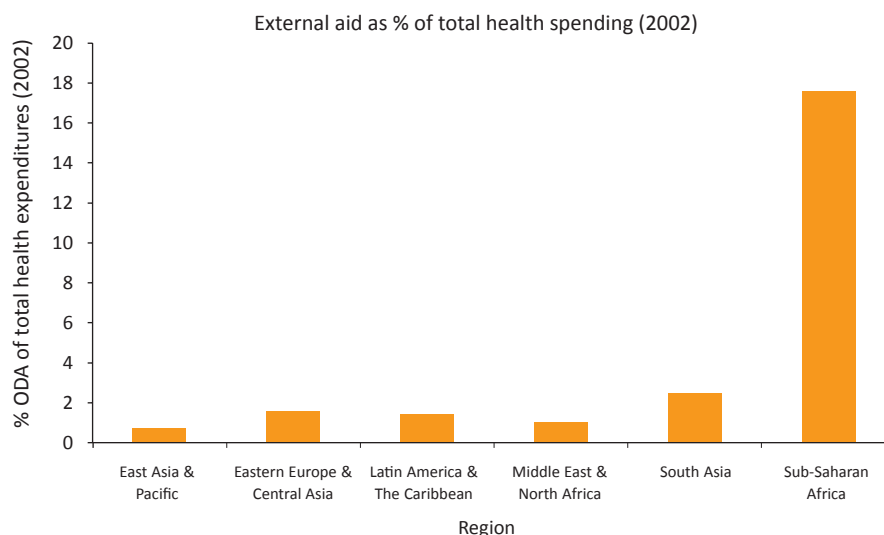
HEALTH AID FOR RESULTS

A cardinal objective of the aid effectiveness agenda is to improve the lives and well-being of people and, in particular, the most vulnerable in society. (—Kwabena Duffour, Minister of Finance and Economic Planning, Ghana, AfGH 2011)

Health care systems and services in sub-Saharan African countries remain dependent on external aid compared with other regions in the world (figure 3). Between 1990 and 2010, health sector aid to Africa increased more than sixfold, from US\$4.4 billion to more than US\$26.8 billion (AfGH 2011). Nevertheless, the unfilled gap in health remains large at an estimated US\$20–30 billion a year (WHO 2010b). At a conservative estimate, WHO noted that 20 to 40 percent of health resources are wasted.

Reducing waste and inefficiencies would greatly improve the ability of health systems especially in low-income countries and fragile states to provide quality services and improve health. Furthermore, improved efficiency often makes it easier for the Ministry of Health to make a case for obtaining additional funding from the Ministry of Finance (WHO 2010b).

FIGURE 3. HEALTH AID BY REGION



Source: Soucat, A. 2010. Health Financing in Africa: Buying More Health for the Money? Presentation of the African Development Bank at the Harmonizing Health for Africa (HHA) Directors Meeting, December 13, Dakar, Senegal. Reprinted with permission.

A recent WHO report estimated that only seven African countries are on track to reach the target for MDG 4 and only two are on track to achieve MDG 5 by 2015 (WHO 2011b). Good governance, leadership, skilled health workforce, effective health management information systems, and adequate financing are deemed crucial for health sector performance. Strengthening infrastructure is critical for health improvement. Infrastructure development in terms of health centers, essential laboratory equipment, diagnostics, communication technology, roads, water, and sanitation are fundamental for health improvement (OECD 2012a). The former head of Interim National Government, Chief Ernest Shonekan, estimated that sub-Saharan Africa needs to spend approximately US\$93 billion per year over the next decade to bridge its infrastructure gap despite Africa's increased investments in infrastructure from US\$17 billion to US\$35 billion between 2001 and 2009 (Ofose 2011). The focus on strengthening infrastructure, including information and communication technology (ICT), in sub-Saharan Africa is a key strategy for achieving MDGs (WHO 2011a).

REALIZING AID EFFECTIVENESS

Donor funding represents a major component of the global financial response for health in low-income countries and fragile states (Wexler, Valentine, and Kates 2013). The grim economic climate portends a continued financial crisis that inevitably impacts ODA and health aid. As such, the importance of making health aid more effective increases.

There is strong evidence that the principles of the Paris Declaration could lead to more effective aid. Increasingly, aid instruments that are driven by national leadership, harmonization, and mutual accountability have greater potential to deliver more value for the money (Bakoup 2012; European Commission 2008; Mutalemwa 2009; OECD 2012a; Roberts 2010; World Bank 2011b). Sector Wide Approach (SWAp), Sector Budget Support, and General Budget Support are widely considered superior to project-based models as they are better coordinated with country needs and aligned with national policies and strategies and local systems for sustainable development. Because the health workforce plays such a critical role in African health systems, major attention should be directed to its transformation to enable it to deliver quality health care services sustainably at lower cost.

The Global Monitoring Report 2011 by the World Bank set three policy directions to boost the impact of international support in human development: (1) enable low-income countries to sustain economic growth through repairing fiscal imbalances and macroeconomic policy reforms supported by the donor community over an extended period of time; (2) help low-income countries improve their infrastructure so that more rapid economic growth can be achieved and sustained, as donor countries can provide policy, technical, and financial

assistance; and (3) support fragile states to build institutions and accelerate development outcomes assisted through enabling an environment of peace and security (World Bank 2011a).

Additional resources are needed to help Africa attain the health-related MDGs by 2015. However, better health outcomes could be realized from the current limited resources (AfGH 2008). For health aid to be more effective, governments and donor agencies need to address the challenges described here and to incorporate the lessons learned into their systems and plans of action. Health expenditures are now increasingly monitored in order to help countries effectively address their health priorities. Health aid can better contribute to measurable health improvements expressed in a set of agreed-on plans and reliable indicators in an environment of increased institutional transparency, accountability, and national leadership. Health aid to Africa should no longer focus on only the amount of money disbursed but also on the achieved health gains expressed in quantitative and qualitative measures.

The Paris Declaration laid down the principles and foundations for aid effectiveness and greater health outcomes for the money. Robust donor coordination mechanisms and alignment with country systems, processes, and procedures will help accelerate achieving national health plans. A concerted approach to strengthening local health systems in consistent and incremental ways is paramount for sustainable, systemic progress and more health for the money. To this end, Direct and Sector Budget Support, Sector-Wide Approach, and the like are believed to be the financing mechanisms of choice to strengthen country ownership and effective leadership that could improve the health of populations in Africa. Managing for results is the key to the best value and health for the money.

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AUTHOR CONTRIBUTIONS

Atef El Maghraby is the lead author. He formulated the concept of the paper and researched health aid and its effectiveness. He drew on a number of health development reports that he produced focused on health workforce, value for money health results, and systems within donor dynamics that evolved after the Paris Declaration.

Feng Zhao provided the conceptual framework of how aid architecture evolution can be harnessed in Africa and deliver more health outcomes and sustainable health systems development. His experience at the World Bank and African Development Bank together with strategic partnerships and policy dialogues with global health donors helped to inform his input into this manuscript and the need for improved aid outcomes in the African region.

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PART II.

NOVEL APPROACHES TO HEALTH PROFESSIONAL EDUCATION

4. BUILDING NURSE AND MIDWIFERY CAPACITY IN MALAWI: A PARTNERSHIP BETWEEN THE GOVERNMENT OF MALAWI AND THE PEPFAR/NURSING EDUCATION PARTNERSHIP INITIATIVE (NEPI)

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Malawi's health care system is amongst the most seriously strained systems in all of sub-Saharan Africa. This is mostly because of the high demand for clinical care services and the high burden of communicable, noncommunicable, and preventable diseases coupled with the severe shortage of health care providers. The purpose of this paper is to present the process of collaboration between the Malawi Ministry of Health (MOH) and the US President's Emergency Plan for AIDS Relief (PEPFAR) to establish an integrated, comprehensive approach to increase the number of qualified health professionals. In September 2010, PEPFAR created an initiative to provide support for scaling up the nursing profession through the PEPFAR Nursing Education Partnership Initiative (NEPI), while the MOH advanced reforms through the establishment of a National HRH Strategic Plan. Funding for the NEPI was available to a select number of countries, including Malawi, during the following year, 2011. The partnership between the government of Malawi and PEPFAR has defined an effective model for tackling the shortage of well-trained nurses and midwives.

COUNTRY CONTEXT

Malawi, with a population of approximately 13 million, is characterized as predominantly rural (84.7 percent), young (47 percent less than fifteen years of age), and poor (73.9 percent population living on less than \$1 [purchasing power parity at dollar rate] a day) (WHO 2011). There exists a high burden of communicable and noncommunicable diseases, including HIV, malaria, tuberculosis, hypertension, cardiovascular disease, mental illness, and diabetes (WHO 2011). And, the health system is often characterized as extremely weak and fractured, as having inadequately trained providers, and as suffering from a lack of resources to address current population-based health needs (Mueller et al. 2011).

There are three main health services providers in Malawi, namely, the government, nongovernmental organizations (NGOs), and the private sector. The government is the largest provider, operating 55 percent of all health facilities in the country, followed by the private or for-profit sector (20 percent), Christian Hospital Association of Malawi (CHAM) (14 percent), other nongovernmental organizations (6 percent), and statutory organizations and companies (5 percent) (Ministry of Health 2008).

The current human resources for health (HRH) situation is characterized by chronic and severe shortages of health care providers, imbalances in the mix and distribution of skilled and competent providers (table 1), and highly underresourced health care provider training and service delivery sectors (WHO 2011). Due to the severe shortage of clinicians, the health system relies predominantly on nonphysician clinicians, primarily nurses and community health workers, as a means to provide adequate access to health care for the general population (Ministry of Health 1999).

**TABLE 1. MALAWI HEALTH CARE WORKER NUMBERS AND RATIOS—
PHYSICIANS, NURSES, AND MIDWIVES**

Physicians		Nursing and Midwifery Personnel	
Number	Density (per 1,000 population)	Number	Density (per 1,000 population)
257	.02	3,896	.28

Source: WHO 2011.

As in most settings, nurses are considered to be the backbone of the health delivery system. However, the current vacancy rate for nursing and midwifery positions in the public sector is 65 percent, and workforce geographical distribution is severely imbalanced, with 74 percent of providers in urban areas serving 19 percent of the population (Brugha et al. 2010). There are 3,896 practicing nurses/midwives; an additional 23,000 are needed to adequately address the population’s health needs (African Health Workforce Observatory 2009). The sixteen nursing schools, both government and private, collectively graduate approximately 650 new nurses per year. In order to fill current public service vacancies, the number of annual nursing graduates would need to increase by nearly 20 percent. Although intake numbers have grown by 119 percent over the past five years, the number of educators has increased only 26 percent. Recent studies have also raised concerns about the quality of care provided by health care workers, including nurses, in the delivery of the Malawian Essential Health Package (EHP), which was developed in 2002 to identify cost-effective interventions that addressed local burden of disease and mortality (Chilowa et al. 2001; Mueller et al. 2011). Adding to this imbalance, nearly a third of the nursing workforce is non-practicing, due to poor salaries, inadequate living and working conditions in rural areas, and limited advancement opportunities (Caffrey and Frelick 2006; Ministry of Health 2010).

This paper describes the partnership between Malawi’s national government and numerous external organizations and governments, including international donors, to support national health care workforce reforms, examine the key elements employed to build nursing capacity

through the PEPFAR/NEPI program, summarize key issues from the perspectives of the government and training institutions, and report the lessons learned to date.

In response to these historic challenges, the government of Malawi (GOM) implemented a series of health sector strategic plans with broad reforms over the past decade. The GOM adopted a strategic plan to address the human resources for health crisis through the development of the Health Sector-Wide Approach (SWAp) and joint Programme of Work (2004–2010). These documents encompassed the Six-Year Emergency Pre-service Training Plan, launched in 2002, and the 2004 Emergency Human Resource Programme (EHRP). The goal of these efforts was to increase the availability and quality of delivery of the EHP and other health services.

In general, the EHRP and SWAp were considered to be successful in increasing the production of many of the health care worker cadres, although serious shortcomings still remained due to emerging health needs and challenges to administrative systems and training institutions. The GOM has recently launched the National Health Strategic Plan (NHSP) (2011–2016) to build on the successes of SWAp with an emphasis on increasing coverage of an expanded EHRP through targeted health system and HRH interventions. The new plan includes implementing the National Nurse/Midwife Training Operational Plan over five years to double the training capacity for nursing and midwifery. The NHSP (2011–2016) serves as the primary blueprint for addressing the current challenges across the health sector (Ministry of Health 2011).

In October 2009, the US Department of State, Office of the Global AIDS Coordinator, established a nursing capacity building initiative, the Nursing Education Partnership Initiative (NEPI), in collaboration with the US Department of Health and Human Services, Health Resources and Services Administration (HRSA), to fund a select number of PEPFAR-supported countries. The purpose of the NEPI is to strengthen and expand the capacity of host governments, regulatory bodies and professional associations, and pre-service training institutions in implementing, managing, and/or monitoring pre-service training programs for nurses and midwives. Malawi was selected as a NEPI awardee due to several factors: the strong role of the government in addressing HRH issues over the past decade; previous HRH assessments completed by the Ministry of Health and the Clinton Health Access Initiative; and the severe shortage of nurses within the country relative to other African countries. As NEPI awardees, the Malawian government and nursing institutions receive financial support over a five-year period through HRSA, via the Columbia University/ICAP Global Nursing Capacity Building Program (formerly called ICAP Nurse Capacity Initiative, or INCI), to foster the work of a national workgroup responsible for assessing current nursing gaps and developing an implementation plan of pre-service interventions at the pilot and national scale-up level (US Government 2012).

PARTNERSHIP TO BUILD MALAWI'S NURSING WORKFORCE

Over the past decade, the government of Malawi has engaged in a series of strategic initiatives, as reflected in the EHRP and NHSP, to define national health services priorities as based on the implementation of an EHP to achieve its targets for the Millennium Development Goals. Early efforts resulted in some limited improvements in specific health indicators including the HIV prevalence rate; however, the overall health delivery system remained extremely fragile and underresourced, and continues to be severely challenged in critical areas of human resources and management, including the competency of providers to deliver essential health care services and the general lack of sufficient infrastructure and supplies, such as key medical consumables (Mueller et al. 2011).

In 2004, the GOM underwent a realignment of internal government structures to establish the MOH/SWAp and Programme of Work as the primary vehicles for coordinating and leveraging multiple stakeholders, resources, and internal and external priorities into a single, coordinated planning and implementation mechanism. The establishment of SWAp was, fundamentally, a pivotal point in the ability of the GOM to accomplish widespread multi-sectoral reforms, such as HRH reforms. Once in place, the direction was set to advance reforms, as reflected in the EHRP and coverage of the EHP.

In 2010, the MOH formed a core group to coordinate the development of the NHSP (2011–2016) with a new and expanded set of priority objectives. The core group drew membership from all departments in the MOH, health workers' training institutions, the private sector, civil society organizations, and health development partners, including PEPFAR. The core group was chaired by the director of the SWAp Secretariat in the MOH, and members met regularly to discuss the progress in drafting the Health Sector Strategic Plan as well as other emerging issues. Within the NHSP, the GOM advanced reforms in five key areas: (1) expanded health care worker training capacity; (2) financial incentives for recruitment and retention of staff; (3) government capacity building in areas of HRH resource planning and management; (4) regulatory reforms to support the expanded role, quality, and professional development of nurses; and (5) strategies to implement monitoring systems for decision making and quality purposes.

In mid-2010, two key events converged: the completion of the GOM/MOH NHSP (2011–2016) and the introduction and implementation of NEPI in Malawi. These events catalyzed the GOM and local institutions to more rapidly implement HRH strategies as outlined in the NHSP (2011–2016) as directed toward strengthening nursing and midwifery professionals through pre-service training programs. This development was unique for several reasons. First, the funds were under the guidance of the GOM/MOH in collaboration with other relevant stakeholders (regulatory council, professional associations, and training institutions) on key interventions as reflected in the NHSP and other relevant planning strategies. Second, the primary role of the US government

and its partner, ICAP, was to provide the necessary technical support to GOM/MOH and the local institutions to effectively execute their respective roles as convener, planner, implementer, and trainer. The project established a partnership between the U.S. government/PEPFAR and the GOM/MOH based on several key principles: country ownership; national leadership; sustainability; and national and local institutional capacity building. These principles are inherent in the operational policies and procedures of the NEPI.

To date, the Malawi NEPI has completed nearly two years of programmatic activities. In this brief time, several key issues have emerged as essential elements in nursing capacity building for national governments, and important factors in the engagement of partners, including international donors, in supporting national health care workforce reforms. The purpose of this article is to summarize and reflect on these key issues from two perspectives: government and training institutions.

Government

A persistent constraint in addressing the complex barriers to improving population health outcomes has been the limited capacity of Malawi's national and subnational governments and other national institutions, such as regulatory councils and professional associations, to assess, plan, implement, and manage multi-sector reforms. Absent the capacity of national organizations to implement and manage reforms, the likelihood of adoption of sustainable sector-wide reforms is compromised or impossible. A primary function of the PEPFAR/NEPI program is to provide necessary technical and capacity-building support to governments and other national institutions to implement real and sustainable systemic, multi-sector reforms for scaling up nursing and midwifery capacity. In Malawi, the PEPFAR/NEPI program was implemented in a manner to assure a country-owned and -led process and, thus, was integrated within existing planning framework and implementing structures as established by the MOH and as described in the NHSP and the Nursing/Midwifery Operational Plan.

First, within the context of the MOH/SWAp and its historic achievements in organizing a multi-sectoral response for broader health reforms, the PEPFAR/NEPI program provided direct support to the MOH to expedite the NHSP-HRH reforms related to nursing capacity building through the HRH Technical Working Group. Support was provided through various means, such as logistical support for meetings, managerial support within the MOH to develop and implement strategies, technical assistance to institutions for needs assessments and planning activities, and creating enabling environments and strengthening the capacity of institutions to identify and implement reforms. In doing so, the program accelerated the timeline for advancing national nursing reforms within the framework of the GOM/MOH priorities as established in the National Health Strategic Plan. It was essential for the PEPFAR/NEPI program to integrate its

efforts into a wider strategic plan to maximize its efficiency and impact, to be aligned with budget financing priorities, and to support the overall sustainability of the health delivery system.

Second, the PEPFAR/NEPI program provided dedicated support in a critical area of HRH, namely pre-service nurse and midwifery training, while allowing other stakeholders and donors to support broader HRH reforms such as policy (retention, wages, migration) reforms. The GOM, which is the major funder of health professional pre-service training in Malawi, has historically been unable to provide an adequate and reliable stream of resources to training institutions (TIs), resulting in intermittent closures of training institutions. Donors have been reluctant to fund pre-service training, preferring instead to support in-service training. And the mass migration of health care workers to other countries worsened the shortage of both didactic and clinical faculty, especially for nurses. The dedicated resources for pre-service training institutions provided by the PEPFAR/NEPI program were paramount in promoting reforms and provided an added benefit of leveraging additional resources within both the public and private sectors.

Third, the PEPFAR/NEPI program worked in collaboration with other donors, including the Clinton Health Access Initiative, to support an MOH national assessment of nursing and midwifery training institutions and, subsequently, support the MOH HRH Technical Working Group in developing a Nurse/Midwifery Training Operational Plan based on the data from the national assessments. The operational plan was linked to the priorities and objectives of the NHSP to support the overall goal of increasing the number and quality of nursing and midwifery graduates. In addition, PEPFAR/NEPI provided direct human resources support to the MOH, within the nursing directorate, and served a logistical and technical role within the MOH HRH Technical Working Group by providing ongoing technical and capacity-building support to manage the implementation of the operational plan.

Finally, the PEPFAR/NEPI program provided direct capacity-building support to the Nursing and Midwives Council of Malawi, which has a critical role in the national nursing and midwifery reforms. The council was established by The Act of Parliament Cap 36:2 (1995) to regulate training, education, and practice of all nursing and midwifery services. The council carries out the following functions to fulfill its role in the Human Resource Directorate in the Ministry of Health: approves nursing/midwifery colleges to train nurses and midwives; sets standards for nursing/midwifery education and expands the scope of practice through regulatory reforms; sets monitoring and evaluation criteria of the training institutions and checks if the set standards are being followed to ensure compliance; sets and conducts licensure examinations for the nurses and midwives that have undergone training; gives certificates to those nurses/midwives who pass the licensure examinations; keeps the registers for all nurses/midwives that are licensed and practicing; and conducts monitoring and evaluation of health facilities to ensure that standards of care are adequately followed (African Health Workforce Observatory 2009).

As described above, the intent of the Malawi and PEPFAR/NEPI partnership was to provide necessary resources to the GOM in a manner that enabled the government to plan and implement essential reforms in collaboration with key stakeholders (including councils and TIs), and to build on the success and lessons learned from the previous decade of HRH activities and reforms.

Training Institutions

Gains were made during the implementation of the EHRP (2004–2010) in scaling up nursing TIs to increase the number and quality of students. Accomplishments included increasing the total number of health workers from 5,453 to 8,369, of which 4,812 were nurses or midwives; improving infrastructure for both government and CHAM TIs; improving tutor and health care worker retention through salary top-ups; and implementing basic reforms to the nursing curriculum with a greater emphasis on clinical instruction (Ministry of Health 2011). Despite these accomplishments, serious challenges still existed. Aside from supporting capacity of national institutions, the GOM and PEPFAR/NEPI partnership has resulted in the identification and implementation of priority interventions at the TI level. Based on the Nurse/Midwife Training Operational Plan, six priority areas are key to scaling up capacity of training institutions:

1. Increased faculty recruitment and retention, especially in rural areas
2. Sufficient number of clinical practical sites and preceptors
3. Up-to-date learning resources
4. Increased number of student and faculty accommodations in rural and peri-urban areas
5. Improved institutional infrastructure
6. Stronger candidate qualifications

With the PEPFAR/NEPI resources, three TIs were selected to scale up specific pre-service interventions based on the priorities identified in the operational plan: Kamzuzu College of Nursing, University of Malawi (KCN), Mzuzu University (MZUNI), and Malawi College of Health Sciences (MCHS). The PEPFAR/NEPI provides financial and technical support to these nursing schools. ICAP, HRSA's implementing partner with international expertise in nursing capacity development, provided technical and administrative support for the design and implementation of these identified interventions. Table 2 includes a summary of NEPI country interventions for Malawi. Table 3 includes the type of intervention, selected nursing school, and expected outcomes as related to the operational plan.

TABLE 2. PEPFAR/NEPI INTERVENTIONS IN MALAWI, 2010–2015

Core Intervention Areas	Dimensions	Interventions
Institutional	Technology infrastructure, including Internet connectivity	<ul style="list-style-type: none"> • Distance-learning platform including e-learning planning under way at KCN with 4 regional sites identified as learning centers • Internet connectivity being upgraded at MCHS
	Simulation-based training resources	<ul style="list-style-type: none"> • Clinical skills laboratory including high-fidelity simulators, low-fidelity simulators, and computer-based simulation technologies being established at MZUNI with upgrading occurring at MCHS and KCN
	Teaching and learning resources and materials	<ul style="list-style-type: none"> • Library books • Electronic journal subscriptions • Needs analysis under way
	Teaching and learning equipment	<ul style="list-style-type: none"> • Computers: 20 laptops • Data projectors: 2 • Wireless dongles: 20 planned
	Faculty development: formal advancement opportunities created	<ul style="list-style-type: none"> • PhD: 1 PhD scholarship for 1 faculty at each implementing school, with 2 faculty enrolled and 1 pursuing places in South African universities

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
	Faculty development: exchange and best-practice visits (facilitate networking)	<ul style="list-style-type: none"> • Master's: 4 faculty enrolled at KCN for master's degrees in nursing and midwifery education • Best-practice visits: 1 visit of 4 KCN faculty to 2 SA universities to explore best practices with respect to student admission processes and documentation; postgraduate and undergraduate curriculum development and implementation; clinical preceptorship training; management of clinical laboratories • MZUNI faculty visit to University of the Free State to explore skill-based training and clinical preceptorship training program planning under way
	Faculty development topics: needs-based short courses and workshops	<ul style="list-style-type: none"> • Teaching methodologies; education research methodologies; e-learning; simulation-based training; curriculum design; change management and leadership; program management and evaluation; current trends in health patterns and care needs; evidence-based practice including good practice guidelines; clinical teaching methodologies; public health skills

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
	Faculty and nursing tutor numbers	<ul style="list-style-type: none"> • Increased numbers and capacity through: <ol style="list-style-type: none"> 1. Master’s in nursing and midwifery education with first cohort of 14 commenced in May 2012 2. Scholarships for BSc upgrading with education specialty component • Voluntary services overseas being considered
Instructional	Curriculum review and development Teaching and learning methodologies	<ul style="list-style-type: none"> • 2-year master’s in nursing and midwifery education with a 1-year exit of a postgraduate degree in nursing and midwifery education developed and approved • Preceptorship curriculum development under way • Review of the bachelor in nursing and midwifery curriculum under way • Blended learning (e-learning and face-to-face contact) • Strategic planning for SBT at MZUNI under way • Teaching and learning best-practice clinical sites

Continued

Table 2, continued

Core Intervention Areas	Dimensions	Interventions
	Clinical practice	<ul style="list-style-type: none">• Situational analysis of additional clinical sites for consideration for placement undertaken (MCHS; MZUNI)• Draft framework for the development of teaching sites/wards in 4 districts (MZUNI)• Vehicles being procured to transport students to more remote sites
	Student enrollments	Scholarships provided to increase enrollments: <ul style="list-style-type: none">• Master's program (KCN): 14• Upgrading to BSc with education specialty component (KCN): 20• Upgrading to registered nurse from enrolled nurse (MCHS): 30• BSc in nursing (MZUNI): 20

TABLE 3. INTERVENTIONS AND EXPECTED OUTCOMES IN MALAWI, 2010–2015

Intervention	Selected Nursing School	Expected Outcomes by the End of 2015
Increasing the number of nurse tutors over the next five years by developing a one-year certificate program for nurses with a bachelor's degree and by developing a two-year program for nurses with a diploma	Kamuzu College of Nursing	<ul style="list-style-type: none"> • Increased number of nurse tutors: 40 nurse tutors produced (2011: 20; 2012: 20) • Career pathway developed for BSc to continue with master's degree • Increased retention through development of distance-based modules
Upgrading nurse-midwife technicians to a diploma-level nurse by developing a bridging program	Malawi College of Health Sciences/Blantyre	<ul style="list-style-type: none"> • 50 nurse-midwife technicians become RNs • Nurses are retained at CHAM sites
Enhancing integration of clinical teaching through the development of a skills lab and orientation process for clinical preceptors	Mzuzu University	<ul style="list-style-type: none"> • State-of-the-art clinical lab site for faculty and clinical nurses to improve preceptorship • Increased number of clinical preceptors • Teaching wards established at selected central and district hospitals
Supporting the Nursing Council to implement transformational nursing education standards by evaluating the current pass rate for nursing licensure with recommendations for future changes	Nursing Council of Malawi	<ul style="list-style-type: none"> • Assessment of reasons for current pass/fail rate conducted • Recommendations for changes submitted

The inability to identify, recruit, and retain qualified faculty for both basic science and clinical courses is the most prevalent and tenacious challenge identified across TIs and limits the opportunities to expand training programs, increase enrollment, or improve the quality of the training. The PEPFAR/NEPI funds are targeted at addressing the issue of faculty and clinical preceptor training, recruitment, and retention, as well as strategies to increase the quality of nursing training and the professional advancement of lower nurse cadre to more advanced professional roles and responsibilities.

Independent of the GOM and PEPFAR/NEPI partnership, several individual TIs have implemented a range of pre-service reforms. For example, the Kamuzu College of Nursing has initiated major reforms at the undergraduate and postgraduate levels. At the undergraduate level, the training programs being offered at technician (certificate and diploma) and professional (bachelor of science or BSc and higher levels) were recently redesigned into a competence-based curriculum to align with community health needs. Kamuzu College of Nursing has recently started to offer a four-year BSc in nursing and midwifery program to accelerate the production of midwives. In addition, the BSc in nursing has started to offer three further options—community nursing, health services administration, and education. The graduates of the BSc nursing education program are deployed as tutors in CHAM nursing schools, thereby increasing the number of instructors in the colleges. The health services management graduates are deployed to health facilities to manage the institutions. The graduates of the community nursing program work with communities to promote disease prevention and are multi-skilled in nursing and midwifery. Future options are under discussion and may include adult nursing, community midwifery, child health, critical nursing care, theater nursing, adult nursing, and psychiatric and mental health nursing.

Important advances have been made in the use of innovative technological approaches within the teaching environment. For example, basic science and clinical and nursing materials (text and lecture notes) as well as test scores and other materials reporting academic progress are uploaded on the TI's intranet site for student access and use in "real time." Computerized models are used for laboratory training, including maternal deliveries and lung and heart sounds for clinical diagnosis. Video clips are available to instruct students on certain procedures such as integrated management of childhood illness.

Finally, the GOM has implemented strategies to recruit, train, and retain students and graduates from rural areas. It established a national policy that allots ten student slots per district for each entering cohort of nursing students enrolled in university programs. Advertisements for the various nursing training programs at professional and technician levels are placed in urban and rural areas using both print and electronic media. Specific colleges have outreach programs through their community nursing departments to engage potential entrants from rural areas. Clinical training sites are located in both urban and rural settings with the intent to provide nurses

with sufficient experience to address the health needs in both geographic areas and across diverse communities. These nurses also serve as role models in rural communities.

LESSONS TO DATE

The partnership between the Government of Malawi and the PEPFAR Nursing Educational Partnership Initiative, as part of the broader PEPFAR collaboration in Malawi, has defined an effective model for tackling the chronic crisis of the shortage of well-trained nurses and midwives available to meet the health care needs of the population. The NEPI's focus on the quantity of professionals as well as the quality of their preparation has required a broad partnership that responds to Malawi's broader National Health Strategic Plan and Health Sector Strategic Plan to ensure conditions of employment, regulatory reforms and certification, and distribution of skilled professionals across the country are brought into the dialogue of preparing the nursing workforce. While still early in the NEPI collaboration, the progress to date has been highly regarded by the Malawi MOH and PEPFAR, and has yielded important lessons.

First, an initial assessment of the country's schools of nursing and conditions impacting the quality and successful completion of training was carried out in partnership with the MOH and NEPI. This assured engagement of the nursing institutions and their leadership from the outset and allowed the MOH to effectively target and prioritize investments based on good data. While the immediate benefit of NEPI will be an increase in the number of nurse tutors and well-trained nurses in Malawi, this work has highlighted the strengths, gaps, and opportunities to improve training outputs more broadly where other partners can also engage.

Second, the NEPI approach has built on the principle of country ownership and laid the groundwork for sustainability, ensuring that all activities undertaken are guided by and aligned with the MOH's broader strategies for addressing HIV/AIDS and wider ranging health needs of the population. The risks of fragmented, overlapping, or narrowly focused donor-supported efforts that may result in a transient benefit are minimized when support is strategically aligned within the country's Health Sector Strategic Plan (HSSP). Third, the strong support of both the Ministry of Health and PEPFAR for strengthening nursing education has raised the visibility of nursing as a vital profession within Malawi, along with nurtured inclusion of human resources for health as one of the priority objectives in the HSSP.

Looking ahead, thoughtful design should be given to the exit of NEPI at the end of the five-year period, with a full and seamless integration of nursing education into Malawi's annual planning and budget. Support provided by the MOH and PEPFAR should be sustained through the full project period to achieve the goals of NEPI in Malawi. While the primary focus of NEPI has been to support nurse training institutions, consideration of modest resource needs in the MOH

to keep data current regarding the training outputs and capacity building of nursing schools and universities could also strengthen this effort.

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AUTHOR CONTRIBUTIONS

Sheila Bandazi, lead author of the article, provided background information and materials on the current state of nursing within Malawi and the impact of historic and current reforms on the government ministries and educational institutions engaged in training nurses. She drafted and reviewed the manuscript.

Address Malata provided background information and materials on the current state of nursing education from a training institute's perspective and details on the implementation of NEPI interventions (as well as other donor project interventions). She drafted and reviewed the manuscript.

John Palen, corresponding author of the article, collected and synthesized materials provided by the coauthors and drafted the initial manuscript. In addition, he provided input from the

perspective of the US government on the NEPI and related activities and provided ongoing review and revisions of the article.

Deborah von Zinkernagel provided background information and materials on the US government's vision for providing resources to PEPFAR countries in scaling up the nursing and midwifery cadre. She also provided perspectives on the relations between PEPFAR and the Malawi government in the design, execution, and objectives of the NEPI, and participated in the drafting and review of the manuscript.

Jennifer Dohrn provided background information and materials on the design and implementation of the NEPI at the level of the target nursing training institutions in Malawi. She drafted and reviewed the manuscript.

Janette Yu-Shears provided background information and materials on the US government's activities related to the implementation of the NEPI within Malawi and the ongoing planning and programmatic activities supported by the NEPI and ICAP. She also drafted and reviewed the manuscript.

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5. PUBLIC/PRIVATE PARTNERSHIPS TO ENHANCE AND IMPROVE HEALTH SYSTEMS

Michael Bzdak, PhD, MA

The issues facing the global health care workforce are increasingly becoming better understood and well documented. In the past decade in particular, we have learned a great deal about regional disparities, the effects of HIV/AIDS on health infrastructure, the export of health workers from the developing world, and efforts to retain workers.¹ The launch of the Global Health Workforce Alliance in 2006 helped to illuminate the complexities of improving human resource capacity for health. More recently, the case has been made that scaling up the number of community health workers will give us an expedient means of achieving the Millennium Development Goals (Liu et al. 2011; The Earth Institute 2011).

While there are many potentially intriguing solutions to meeting the need for health care workers, there is no consensus on how the many concerned parties can maximize their efforts through collaboration. However, there are promising signs of new efforts to galvanize funders and governments around specific actions. For example, the Frontline Health Workers Coalition (FHWC) promises to identify and scale promising practices and programs (FHWC 2012). In a similar vein, a public-private partnership of funders, NGOs, and government representatives has formed to support the coalition (Learmouth 2012).

The following describes the efforts of the philanthropic arm of Johnson & Johnson to tackle specific aspects of human resource issues related to health care capacity. The social responsibility team at Johnson & Johnson is dedicated to finding innovative solutions to the health care workforce shortage and, most important, constantly striving to deploy the corporation's resources in the most effective way. Strengthening health systems is one of the three strategic pillars of our global giving program in support of our mission to make life-changing, long-term differences in human health.

In all of its efforts, the Contributions staff at Johnson & Johnson relies on strong relationships with community partners to help set our strategy and to execute the programs that aim to make measurable differences in human health. While Johnson & Johnson is a part of many collaborative efforts such as the Frontline Health Workers Coalition, the company has also developed a number of successful programs that are designed to improve health care capacity in various parts of the world.

The corporation has made building health care capacity a major focus of its global social responsibility efforts and is investing in three strategies to strengthen the health care workforce. The first is through support of education programs that address the global health care worker shortage, in other words, increasing interest in and reducing barriers to entering the health care workforce. The second strategy involves support of leadership and management programs focused on health care system efficiency and effectiveness. The third strategy supports skills-based training programs for health care workers and community members who support the most disadvantaged.

ENCOURAGING NEW ENTRANTS TO THE HEALTH WORKFORCE

Around the globe, and despite the recent economic downturn, experts continue to forecast that health-related professions will experience substantial job growth. Of the thirty fastest-growing occupations (expected increases of 30 percent or more) identified by the US Department of Labor for the ten-year period beginning in 2008, half were directly related to health care. In addition, rural areas of the United States are facing a shortage of health care personnel, and fifty-seven countries throughout Africa and Asia are experiencing a severe health care workforce crisis. The World Health Organization estimates that to fill the gap, at least 2.36 million service providers and 1.89 million support staff are needed (Scheffler et al. 2008; WHO 2006).

Unfortunately, many of today's youth around the world are unable to take advantage of these new career opportunities. Low academic achievement among youth from at-risk communities coupled with a lack of preparedness for higher education results in an inability to complete an appropriate degree and/or credential in order to access a job in the health industry.

One of the Johnson & Johnson social responsibility efforts, Bridge to Employment (BTE), prepares underserved students in Johnson & Johnson communities to meet the challenges and requirements of careers in the health care industry and in today's knowledge-rich society (Bzdak 2007). BTE programs are long-term partnerships among businesses, educators, community-based organizations, and parents designed to help young people build solid and measurable academic foundations and to prepare them for a broad array of careers in health care. BTE sites, currently operating in twelve communities in the continental United States and around the world, are located in some of the most economically disadvantaged areas. The program has shown promising results in increasing the number of students moving into postsecondary education and in students pursuing health careers (Brooks, MacAllum, and McMahan 2005). The program goals include building sustainable partnerships and engaging Johnson & Johnson employees as mentors and career coaches.

DEVELOPING LEADERSHIP AND MANAGEMENT COMPETENCIES TO IMPROVE HEALTH SYSTEMS

As part of a long legacy of community engagement and corporate responsibility, Johnson & Johnson supports a number of strategic efforts to strengthen health systems around the world. While the corporation focuses its philanthropic efforts on a select group of strategies, support of leadership and management programs has historically been a dominant strategy. These leadership and management programs, designed and implemented in partnership with leading business schools and NGOs, are based on the premise that community health care leaders will benefit from a rigorous and relevant professional development experience.

The Johnson & Johnson/AMREF/UCLA Management Development Institute (MDI), as a case study of an academic/business partnership model, is a unique example of how a multinational corporation can demonstrate social responsibility by building health care capacity around the world in partnership with leading NGOs and academic institutions. As more and more support flows to the developing world to improve health care, management training has become an even more critical need. In Africa, the HIV/AIDS crisis has illuminated the need for capacity building among myriad NGOs struggling to provide care and service, while also managing grant support. As Frenk and others have recently pointed out, “Professionals are falling short on appropriate competencies for effective teamwork, and they are not exercising effective leadership to transform health systems” (Frenk et al. 2010, 1926).

While there has been a consistent call to recruit new health care professionals, efforts to retain and develop existing workers have not been as visible. In recent years, the opportunity to focus on improving systems through professional development has become more prominent. As part of the Global Health Workforce Alliance, the Task Force for Scaling Up Education and Training for Health Workers identified nine critical success factors in efforts to build education and training capacity. Not surprisingly, “effective management and leadership” is among them (Crisp, Gawanas, and Sharp 2008) and is at the core of the MDI program.

With the enormous amount of developmental aid pouring into Africa combined with dramatic health care gaps, it is no surprise that more attention is now being focused on sustainable improvements to health systems. Africa has the highest burden of disease of any continent and the lowest number of health workers. The fact that Africa’s health workers are recruited in large numbers to practice in high-income settings makes the continent’s health care worker shortage even more severe. In an effort to address the many human resources issues related to the health worker crisis in Africa, the Africa Working Group (AWG) was created in 2003 as part of the Joint Learning Initiative, to study the crisis on the continent (JLI 2004).

Among the AWG’s recommendations for improving health systems was a focus on retaining the current health workforce. Not surprisingly, included in these recommendations was continuing professional development to help health workers learn new skills and gain new knowledge to deal with the changing health landscape in Africa.

Health service providers are the personification of a system’s core values—they heal and care for people, ease pain and suffering, prevent disease, and mitigate risk—the human link that connects knowledge to health action.

Source: WHO 2006, 3.

In addition, the World Health Organization has recommended that a focus on improving the performance of the existing health workforce can be achieved through low-cost and practical means. Among their recommendations was a focus on lifelong learning. As stated in the report, “A strong human infrastructure is fundamental to closing today’s gap between health promise and health reality, and anticipating the health challenges of the 21st century” (WHO 2006, xxiii).

The Johnson & Johnson/AMREF/UCLA MDI approach is proof that the private sector can strengthen public health systems by offering resources, knowledge, and skills.

A UNIQUE MODEL TO BUILD HUMAN RESOURCE CAPACITY IN HEALTH

Another health system–strengthening program is built on over a decade-long partnership with Yale University and Stanford University. Since 1981, the Yale International Health Program (IHP) has mobilized almost a thousand physicians and placed them in underserved sites around the world to foster a sense of global citizenry, cultural respect, and humanism. In 2001, with the emergence of the Yale/Stanford Johnson & Johnson Physician Scholars in International Health Program, the scope of the program expanded considerably, allowing Physician Scholars from other institutions to work overseas at various times during their careers (Provenzano et al. 2010). The increasing interest in experiential learning in the developing world has led to an increase of programming to satisfy this need. According to a recent article on global health education, sixty-one graduate medical education programs in the United States offered international electives, and eleven programs had specified global health tracks as of 2005 (Kerry et al. 2011).

Surveys have revealed that residents in emergency medicine and family medicine indicated that those who had participated in global health activities during medical school ranked graduate medical programs with global health rotations over those without such offerings.

Source: Kerry et al. 2011, 1.

The Yale/Stanford Johnson & Johnson Physician Scholars in International Health Program became a model for many other programs focusing on building human capacity through partnerships with institutions in low-resource settings. This program is very closely aligned to our corporate giving mission to build the skills of people who serve community health needs, including disease prevention, through education. It also offers opportunities for selected

physicians, including physicians in training, in the United States to become familiar with the social, political, and medical challenges to improving the health of individuals and populations in resource-poor environments. In essence, this program embraces “twinning,” a means of building institutional capacity by building human capacity through long-term, two-way partnerships with institutions in low-resource settings. Unlike most global health experiential programs, the Yale/Stanford partnership is bidirectional, with US-based medical institutions hosting medical professionals from the partner sites abroad. This type of partnership is identified as a proven strategy for improving health worker education and training, according to the Task Force for Scaling Up Education and Training for Health Workers; this program aspires to what Frenk and others describe as interdependent, transformative learning (Frenk et al. 2010).

As a desirable outcome, interdependence in education also involves three shifts: from isolated to harmonised education and health systems; from stand-alone institutions to worldwide networks, alliances, and consortia; and from self-generated and self-controlled institutional assets to harnessing global flows of educational content, pedagogical resources, and innovations.

Source: Frenk et al. 2010, 34.

Frenk, among others, has underscored the importance of cultural competencies as necessary to training new health care professionals. According to recent arguments, “The transnational flow of diseases, risks, technologies, and career opportunities also demands new competencies of professionals. These competencies should be advanced through curricular inclusion of global health, including cross-cultural and cross-national experiential exposure” (Frenk et al. 2010, 1940).

Most recently using the twinning model with Makerere University, in Uganda, Yale, in response to an invitation by the National University of Rwanda School of Medicine (NURSM) and the Rwanda Ministry of Health (RMOH), developed a similar project involving three clinical departments (internal medicine, pediatrics, and OB/GYN), as well as the School of Public Health, to train faculty for the NURSM. This concept has now been expanded into a large project titled Human Resources for Health (HRH), which is led by the RMOH and the Clinton Health Access Initiative, involving eight US medical, six nursing, two dental, and one public health school. The goal is to train all faculty needed for Rwanda to train its own health care workers over the next seven years. Yale continues to be actively involved in this project, which is now funded by USAID as well as the Global Fund and began in August 2012. The Yale/Stanford Johnson & Johnson program also participates in the NIH-Fogarty funded Medical Education Partnership Initiative

(MEPI), twinning itself to the University of Zimbabwe College of Health Sciences to build capacity at its medical school, which has lost over 50 percent of its workforce.

The spirit of collaborative networks to build health capacity can be found in recent initiatives such as the Afya Bora Consortium. Although the Yale/Stanford program is not a member of the Afya Bora Consortium, it is safe to say that the two initiatives share a common belief in the power and potential of experiential training collaborations between the United States and Africa (Farquhar and Nathanson 2011). The two programs also share a sincere desire to build the future health leadership of Africa. In the end, as Kerry and others have argued, “programs need to be initiated and nurtured by both partner institutions rather than ‘inviting’ in-country partners into plans that are already developed by the visiting partner. Success is measured two-fold: first by the quality of the experience for both the HI-income and partner-country trainees, and second by the incremental improvement in in-country care, infrastructure, and/or research to which a trainee contributed” (Kerry et al. 2011, 3).

Leaders of the Yale/Stanford program recognized a particular gap in access to information and worked to fill the void with assistance from the Yale Medical Library staff by training local librarians and conducting workshops on the use of web-based information for health care workers (Shaddox 2012). This and other similar interventions have led to an increase in the number of publications originating at Makerere. It is safe to surmise that increased participation in research and the ability to publish results are effective means for providing professional development and fostering lifelong learning among staff.

CHALLENGES IN MEASURING CHANGES IN HEALTH SYSTEMS

In all programs related to training and development, the question of how to measure change is always challenging (Dal Poz et al. 2009; Hannum, Martineau, and Reinelt 2007). Although many funders, including Johnson & Johnson, develop logic models and can articulate theories of change, finding indisputable evidence of enhanced or strengthened human capacity that can be directly attributable to training is daunting. However, this has not stopped some from trying. Recent research in Kenya points to promising evidence of the positive effects of leadership and management training in strengthening health systems (Seims et al. 2012). In the case of the Johnson & Johnson leadership and development program portfolio, the program director, in collaboration with program partners, arrived at a set of agreed-on indicators for the majority of global programs. The Johnson & Johnson staff and program partners also placed great emphasis on our “improvement projects” where participants have the opportunity to apply new knowledge and competencies to a problem in their own environment. These projects range from human resources challenges to projects related to efficiencies and effectiveness within institutions and systems.

Together with leaders from Yale and Stanford, the Johnson & Johnson staff is documenting the elements of capacity that can be measured as a result of the exchange of health care professionals. Clear indicators, in addition to the number of hours of patient care, include facility improvements and research undertaken and published at the local sites. For example, an enhancement made to a laboratory can yield improvements in the quantity and quality of diagnoses performed by trained professionals. As Middleberg states, “Complexity of measurement cannot be used as an excuse for failing to address the health workforce crisis, setting unclear objectives, or not making reasoned judgment about whether progress is occurring” (Middleberg 2010, 29). As the needs of the health workforce continue to grow in scale and complexity, the call for responsive and measurable philanthropy becomes more critical. As new collaborations, alliances, and partnerships are formed, the need for strategic planning, the setting of clear and measurable objectives, and appropriate and rigorous evaluation are critical elements for future success.

ENDNOTE

¹ The February 2008 edition of *The Lancet* featured a number of contributions directly aimed at the issue of health care capacity. The focus on human resources for global health was directly tied to a March 2008 global forum convened by the Global Health Workforce Alliance. As the opening editorial of *The Lancet* reminded us, “The human resources crisis is a highly political topic and possible solutions that do not have full political support are doomed to failure” (623). An estimated 2.4 million doctors, nurses, and midwives are needed in fifty-seven countries with critical health worker shortages. There is an increasing realization that the private sector can strengthen public health systems by offering resources, knowledge, and skills (African Health Care Worker Shortage: Forum of Private Sector Responses 2007). McKinsey, in 2007, also published an interesting paper on possible solutions to the health workforce issues (Conway, Gupta, Khajavi 2007).

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6. ALIGNING HEALTH PROFESSIONS EDUCATION WITH CONTEMPORARY NEEDS: THE PERSPECTIVE OF THE JOSIAH MACY JR. FOUNDATION

George E. Thibault, MD, and Stephen C. Schoenbaum, MD, MPH

In her prescient letter of 1930 establishing the endowment in memory of her father, Josiah Macy Jr., who had died at age thirty-eight of typhoid fever, Kate Macy Ladd wrote: “. . . it [the Josiah Macy Jr. Foundation] should primarily devote its interests to the fundamental aspects of health, sickness and of methods for the relief of suffering. . . . The preference should be given to the use of these funds to integrating functions in the medical sciences and medical education for which there seems to be particular need in our age of specialization and technical complexities. . . . The Foundation will take more interest in the architecture of ideas than in the architecture of buildings and laboratories.” With this charge, eight presidents have guided the foundation since its inception and have defined the contributions to the “relief of suffering” appropriate in each decade. In recent decades, that has been expressed by focusing on innovations in medical and health professions education. Education has served as an “integrating function” and is also consistent with a focus on the “architecture of ideas.” Macy is now the only national foundation with innovations in medical and health professions education as its sole mission.

In recent times it has become increasingly clear that improving education in isolation will not achieve the goal of better health for the public. The goals of the educational innovations must be aligned with contemporary health care needs; and this has become a major theme of the foundation’s work in this decade.

RATIONALE AND NEED FOR ALIGNMENT OF EDUCATION WITH HEALTH CARE DELIVERY

The health needs of the populations of the developed world, and even the developing world, are changing. This is characterized by a growing prevalence of chronic disease within these populations. Although chronic conditions are particularly common among older persons, they occur at all ages. In the United States, in the 2005 Medical Expenditure Panel Survey, 45 percent of persons ages twenty to sixty-four reported one or more chronic conditions; and 12 percent reported three or more chronic conditions (Paez, Zhao, and Hwang 2009). In that same survey, 87.5 percent of persons ages sixty-five and older reported one or more chronic conditions; and 48 percent reported three or more. Several factors have contributed to these statistics, including an increase in obesity, which, in turn, is causing an increase in type 2 diabetes in the population; an increase in childhood asthma that persists into adulthood; increased detection of hypertension; and better ways of treating persons with a variety of conditions ranging from congestive heart failure to malignancies. The majority of persons with these conditions, even serious manifestations of these conditions, can be managed without needing hospitalization. In addition, many diagnostic tests and therapeutic procedures that used to require hospitalization can now be performed in ambulatory settings, and the recovery period can be managed at home.

Over the past thirty years or so, these changes in the population and in traditional medical care have led to changed demands on health care delivery organizations and the health professions. For example, persons with chronic conditions need to understand their individual conditions, the possible interactions between their multiple conditions, the medications and services they need to live successfully with their conditions, the complications that might occasionally arise, and the first steps that need to be taken to manage those complications. Empowerment of patients to understand and manage their conditions, not surprisingly, has been shown to increase confidence in handling the conditions and also to improve outcomes. As another example, health care delivery systems that were configured primarily for providing inpatient care have had to extend their operations into ambulatory care; and they have had to understand how best to interact with all the other services and organizations in a community that might be marshaled to benefit their patients. This is an ongoing process in the United States and several other countries.

One objective of US health reform was to change the US health care delivery system so that it could be accountable for the quality of care provided to defined populations and use resources more efficiently. The Patient Protection and Affordable Care Act of 2010 (the health reform act) is leading to innovations in health care delivery such as Accountable Care Organizations (ACOs) and medical homes (PPACA 2010). Medical homes are enhanced primary care practices that are expected to involve teams of physicians, nurses, and possibly others, and assume responsibility for coordinating care for the population they serve. ACOs are organizations that assume responsibility for a population and enable the providers—physician practices and hospitals—to meet quality standards and cost targets. These delivery system innovations are being accompanied by new payment methods designed to provide incentives for achieving better outcomes and providing care more efficiently.

To handle the needs of the population for more effective, better-coordinated, efficient care, the health professions need to adapt and change from their traditional roles, and, of course, the education of health care professionals also needs to adapt and change. In the past, health professions education occurred entirely in silos, and particularly in medicine and nursing, curricula focused primarily on the care of hospitalized patients. It is now understood that more education in ambulatory settings is essential to meet population needs and that care both in ambulatory and inpatient settings is often provided by teams of professionals in multiple disciplines and professions.

These changes pose significant challenges, such as the logistics of working in settings that have been set up exclusively for delivering care, not teaching, and the development of faculty capable of teaching effectively about both the content and the organization of care in ambulatory settings. Similarly, development of teams requires interprofessional education, which the World Health Organization has defined as occurring “when students from two or more professions learn

about, from and with each other to enable effective collaboration and improve health outcomes” (WHO 2010). Although the idea of interprofessional education is not new, it is now beginning to be implemented and needs to become a routine part of the education of all health professionals. Again, there are several issues that must be addressed, including the fact that even in one city or region, not all the schools that prepare persons in different professions, for example, medicine, nursing, and pharmacy, are co-located. And even when the schools are all part of the same university, they may have very different sizes of student bodies and different schedules. In addition, the content of interprofessional education is just emerging. We discuss this at greater length in the following pages and provide some examples of work in the area.

HOW DOES THE MACY FOUNDATION BRING ABOUT CHANGE TO CREATE ALIGNMENT?

A not-for-profit foundation has a limited armamentarium available to bring about change. In almost all instances, the resources necessary to effect societal change in any given area far exceed the resources of the foundation. The foundation, therefore, needs to act as a catalyst to promote changes that others will adopt using resources beyond those of the foundation. It also needs to leverage its resources by choosing wisely and finding partners for its initiatives. The traditional way that most non-operating foundations do this is through grant-giving programs. The Macy Foundation has two grant-giving programs. Presidential Grants (up to \$35,000) are given throughout the year. They often fund a focused event or activity with a finite horizon—generally less than a year. Sometimes the work funded by these Presidential Grants will be the basis for a larger proposal. All larger grants are approved by the Macy board of directors, which meets three times a year. These grants are usually multiyear and involve a curriculum or faculty intervention with assessment and dissemination. Many of these are multidisciplinary or multi-institutional. We have intentionally begun to cluster grants in selected areas (see next section on strategic focus) in order to have greater impact in the change process and to foster more learning and collaboration among our grantees.

In addition, the Macy Foundation has a long history of successfully convening groups to influence thought and policy in a given field. To be successful in this convening function, the selections of topics and participants are crucial. The topic must be well enough developed that there is a body of empirical data to be reviewed, and the meeting must occur at a juncture where there are important questions to be posed about the direction to be taken. The participants must be recognized thought leaders from multiple disciplines who are known to be fair-minded and open and not partisan advocates for a particular point of view. The participants are also chosen for their individual expertise and not as representatives of an organization or professional group.

In most instances, papers are commissioned prior to the meeting to supplement the existing literature. The conferees then participate in open, structured discussions leading to conclusions and consensus recommendations by the end of the conference.

Recent examples of successful Macy conferences on the broad theme of aligning health professional education with contemporary needs have focused on the medical education mission at a time of medical school expansion (Hager and Russell 2008), primary care education and training (Cronenwett and Dzau 2010), and graduate medical education accountability (Johns 2010; Weinstein 2011). In each of these instances, conference recommendations have influenced subsequent actions of academic institutions, regulatory bodies, and funders. The Macy Foundation has played an active role in disseminating the conclusions and recommendations and, where appropriate, funding follow-up actions. Some of the recommendations from these conferences are highlighted in the following sections.

In addition to grant giving and convening, foundations can play an important role in the career development of professionals in their areas of interest. Participation in foundation-sponsored activities is one form of career development, and creating networks of health professional educators in areas of mutual interest is an important function of the Macy Foundation. Many of the grant-supported activities include a faculty development component. In this way the number of faculty nationwide with a given set of skills and knowledge is enhanced. In addition, foundations may establish specific programs to mentor and promote the careers of leaders and innovators in their field of interest (what some have called “human capital development”). In this vein, we have created the Macy Faculty Scholars program, described later in this paper.

Finally, foundations have impact through the speaking, writing, and advocating activities of their staff. To that end, we have presented our alignment themes in meetings and speeches at academic medical centers, national professional meetings, and policy meetings in Washington, DC.

AREAS OF STRATEGIC FOCUS TO CREATE ALIGNMENT

To bring about meaningful societal changes, foundations have to focus their activities on a handful of strategically chosen areas of concentration. Given the Macy Foundation’s objective and intense interest in creating better alignment of education with health care delivery, the foundation has been focusing on the following broad areas: fostering interprofessional education; creating new content for better aligned professional education; reforming the graduate education of physicians; preparing health professionals to serve the underserved; and developing a strong cadre of educational leaders for the future. Each of these areas of strategic focus is briefly discussed in the subsequent sections.

Fostering Interprofessional Education

As we reflected on the need for better aligning health professions education with contemporary need, one of the paradoxes that struck us was that we have good evidence that well-functioning teams lead to better health care, yet we continue to educate health professionals totally separate from one another. We have asked why it should not be the norm to have some part of health professionals' education overlap with learners from other professions.

Over the past three years we have involved more than twenty institutions nationwide in interprofessional education through grants and collaboratives and an even larger number through Macy-supported conferences. All of our grant-funded initiatives involve medical schools and nursing schools, and in many instances other health professional schools are involved (e.g., pharmacy, social work, public health, dentistry). The educational interventions represent a spectrum of content and pedagogy, and they occur at different points along the educational trajectory. That is quite appropriate as we learn the optimal timing, dose, and content for these interprofessional experiences. Some involve early clinical encounters in interprofessional teams (e.g., Vanderbilt University and Hunter College/Weill Cornell Medical School). Some focus on teaching quality and patient safety interprofessionally (e.g., the Institution and Healthcare Improvement collaborative, described later in the article). Others involve a simultaneous plan for four-year curriculum reform at nursing and medical schools in the same university (e.g., Case Western Reserve University, New York University, and the University of Virginia). And still others focus on high-fidelity simulation as a tool for interprofessional education (e.g., University of Washington and Texas Women's University/Baylor College of Medicine). This is but a partial list of the initiatives but gives a flavor of the range of educational interventions.

In April 2012 the Macy Foundation held a two-day meeting of all of its grantees and prior conference participants in the interprofessional education field (twenty teams from twenty-four institutions). This provided the opportunity to review the significant progress that has been made in interprofessional education with a particular focus on nursing and medical education. It also helped to define the next steps that need to be taken to advance the field (Thibault 2012). Though we are still relatively early in this major program initiative, some lessons about success factors have already emerged. The first is that this requires committed leadership from the top of each of the health professions involved in an interprofessional initiative. There are innumerable logistical barriers that can prevent interprofessional education from happening, and they can be overcome only if the leadership wants it to happen. Second, interprofessional education should be undertaken only after extensive, thoughtful planning. These must be rigorous experiences with clear educational goals and metrics; they are not casual social encounters. Third, these experiences must be repeated throughout the educational trajectory if they are to have a lasting impact. Single encounters will not be sufficient to overcome the history and examples of the

more siloed approach; a continuum of interprofessional experiences must be carefully planned. Fourth, new educational technologies can be used to support interprofessional goals. High-fidelity simulation and online learning are valuable supplements to direct patient and faculty encounters and can be helpful in overcoming some logistical barriers. Finally, a sustained interprofessional educational initiative will require a commitment to faculty development. Since most faculty have not experienced interprofessional education in their own education, they will be unfamiliar with the setting, content, and expectations of learners.

The overall interest in interprofessional education has been very gratifying. The response of students and faculty and the participating institutions has been overwhelmingly positive, and the list of new institutions that want to get involved grows longer.

Creating New Content in Professional Education: Quality, Patient Safety, Teamwork

Toward the end of the twentieth century, attention was focused on the fact that health systems in the United States and throughout the world are not as safe as they should be or as patients expect them to be. Errors occur very frequently; and although most errors do not result in harm to patients, the frequency of harm, including avoidable deaths, is high (Kohn, Corrigan, and Donaldson 2000). It will require many changes to ensure that health care is safer for patients in the twenty-first century, and education must be aligned with providing safer care. Two other attributes of quality of care are delivering effective care and delivering care equitably to all populations, particularly underserved populations. These attributes—safe, effective, and equitable care—are often linked. Accordingly, the Macy Foundation has made grants to several organizations to develop courses and tools that are designed to support safer, more effective, and more equitable care by individuals and teams.

For example, a grant to the Mayo Clinic has enabled its team to develop several courses and tools. These include a series of sustainable annual two-day train-the-trainer workshops for educators of medical students, residents, and fellows; allied health students and staff; and practicing physicians. The Mayo Clinic has also developed a set of eleven curricular modules designed to equip those who use them with the tools needed to conduct or lead quality and safety improvement projects. Most modules have both basic and advanced sections and associated pre- and post-tests. The modules are designed to be web-based. Finally, the Mayo Clinic has developed specifications for a set of eight stations for Objective Structured Clinical Examinations (OSCEs) using standardized patients to assess learners' knowledge of quality improvement and safety knowledge, skills, and attitudes. Again, these are designed for web-based dissemination.

Another grant—to the Institute for Healthcare Improvement's (IHI) Open School for Health Professions—had the objective of demonstrating that US medical and nursing schools could

work together to integrate health care improvement and patient safety into existing required curricula of these schools. Six universities were chosen by IHI to participate: Case Western Reserve University, Johns Hopkins University, Pennsylvania State University, University of Colorado–Denver, University of Missouri, and the University of Texas Health Science Center at San Antonio. Although each university developed its own educational goals, which determined the level of learners, cross-institutional faculty development workshops and frequent conference calls facilitated sharing of educational and evaluation plans across the universities. Most (87 percent) of the resulting educational encounters were interprofessional, which undoubtedly reflects an understanding that it will take interprofessional teamwork to achieve better, safer care for patients. In every school, the performance of the students was assessed and students received this feedback. As a result of these pilot activities, IHI has developed change concepts and models that can be spread to other institutions. Now, IHI staff and faculty, on request, can help other universities and schools in implementing interprofessional education and quality improvement into their curricula.

A grant to Geisinger Health System is specifically designed to determine the interaction between teamwork and quality improvement activities. In several different hospital units, Geisinger has created teams of resident physicians and nurses to work for a nine-month period on quality improvement projects. After an initial phase, the teams have been expanded to include medical students and nursing students. The teams have a structured didactic curriculum on quality improvement; they then choose quality improvement projects and execute them. Preliminary results have shown successful performance by most but not all teams, an area that is being examined further.

Effective communication between health professionals and patients and their families is critical to reducing medical error. This is impeded in persons from culturally and linguistically diverse populations. A recent grant to the Massachusetts General Hospital and the MGH Institute of Health Professions is enabling the development of case-based lessons and exercises to help train health professionals to work more effectively and in teams to communicate with such patients. The exercises will enhance the TeamSTEPPS model, an evidence-based teamwork system developed jointly by the U. S. Agency for Healthcare Research and Quality and the Defense Department, to improve communication and teamwork skills among health care professionals and lead to improved patient safety.

Reforming Graduate Medical Education (GME)

The graduate medical education (GME) system in this country is responsible for the training of physicians between medical school graduation and independent practice. It is largely responsible for the specialty and geographic distribution and the skills and attitudes of the

entering physician workforce in the nation. Although it is widely acknowledged that the GME system produces highly competent physicians who have appropriate knowledge and technical skills in their field, there has been a growing concern that the training being provided is not adequately preparing residents for practice in the modern health care system and that the number, specialty mix, and geographic distribution of the workforce are not optimal to meet present and future societal needs. These questions have led to concerns that the GME system, which is largely funded by public dollars, is not sufficiently accountable to the needs of the public.

Through a series of conferences in 2010 and 2011 the Macy Foundation examined the GME system, and its expert conferees generated a number of consensus recommendations. The first set of recommendations had to do with the governance and financing of GME. It called for an extensive review of the governance and financing of GME, by a group such as the Institute of Medicine, to assure that the system produces an adequate number of physicians with the appropriate incentives to attain the specialty and geographic mix that serves the public's needs. It further called for a system with the accreditation policies, incentives, and resources to innovate to meet changing societal needs. In the second report, a group of highly esteemed educators called for educational reform to make the system more publicly accountable, more flexible, more competency based, and more diverse in its training sites, patient population, and content. Taken together these reports call for a fundamental reform of the GME system to align it with contemporary needs.

The Macy Foundation has already funded some initiatives to move the system in the direction of better alignment of GME with societal needs. These include an innovative program funded through the American Academy of Pediatrics to train residents in community pediatrics to serve the underserved. It also includes the funding of a new Medicine/Pediatrics program at Johns Hopkins to train leaders in urban medicine (discussed in the following section). The foundation is also funding the Robert Graham Center to develop a novel system to track the graduates of all GME programs in the United States to better understand the match between program output and social need. The foundation also is the principal funder of the recommended Institute of Medicine review of GME finance and reform, which was initiated in 2012.

Preparing Health Professionals to Serve Underserved Populations

As part of its alignment strategy, the Macy Foundation is encouraging and supporting initiatives that provide the means for earlier differentiation of medical students and residents to pursue a specific career interest, with a particular focus on careers in primary care and serving the underserved. Since the time of the Flexner Report in 1910 there has been a belief that the way to assure high standards in US medical education is for all learners to experience more or

less the same curriculum. This served us well in the transition from unstructured, unregulated proprietary schools to more rigorous academically affiliated schools. It also perhaps served us well when medicine and the population we served were less complex. There is increasing concern today that this approach not only is inefficient but also fails to provide the specific education and training needed to succeed in diverse careers. Further, it may unintentionally steer students and residents away from some careers that are highly needed and of great societal benefit.

The recommendations from the Macy conference “Who Will Provide Primary Care and How Will They Be Trained?” (Cronenwett and Dzau 2010) emphasized the importance of early longitudinal clinical experiences to attract and train primary care providers in all the professions. They also called attention to the value of special tracks to encourage such careers and to acquire the special skills and knowledge needed for better practice and leadership in primary care.

Two currently funded Macy programs serve as prototypes of such special tracks. The Rural Immersion Program at Tulane University School of Medicine recruits medical students from rural Louisiana and prepares them for a career in rural medicine with a special curriculum and with mentored, longitudinal clinical experiences in rural communities. The Medicine/Pediatrics Urban Medicine Residency Program at Johns Hopkins University prepares residents for practice and leadership in urban medicine with curricular content and clinical experiences centered on inner-city health issues. It also provides additional public health training.

Developing Educational Leaders: The Macy Faculty Scholars Program

The Macy Faculty Scholars program is designed to fill a void in faculty career development and to develop a cadre of future leaders and innovators in medicine and nursing education. Currently it is difficult for faculty in medical and nursing schools who are intent on a career in education to find protected time to develop their skills and to pursue their innovative ideas. If we are to better align health professions education with contemporary needs, we will need their innovative ideas and we will need talented faculty to lead the change process. Therefore, we developed a program that would support and nurture these career goals. Over time this network will grow and it will include the change agents of the future.

In 2011, a group of five persons, three physicians and two nurses, became the first Macy Faculty Scholars. Scholars are in midcareer and are chosen on the basis of having already shown promise as educators and for having the potential to develop further as educators and educational innovators. They receive support for dedicating at least half their time over a two-year period to an innovative educational project and to take part in other career development activities, such as the Harvard Macy Institute. This program represents the largest financial commitment of the Josiah Macy Jr. Foundation and reflects its desire to help ensure that there is a robust and growing

group of persons involved in health professions education and educational innovation. It is a way of aligning health professions education with contemporary needs, even as those needs evolve and change, and of creating for future students a group of role models who see scholarship in health professions education as essential to having a high-performance health system.

CONCLUSION

While the Macy Foundation activities described here are focused on health professions education in the United States, the need for alignment of the education system and the health system is a global issue. This is the major theme of the report of the Lancet Commission (Frenk et al. 2010). This landmark report calls for an integrative framework in which the health system—representing the health needs of the public—and the education system—as the providers of the health care workforce—are in a constant iterative process.

We have much to learn by comparing our alignment efforts internationally. Happily, this process has begun with a newly launched Institute of Medicine Global Forum on Innovation in Health Professions Education. As Julio Frenk, dean of the Harvard School of Public Health and co-chairman of the Lancet Commission, reminds us, “Domestic is not the opposite of global.” We are all part of the global problem, and hopefully we are all part of the global solution.

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7. SUSTAINABLE NURSING HUMAN RESOURCES SYSTEMS

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“A system is an interconnected set of elements that is coherently organized in a way that achieves something” (Meadows 2008). Systems thinking, as applied to nursing human resources, offers researchers and policymakers a way to explore the dynamics of producing and maintaining the nursing workforce in a manner that can meet population health demands. In this paper, we provide a conceptual model and proposed strategy for thinking about ways to create sustainable systems for nursing human resources within the broader context of health systems strengthening. We provide high-, middle-, and low-income country case examples from the United States, Mexico, and Tanzania to illustrate our thinking on the subject. The paper concludes with strategic recommendations for research, policymaking, and funding studies and programs that will create sustainable systems for nursing human resources in a variety of contexts.

DEFINING THE ISSUES

Most countries face some form of episodic or persistent shortage of nursing human resources (NHR), the largest health cadre globally (Oulton 2006). The common parameters for determining when there is a shortage of nurses is that there are more jobs available than there are nurses willing to take them at the prevailing wage. There are multiple reasons for the global nursing shortage; some are country-specific and some due to the nature of the profession itself. We posit that there is a uniform way to examine NHR development issues across countries, including the reasons for shortages, by studying the problem using systems thinking.

Meadows (2008) succinctly defined a system as “an interconnected set of elements that is coherently organized in a way that achieves something” (3). An evolutionary process creates a system that reinforces itself, but also one is capable of evolving within shifting contextual circumstances. In the case of systems thinking, this is known as changes in the feedback loops of the system.

Abbott (1988) first introduced the concept of a system as associated with professions and how they operate as a group. His work stressed professional behavioral elements—membership in professional organizations, regulation, jurisdiction over specific types of client services, continuing education offerings, and so forth—as key components of a professional system because the organization of professions dictates that members of the professional body adhere to a certain set of standards for practice, behavior, and social contribution. Other elements of a professional system include social and institutional power dynamics, market dominance, and gender issues (Bourgeault, Benoit, and Hirschhorn 2009; Bolton and Muzio 2008; Freidson 1970; George 2007; Johnson 1972; Larson 1977; Timmermans 2008). Squires (2007) also explored systems-based concepts specifically in relation to the nursing profession and identified eight dimensions in that system: economic, political, sociocultural, unions, the workplace, intraprofessional development dynamics, historical,

and international influences. The descriptive study drew heavily from traditional sociological theories around professions and theorized that those eight dimensions influenced the dynamics of nursing human resources and the profession itself, regardless of country.

In the case of an NHR system, the simplest description of its purpose and elements includes producing NHR through the country's educational system and keeping them in the workforce long enough to sustainably address population health needs. An effective and sustainable NHR system addresses the needs of the individual, professional group, and in the case of nurses, individual patient and population health outcomes. Its "achievement" is its ability to produce nurses to meet population health needs and keep them engaged in practice and the profession so the resulting effects on health outcomes are sustainable. How well the NHR system functions and the quality of its products relate to the overall quality of the professional institution of nursing and related infrastructure in the country. For example, the strength of the educational and health systems will directly impact the NHR system since they are all intertwined (Frenk et al. 2010). A weak educational system will not prepare potential nurses well in basic skills such as reading, writing, and mathematics. That means that nursing schools must then make up for that knowledge deficit. A weak health care system cannot hire nurses or retain them in the workplace because working environments are poor or financial resources for adequate salaries do not create adequate retention incentives.

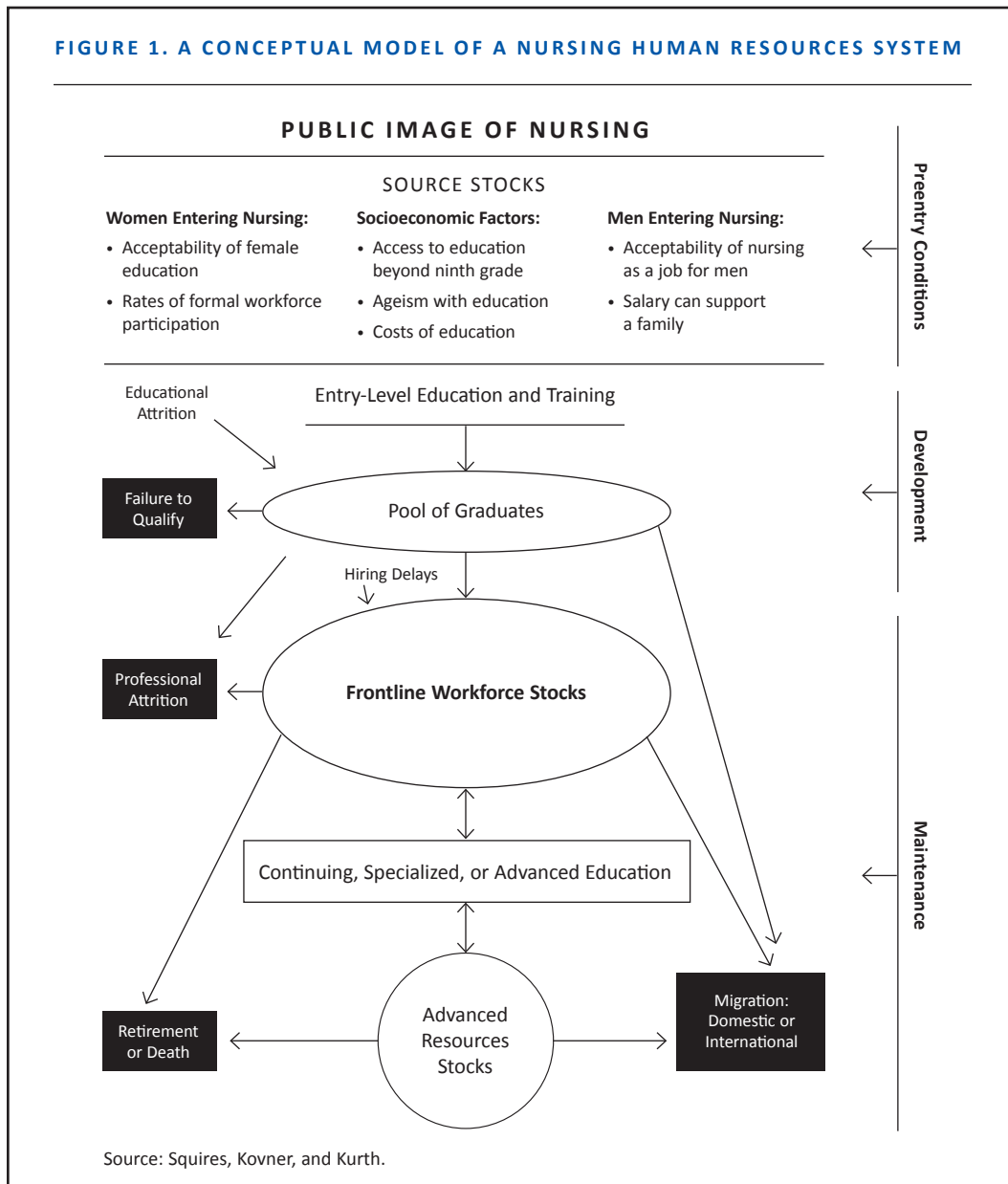
Therefore, the purpose of this paper is to apply systems thinking to NHR to set a twenty-first-century agenda for informing research, policy, and funding. It is a synthesis of the major evidence from the field. We provide a conceptual model of how we envision an NHR system, including key inflow and outflow points, where the system is vulnerable to stock depletions, and where feedback loops occur. Three case studies of NHR apply the conceptual model and discuss how research and policy strategies by key actors in the country addressed systemic problems that have contributed to the nursing shortage in the country.

A CONCEPTUAL MODEL OF A NURSING HUMAN RESOURCES SYSTEM

Figure 1 provides our conceptualization of an NHR system. The key starting input point is the public image of the nursing profession in the country. How the public views nursing is based on the value of its service to society, interactions with patients in the health care system, entry level of education, perceptions of job security, salaries, opportunities for advancement, and other individual goals (intellectual, altruistic, etc.) (Fletcher 2007). Unions and professional organizations may contribute to the public perception of the profession. The public image subsequently attracts or deters individuals to or from choosing nursing as a career. If nursing has a positive public image, then recruitment into the production system is not a problem. In

another scenario, nursing could have a positive public image and have enough entrants, but jobs remain scarce. Candidates may take the risk of obtaining the education simply to have a degree. When the public image of nursing is poor, sustaining stocks of NHR becomes problematic and standards for entry drop in order to attract more candidates to schools. Like having too few nurses, that situation often translates into poorer quality personnel working in the field and, subsequently, worse patient outcomes.

FIGURE 1. A CONCEPTUAL MODEL OF A NURSING HUMAN RESOURCES SYSTEM



A professionalization project is the process by which an occupational group develops the characteristics of a profession (Abbott 1991). Therefore, historical factors will also influence the identity of who becomes a nurse and the profession's present state of development. For example, if nurses have historically come from a particular socioeconomic class or religious group in a country, then part of the public's perception of nurses comes from those associations (Birn and Solorzano 1999). Former colonial or regional political powers will also influence the state of the occupation's professionalization project (Birn 2006).

The next part of the model relates to "source stocks" that serve as key sources of input into the entry-level education part of the NHR system. For women, their access to education, participation in the formal workforce, and other gender-sensitive factors will influence their options and ultimately their choice of nursing as a career. For men, the overall job market, the acceptability of nursing as a male career, and its ability to support a family will be key factors for entry. Both sexes will be affected by access to education (at all levels) based on their socioeconomic status. Ageism in education may also affect the potential pool of candidates if older applicants are not allowed entry into the profession. In some countries, age restrictions around admission into public universities, where many nursing education programs are found, may deter older candidates (Cohn and Addison 1998). Faculty availability and other necessary components of entry-level educational programs will greatly influence the availability of student slots and how many qualified applicants are turned away.

Once accepted into an educational program, entrants either progress through the curriculum and complete programs or leave the program prior to completion (attrition). Family issues, financial reasons, and nursing not being the candidate's first career choice are the three primary reasons for educational attrition (Müggenburg 2004; Squires 2007). Familial issues are often tied to gender and economic circumstances, with some families prioritizing short-term economic stability over education, thereby causing candidates to leave programs. Financial reasons may be tied to familial or individual circumstances and either deter entry into or impede progression through a nursing education program. Career choice is the last issue and more prevalent in countries where university entry exam scores determine the choice of study. In some universities in Mexico, for example, students with low entry scores are placed automatically into nursing programs even if the student has no interest in studying for the career (Squires 2007). Academic progression issues may also arise if the candidate does not have the skills and abilities to pass nursing courses. As a result of the conditions noted, nursing programs may experience high attrition rates—a major delay point in the NHR system that affects the annual pool of graduates that will enter the market for jobs.

Graduation rates create a pool of candidates who, in many countries, must pass a licensing, certification, or registration exam. These exams or equivalent credentialing processes are designed to protect the public from unsafe practitioners—candidates who may not possess

the knowledge, skills, and abilities to safely deliver nursing services to vulnerable clients. While necessary for public safety, the licensure or credentialing process is a key delay point in the system. Failure to qualify for professional credentials or licensure decreases the graduate workforce stocks. At the same time, a lack of a credentialing system may contribute negatively to the public image of nursing since consumers may feel they have little recourse to alert governing authorities to poor quality of care provided by nurses.

Once a nurse obtains his or her license, in some countries a lack of nursing jobs and/or hiring delays may mean waiting a year or longer for employment. This is the case in Mexico, where labor wastage among bachelor's-prepared nurses is high (Nigenda et al. 2006). In another scenario, there may be many jobs, but those are in undesirable locations, have poor work circumstances, or are unfunded positions. At this point and depending on the country, the risk for migration for employment (domestic or international) increases, as does the risk for professional attrition. Nurses may opt not to move for work, thereby delaying entry into the workforce or contributing to professional attrition due to a lack of local employment opportunities in nursing. Recent work by Kovner and colleagues (2011) in the United States suggests that nurses tend to take jobs within 100 miles (60 kilometers) of where they finished twelfth grade (or equivalent).

We propose that after credentialing or licensure, there are two phases of a nursing career that are defined by the location of employment and create two sets of NHR stocks in the system: frontline workers and advanced resources. A frontline clinical position involves providing direct patient care services in an entry-level (e.g., hospital staff nurse) or in an advanced practice role (e.g., nurse practitioner in primary care). Frontline positions might occur in a hospital, nursing home, primary care clinic, nongovernmental organization (NGO), community-based organization, or public health organization. With the exception of nurse practitioner (or equivalent) roles, career advancement opportunities for most frontline nurses present themselves as the opportunity to move away from frontline clinical positions into administrative, educational, research, and other roles within the profession—roles forming the part of the system comprising “advanced resources stocks.” These roles are also important for system sustainability because they facilitate health system operations, contribute to producing additional workforce stocks, and create the evidence that supports clinical practice and informs human resources for health policymaking. Advanced resources stocks are also heavily intertwined with the functioning of the educational and health care systems of a country.

With the sources of the stocks established, the employing organization becomes a key factor in sustaining the NHR system (and subsequently the health care system) or encouraging losses. As hundreds of studies from around the world repeatedly demonstrate, wages and the practice environment, nurse-to-patient ratios or workloads, administrative systems, availability of child care services, and opportunities for internal or external advancement keep nurses working in these positions (Aiken et al. 2003; Aiken et al. 2008; Blegen et al. 2011; Burnes Bolton et al. 2007;

Etchegaray et al. 2010; Friese et al. 2008; McHugh et al. 2011; Schenkel 2011; Spetz 2008; Squires and Juárez 2012; Van den Heede et al. 2009). This is true of hospital and primary care settings and public and private organizations; none are immune to these issues. Organizational-level problems can also contribute to a negative public image for nursing personnel since patients experience their interactions with nurses within a health care organization.

A discussion of health care organizations, if we consider the scope of where nurses work around the globe, would be lacking without a discussion of NGOs. For some countries, NGOs also play important roles in creating employment opportunities for NHR. Their involvement in this process varies widely between countries so the discussion in this paper is limited to generalities.

In some cases, NGOs may draw nursing staff away from “traditional” workplaces in hospitals or primary care settings (public or private) for frontline or advanced resources positions. They can offer career advancement opportunities and, sometimes, higher salaries than nurses would receive in traditional settings. For the individual worker, an NGO can provide added security in countries where social or political instability hinders health system operations and increases a worker’s sense of vulnerability.

At the same time, NGOs do recruit qualified workers away from the public and private systems where they are often desperately needed, especially the public one. Pay differentials offered by NGOs can create system imbalances, especially within the public sector, affecting frontline resource stocks. The singularity of their missions may also mean that NGOs are a wealth of resources that could contribute to strengthening the nursing system, but do not extend their scope beyond the programmatic mission. For local health workers, this dynamic can create a sense of “NGO fatigue” or frustration when training initiatives are imposed on them without a proper needs or sustainability assessment. NGOs may also contribute to overburdening nurses in the local health system through “task shifting gone wrong”—where a nurse already challenged by high patient-to-nurse ratios now assumes pharmacy and lab technician roles, among many others.

An NGO’s main challenge is to not exacerbate stock imbalances within the system and, ideally, contribute to system strengthening. Carefully developed recruitment plans are the best way to avoid contributing to system imbalances. For example, an NGO that recruits experienced nurses (five or more years of experience) creates an opportunity for career advancement for experienced nurses in the frontline workforce stock, thereby creating room for new graduate nurses to enter the system. NGOs that are fully cognizant of the ethics behind their hiring practices and that see themselves as part of the nursing human resources system contribute the least to system instability.

A highly functional and sustainable NHR system adapts to changing socioeconomic conditions, produces enough nurses to replace those lost to attrition factors (e.g., changing careers, disability, retirement, death), and adjusts for population growth. Ideally, organizational factors are minimal sources of stock losses. We now illustrate how the model applies in three

different case studies. Tanzania and Mexico serve respectively as the cases for low- and middle-income countries. The United States provides an example for high-income countries.

Case Study 1: Tanzania—A Nursing System Crisis

Like twenty-nine other countries in sub-Saharan Africa (SSA), Tanzania is in the midst of a severe nursing human resources crisis with only about 29,000 nurses for a country of 45 million (TNMC 2012). Tanzania would need to reach 100,000 nurses to meet the WHO minimum requirements of 2.3 health care workers per 100,000 population (WHO 2006). It is, unfortunately, an example of a system with major stock losses from multiple points of vulnerability. These vulnerability points come from a combination of both domestic and international policies that affect health system operations.

To begin, twenty-first-century nursing in Tanzania has a challenging public image. The great need for nurses guarantees a public perception of job security, and a strong educational history affords it a positive association with the middle class. Yet, extremely high patient-to-nurse ratios in almost every clinical setting, even the private sector, contribute to burnout among nursing staff and negatively affect their interactions with the public (Squires et al. 2012). The relationship dynamic contributes to the public's perception of nurses, thereby deterring entrants. While gender is not a deterrent to studying nursing in the country, socioeconomic conditions do prevent many individuals from pursuing nursing degrees. The high cost of nursing education and pressure from families to get training in something "quick" so the potential nurse can provide financial support to the family means many choose other fields. The 2008 Ministry of Health (MOH) policy change that reduced nursing education programs to two- and three-year options (from previous three- and four-year mandates) has increased enrollments in and graduates from nursing programs (TNMC 2012). It is too early in the policy implementation stage to determine educational outcome differences. Faculty shortages and limited classroom space in both public and private nursing programs, however, hinder the country's production capacity.

How did Tanzania arrive at this point? As numerous studies demonstrated, the roots of the problem go back to the late 1980s and early 1990s, when structural adjustment policies were imposed on Tanzania by international financial organizations such as the World Bank and International Monetary Fund (IMF). Meant to shift economies from state-driven entities to market-based ones, for health systems throughout Africa, these policies significantly contributed to severe weakening of health systems and negatively affected population health by eliminating gains made in earlier decades (Lugalla 1995; Songstad et al. 2011). Supplies disappeared, the quality of instruments and facilities deteriorated, and cost-saving initiatives targeted health workers and cut them from the system because human resources were and remain the single largest expense of any health care system (Loewenson 1993; Songstad et al. 2011). Salaries

would not get paid for months at a time because of delays in state payments due to the spending restrictions required by the international financial policies and, often, corruption (TNMC, personal communication, July 2012). Hiring was frozen, resulting in a feedback loop that undermined production. Coupled with the HIV epidemic, the effects were devastating to health system functioning.

In response, health workers of all cadres sought alternative employment solutions. Many migrated internally from rural to urban areas. When jobs disappeared or working conditions proved dissatisfactory, they migrated outside of the country. Many stayed within sub-Saharan Africa, migrating to Botswana or South Africa (Liese and Dussault 2004). Others hunted for employment in the common receiving countries involved in international nurse migration: the United Kingdom, Canada, and the United States. Within a decade of the early 1980s structural adjustment policy implementation, Tanzania's health system and its capacity to produce health care workers was in crisis (Lugalla 1995). Despite recent advances made through substantial international investment, the legacy of these policies remains today and still affects health workers (Songstad et al. 2011).

In the present, the nursing community and MOH officials are working to shore up the foundation of the profession. One benefit of the crisis is that it has created a culture of collaboration that makes government, professional, and private sector entities willing to work together. For example, the Tanzanian Nursing and Midwifery Council (TNMC), the independent national nursing regulatory body that maintains all nursing licenses in the country, spent the early part of the twenty-first century reviewing all the nursing registrations in order to determine how many nurses were actually still alive and working in the country. They have received support from the MOH for their operations, but do not rely on them primarily for financial support and are the organizational entity that serves as the main regulatory body in the country. License fees help support operations and other professional development initiatives. Meanwhile, the MOH's nursing division is able to check its own records against those of the TNMC as a data quality check, enhancing transparency and accountability for both organizations. Schools of nursing also increasingly rely on the TNMC to track their graduates, laying the foundation for studying career paths of nurses in the country.

To more strategically address the NHR crisis in the country and strengthen the system, key actors need more nursing-specific workforce research. While the National Institute for Medical Research (NIMR)—Tanzania's equivalent to the US National Institutes of Health and funded from both private and public monies—has a human resources for health unit that studies health workforce dynamics in the country, its research has focused largely on physicians and physician assistants. Studies about health workers in Tanzania published in international, peer-reviewed journals rarely differentiate between health worker cadres and report findings as though the issues they face are similar and singular, from the community health worker to the physician

(Squires et al. 2012). An NHR-specific research program would provide the MOH and other key actors the necessary information they need to develop the profession. It would also provide strategies for organizational strengthening initiatives that could improve retention and reduce burnout. Illustrating links between the deficit of nursing personnel and patient outcomes around HIV/AIDS, malaria, and other MOH-priority diseases will add a further sense of urgency to the problem and direct funding sources toward nursing-specific workforce studies.

Case Study 2: Mexico—Linking Long-Term Stability and Professional Infrastructure to Decrease Systemic Blockages

The health care human resources dynamic in Latin American countries is very different from the SSA region. Most of Latin America produces more physicians than it needs, resulting in an oversupply in all the middle-income countries and some of the low-income ones (Nigenda et al. 2011). Social class dynamics ensure that medical school enrollments are always at their peak as students seek the status and title associated with a medical school education. In most countries new graduates enter saturated markets where the only jobs available are in remote rural areas. Like most regions around the world, Latin America has not figured out how to ensure their physicians stay working in remote regions, so physician supply issues center on distribution problems.

NHR are altogether another story. Like nursing in SSA, most nurses in Latin America come from families of low socioeconomic status and are often the first in their families to complete high school or any level of university education (Malvárez and Castrillón Agudelo 2006). Men typically do not become nurses and are faced with multiple stereotypes when they enter the profession. Nursing education has multiple levels of entry and has not yet reached a standard for entry-level education, even though a bachelor's degree is the target. Nurses commonly give vaccinations and appear to have a simple role as a physician helper, which shapes the public perception of the profession throughout the region.

In the specific case of Mexico, the country has slightly over 200,000 formally educated nurses for a population of 110 million, with increasing numbers of personnel educated at the post-high school and baccalaureate levels (SSA 2012). The nursing system faces multiple roadblocks to successful functioning. Researchers have captured the issues around work environments of nurses and hiring barriers in studies (Nigenda et al. 2006; Squires and Juárez 2012) with multiple opportunities for organizational and institutional strengthening needed to address systemic issues. Migration to English-speaking countries is not common in Mexico because of the language barrier. Not even a free trade agreement like the North American Free Trade Agreement (NAFTA) could overcome that obstacle to migration for nurses (Squires 2011). There is some immigration to Spain for nursing positions, but the 2008 economic crisis has stemmed that outflow. Domestic

migration issues reflect broader internal trends across the board with workers seeking employment predominantly in urban areas. Nurses with minimum basic training staff rural clinics, with recent medical school graduates being required, by law, to work there for a year (Vázquez Martínez 2010). Those nurses tend to stay in those communities for the duration of their careers (Squires 2007).

Meanwhile, with more than six hundred public and private nursing schools, Mexico does not face a production problem related to a lack of institutions. The explosive growth in private education in the country since the mid-1990s has ensured that enough educational institutions operate in the country to produce nurses. Most, however, do not have official accreditation so the quality of graduates varies widely. Enough master's level graduate programs exist to produce faculty, but a nurse's ability to pay for higher education is a deterrent to many who want to enter those programs and advance their careers. Entry-level production issues center mostly on admission policies, high attrition rates, and a lack of educational program regulation. Familial pressures often contribute to high attrition rates as female students experience greater pressure to leave school to support their families when tough economic circumstances arise.

After completing a nursing program, Mexican nurses need to complete a year of social service in the public sector, a time and experience equivalent to nursing externship programs in the United States. To obtain their nursing credentials, they must receive a passing evaluation during that year. The variability in graduate quality, with up to 30 percent of new graduate nurses failing to qualify at the professional level after their year of social service (Vázquez Martínez 2010), points to problems with educational quality and standards. The nursing profession does not have the resources to invest in national accreditation programs that can adequately respond to demand. Neither the Secretary of Health and Social Assistance nor the Ministry of Education has ever allocated supporting funds for this kind of institution. There is an optional licensure program in the country, which could serve as an additional educational outcomes check, but it is not mandatory. In a country with a shifting epidemiological profile that consists of increasingly complex patients with multiple chronic diseases, the nursing workforce may be underprepared to manage these kinds of patients. The health system may face increased costs and poor patient outcomes as a result. Continuing professional education, a potential short-term solution, is available to nurses in Mexico if they can afford the costs and obtain the time off from their jobs. Salaries and organizational policies determine both of these.

Our NHR system model, as applied to Mexican nursing, provides targets for strategic strengthening, suggesting that the NHR system in Mexico should focus on reducing systemic blockages to placing frontline workers in full-time positions and creating ways to increase the number of advanced resources stocks. Stronger regulatory mechanisms in the education sector and a professional licensure system would provide the health care system and consumers with a higher-quality nursing graduate who is more capable of handling the complexity of patients with noncommunicable diseases.

Case Study 3: The United States—A Case of Temporary or Permanent NHR System Stability?

In general, high-income countries tend to have better nursing workforce data available for analysis and policymaking. That kind of data quality is reflected in this section as we analyze the case of nursing in the United States. With 3.1 million nurses and one of the highest nurse-to-population ratios in the world at 9.8 per 1,000 (ANA 2012), the United States has had cyclical nursing shortages (defined as more jobs than nurses willing to take those jobs at the prevailing wage). Although the worldwide recession has abated the latest domestic nursing shortage, researchers posit that as the economy improves, nurses will reduce hours and older nurses will retire (Auerbach, Beurhaus, and Staiger 2011). Using our conceptual model about NHR (shown in figure 1) allows us to identify decision points at which US policymakers and donors could intervene in the system's production and sustainability processes, thereby moderating future supply-and-demand changes.

Beginning with the public image element of the model, the US public highly regards nurses, with national polls consistently showing nurses among the top ten most admired and trusted professionals (Jones 2010). Nursing positions, historically, tend to be secure, with nurses rarely getting laid off due to service reductions. Slow hiring is the main issue during economic downturns and that will vary by region of the country.

The entrants into nursing have a variety of postsecondary educational program options that range from two-year associate to several-year master's degree programs. There is also now a target date by which the entry degree for advanced practice nursing credentials is to be at the practice doctorate level, known as the doctor of nursing practice (DNP). Public education is free through secondary school. Each state has its own system of higher education that is highly subsidized, but private higher education remains a choice for many people. However, many qualified students are refused admission due to lack of slots in academic programs (Kovner and Djukic 2009). Furthermore, not all of those students who enroll graduate. One estimate of the graduation rates from nursing bachelor's programs is about 89 percent and 71 percent for associate degree programs (Kovner and Djukic 2009), but these numbers are not validated.

Following graduation, potential nurses must take the National Council Licensure Examination, the passing of which all states and territories accept as the qualification for licensure. About 88 percent of US-educated nurses passed this examination on their first try in 2011 (NCSBN 2012), compared to about 34 percent for internationally educated nurses.

While the proportion of male students continues to increase, the more than three million US nurses are primarily white, female, and middle-aged (HRSA 2012). About 85 percent are employed (more than two-thirds full-time), most often in hospitals (62.2 percent). US nurses are well paid compared with other predominately female occupations in the United States, with an average salary of US\$66,973 in 2008.

Most new US nurses work in hospitals and form the majority of frontline workforce stocks (Kovner et al. 2007), where they often have flexible work options including three to four twelve-hour shifts per week. Some may also have more than one nursing job, but those data are difficult to track. Their work environments vary by the specific setting and ownership. Over their early career these registered nurses (RNs) gradually leave their first RN job (18.8 percent by the end of their first year); some move out of hospital work, but most go to other hospitals (Kovner et al. 2007). By 4.5 years after starting their first job, almost half have left that first job (Kovner, Brewer, and Greene 2009). They begin to leave hospital work and instead work in the many occupational settings that employ nurses, such as ambulatory care or nursing homes. A small percentage leave frontline nursing roles; some return to school to obtain a bachelor's or graduate degree, which offers them the opportunity for a wider selection of frontline positions or roles included in advanced resources stocks. For example, many become nurse practitioners. Alternatively, some leave nursing to become stay-at-home parents or to work in another career.

US nurses can readily move from state to state. Although each state and territory has its own licensing or qualifying board, the boards recognize each other's license, and nurses can obtain a license by supplying documentation and a fee. Additionally, a group of states called "compact states" automatically recognize licensure from states within the group as a way to facilitate interstate practice.

Many nurses work in frontline clinical positions for their entire career. Others' careers develop into advanced resources roles through three main areas of progression. Through education and experience, nurses become advanced clinical nurses with positions such as nurse practitioner (NP) or clinical nurse specialist, both of which now require master's degrees in nursing. Because of the master's degree requirement, these nurses can also work in entry-level educational settings, which places the NP role in both the frontline and advanced resources stocks in the US NHR system. To further solidify an NP's ability to contribute from the advanced resources position, the American Association of Colleges of Nursing, the accrediting body for bachelor- and higher-degree nursing programs, will require a doctorate of nursing practice for graduates of nurse practitioner programs by 2015 (AACN 2004). Otherwise, at least a master's degree is required to teach in a nursing educational program, and positions in most baccalaureate programs require a doctorate in nursing or a related field. Nursing and hospital management offers another career progression opportunity; however, most nurse managers do not have graduate degrees and in fact many only have an associate degree (HRSA 2012). Similarly, nurses can advance by working in nursing education, either in nursing programs or within an educational program in a care delivery setting. Nursing informatics, legal consultation, and health care consulting are other options for career progression for entry-level nurses.

The Patient Protection and Affordable Care Act (ACA) and the impending retirement of a large percentage of the working nursing population in the next ten years are two factors that will

contribute significantly to frontline and advanced resources stock levels. Auerbach, Beurhaus, and Staiger's recent analysis of entrants into nursing suggests that the United States has reached replacement levels due to enrollments of nursing students in their twenties (2011). That means there are enough people studying nursing to replace those who retire. The exception is the nurse faculty shortage, which will have a significant effect on the system's ability to keep frontline and advanced resources stocks at the levels needed for optimal system functioning. The ACA is a bit of an unknown variable in terms of how it will affect the nursing system. It could increase demand or keep levels where they are; much will depend on how administrators view cost control initiatives: Do they staff an organization to prevent the costs of complications or take the risk for lower staffing to save shorter-term costs? Only time will tell.

In conclusion, applying the conceptual model to US nurses helps us identify the various points at which nurses leave and enter the workforce and potential barriers to practice. It also offers new directions for research in the areas of career progression studies and workforce forecasting. Ongoing studies are examining career progression issues in the country, but this is a relatively new area of study for the United States.

FUTURE DIRECTIONS: RESEARCH, POLICY, AND FUNDING

With this NHR system model applied to three very different countries, the case studies illustrate its applicability across different income categories, settings, histories, and variations in professional and health systems infrastructure strength. It also provides a standardized language to discuss and frame nursing human resources issues. The cases also suggest that the model may be useful for developing a nursing workforce research agenda and making policy recommendations that are country-specific. Funders can also work with key actors for determining where the most strategic investments can be made that will have the greatest impact in developing NHR, the oft-cited "backbone" of every health system.

From the three case studies, it is also clear that researchers, policymakers, and funders need better and more consistent data about the nursing workforce and its places of employment. Without accurate data, positive policy change is impossible. Around the world, many countries or regions are working to improve their health care human resources datasets. World Health Organization country profiles show that countries report "nurses" in a single category that includes anyone with a formal nursing education, whether an associate degree holder or a doctorally prepared nurse. The auxiliary nursing role is sometimes categorized separately, but many of those personnel may fall into the "nurses" category (Nigenda et al. 2011). Some countries do track midwives separately. Overall, however, these data are insufficient for creating sustainable NHR systems and analyzing their performance.

At the national and regional levels, countries need to know not just how many nurses there are, but also the different categories of nurses, including nurse's aides, practical or enrolled nurses, registered nurses, nurse-midwives, advanced practice nurses (where recognized and available), educators, administrators, and those prepared to conduct research. Where entry-level education varies, educational preparation data must also be tracked (Frenk et al. 2011). Standardized credentialing language would also go a long way in determining educational and role equivalency across regions and between countries. Educational institutions also need to report attrition and graduation rates. Patient care organizations need standards for reporting about nurse-to-patient ratios at the bedside in different clinical settings. Standardized reporting of patient outcome data would also allow researchers to examine relationships to NHR. Incentives for accurate and complete reporting, along with regular audits, are needed to reduce corruption.

Each role—researcher, policymaker, and funder—is key in the data development process, and the model can serve as a directional guide. Funders, collaborating with policymakers, can use it to determine where to best direct their resources. Researchers need funds to build the systems to track workforce data and study them, along with gathering data about work environments. Health system leaders will then have a stronger evidence base from which they can make decisions and take steps to improve retention rates and reduce those costs to the system. Many of these collaborations can have a huge impact on NHR in low- and middle-income countries simply because they have never been done before.

Overall, however, the greatest impact these studies would have is on health system financing because they will illustrate the systemic costs of personnel shortages, educational preparation, and their subsequent relationships to patient outcomes. For example, if a US-based study demonstrated that the addition of about 150,000 nurses to the US health care system would reduce costs just related to medical errors by US\$6 billion (Dall et al. 2009), imagine what similar analyses could do for low- and middle-income countries.

Any conceptual model cannot include all factors that may influence a system, and the complexity of the twenty-first-century world means the themes highlighted by the model need additional, country-specific detail. For example, professional associations will play a role in the system in countries that have them. At present, however, not all countries do, so they do not factor into the model at this time.

In conclusion, sustainable nursing human resources systems are key to strong health care systems. Systems can improve if collaboration occurs among the nursing profession, researchers, policymakers, and funders and have the potential for making a significant impact on patient outcomes in a country. The NHR systems model provides a place for all key stakeholders involved to conduct an assessment, develop a plan, monitor implementation, and evaluate results.

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Allison Squires led the writing and developed the concept for the paper and the model behind it. She also wrote the Tanzania and Mexico case studies.

Christine Kovner wrote the US case study, contributed to refining the conceptual model, and helped edit the final version of the manuscript.

Ann E. Kurth contributed to the Tanzanian case study, added content about NGOs, and helped refine the conceptual model. She also reviewed the final manuscript.

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PART III.

VOICES FROM THE FIELD

8. CENTRALITY OF HEALTH WORKERS IN BUILDING A UNIVERSAL AND EQUITABLE HEALTH SYSTEM

Francisco Eduardo Campos, MD, PhD, MSc; Vinicius de Araujo Oliveira, MD, MSc;
and Sonia Maria Soares, PhD, MSc, RN

Like other large federal countries, Brazil bears enormous social, economic, political, and cultural differences amongst its regions. This diversity has been the backdrop as well as underpinning of a massive health system reform that began thirty years ago. Many of the lessons that have been learned over the past decade could be useful in other countries. This paper analyzes the construction of this health reform, with particular focus on the challenges regarding human resources for health. The strategies to deal with these challenges were part of the core of the health reforms and had a crucial role in making the universal health system of Brazil viable.

A DEMOCRATIC POLITICAL MANDATE

The political decision to build a universal and equitable health system was made toward the end of the period of military rule (1964–1984) and transition to democracy in Brazil. The keystone to this transition, the 1988 Brazilian Constitution, is a turning point in Brazil's national health system. Until then, the health system was characterized by fragmentation and lack of central coordination. There were basically three concurrent sources of health care. First, a national social security system covered only the formally employed. It was based on contracting out medical services through a nationally centralized administration, which was burdensome and fraught with fraudulent practices. Second, there were unregulated private health insurance and out-of-pocket health services, which were used by the very wealthy. Finally, assistance for the poor was even more fragmented; the backbone of this system was composed of charity services with occasional and specific “campaign-style” public health interventions focusing on communicable diseases and vaccines. Some state governments experimented with whole patient care models in remote and destitute towns where the private sector was nonexistent (e.g., Montes Claros, Caruaru), but these experiments were limited.

Deeply embedded in the redemocratization movement, scholars, practitioners, and political leaders in the health movement chose to build consensus for the new health system through a series of conferences. This series of municipal and state conferences held across Brazil culminated in a National Health Conference in 1986. The National Health Conference attracted wide social participation, with representation by health workers, public and private health institutions, universities, health policy stakeholders and decision makers, and citizens interested in the matter. The conference decided that a national health system should be created, based on the concept that health care is a human right intrinsically connected to citizenship rather than a service that should be provided based on payments in the form of taxes or contributions to health insurance. Thus, health care became the responsibility of the state, and the health system was to be built on an intersectoral approach, which would tackle the multiple determinants of health conditions. This conference had a direct influence on the health-specific text of the Brazilian Constitution and,

consequently, on the development and structure of the national health system.

In 1988, the Democratic Constitutional Congress established that the nation must provide health care for all. This mandate is the foundation for a national health system that, to date, is the world's largest universal, national health system potentially covering more than 100 million inhabitants who have no other access to health services.

THE INSTITUTIONAL CONTEXT

A political mandate, by itself, is not enough to ensure the implementation of such a complex system. Besides the federal government, the country is also ruled by twenty-seven autonomous states and more than five thousand municipalities. Population sizes of these municipalities range from a few hundred in some rural villages to 12 million people in São Paulo.

Vast socioeconomic differences and inequities deeply affect the access to a range of social and health services. For example, southeastern states contribute three-quarters of gross domestic product (GDP). Meanwhile, most of Brazil's metropolitan areas are surrounded by poverty and low access to public services. These problems are magnified in rural and remote Amazon regions. Hospitals and high-tech medical equipment are also disproportionately concentrated in developed regions. Of the 248,459 health establishments registered in 2012, 43 percent are in the southeast region and just 3.55 percent in the northern region (RIPSA 2011).

However, the organization of a health system in a popularly diverse country is driven by many forces that include demographic changes, migration, unequal access to education, informal employment, existing regulations and their enforcement, social norms, and cultural legacy. These forces are often interlinked and reinforce one another. It takes time and effort to engage and harmonize the various stakeholders in such a large democratic country.

In the decade following the 1986 National Health Conference, the health system became regulated by laws to orient the provision of health services, organize the public system, and regulate private health insurance. The health system is now coordinated by the Ministry of Health (MOH) in cooperation with states and municipalities, supported by a National Health Council that includes representatives of civil society. The resulting health system is highly decentralized and most health care services are delivered by the 5,564 municipalities. Decentralization makes it possible for the system to function effectively, allowing local governments to develop health capacities as well as tailor their response to local needs. However, it also maintains national and local inequities, as the more developed regions can provide better health care—not only because of availability of material and human resources but also because of different levels of managerial capacity in local governments.

Remarkable advances have occurred since 1988. As table 1 shows, the proportion of the

MOH budget that is yearly decentralized to states and municipalities increased from 22 percent in 1997 to 68 percent in 2010. In the same period, child mortality has been decreasing steadily and life expectancy is increasing (RIPSA 2011). Although many other factors contributed to these achievements, it has been suggested that the expansion of primary care coverage had an important role (Macinko, Guanais, and Souza 2006).

TABLE 1. SELECTED HEALTH AND EXPENDITURE INDICATORS: LIFE EXPECTANCY, CHILD MORTALITY, DECENTRALIZATION OF FEDERAL HEALTH BUDGET PERCENTAGE, BRAZIL, 1997–2010

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Decentralization	22%	36%	43%	49%	53%	55%	58%	67%	70%	69%	72%	72%	68%	68%
Life expectancy (years)	69	70	70	70	71	71	71	72	72	72	72	73	73	73
Child mortality (<5 mortality rate per 1,000 live births)	32	30	28	27	26	25	24	23	21	21	20	18	17	16

Source: RIPSA 2011.

An example is the high rate of vaccine coverage: more than 95 percent of Brazilian inhabitants are immunized as recommended by international guidelines (RIPSA 2011). Brazil was one of the first emerging economies to provide low- and middle-income individuals free antiretroviral treatment as well as high-complexity care. Brazil’s unified health system has, as its main characteristics, universal coverage and integrality. And while it provides services to all citizens across all levels of health care, given the health sector’s underfunded mandate, primary care has been the key strategy to tackle regional inequality. The Family Health Program (FHP) initiated in 1994 became the main instrument of health system reform. Family Health is understood as a strategy for reorienting the health care model, operationalized through the implementation of multidisciplinary teams in primary health care. These teams are responsible for the monitoring of a number of families, located in a defined geographical area. Family Health teams are composed of seven to ten frontline health workers consisting of one general practitioner, one nurse, one or two nursing technicians, and four to six community health workers. Team responsibilities include (1) assisting people who demand immediate assistance; (2) providing preventive services related to specific programs identified by the Ministry of Health and health needs (for example, immunizations, women’s cancer prevention, and management of diabetes and hypertension); (3) performing health promotion via community empowerment and education; (4) planning health services based on local data; and (5) reporting to the national

health information system. The FHP was initially established to assist remote regions with low socioeconomic and service availability indicators. As the evidence of its effectiveness grew, it was expanded across the country.

Figures have been consistent for two decades: 32,000 Family Health teams assist more than 100 million inhabitants, and trends indicate continued growth in the future. This model has proved to be cost-effective and is associated with good health assistance results (Harris and Haines 2010; Macinko, Guanais, and Souza 2006). But there is still room for improvement. From the outset, it became clear that the critical constraint on the national health system, and particularly on local health systems, is the health care workforce.

HUMAN RESOURCES FOR HEALTH: A NATIONWIDE CHALLENGE

Early on, Brazil realized that it is impossible to address human resources for health (HRH) challenges with a local health system approach. The root causes of health worker shortages are interconnected in complex system issues, including education, labor market trends, expectations people have about health workers, technologic progress, and competition among public and private sector health facilities.

Forces that drive the health workforce include demographics, disease burden, epidemics, financing, technology, consumer preferences, education, public sector reforms, and globalization (WHO 2006).

Four million Brazilians work directly in health assistance. The health sector as a whole employs more than 7 million workers. Nursing is the largest cadre of the health workforce, representing 37 percent of all health workers. According to data from the Federal Board of Nursing, the nursing workforce includes 1,446,403 individuals distributed among the categories of nursing assistants, nursing technicians, and nurses; of the total number, there are 287,119 (19.85 percent) nurses (RIPSA 2011). These numbers express the significant participation of nursing in the mechanisms of support and challenges in the health sector. Over the past ten years, health sector employment increased by 60.5 percent, probably the highest rate in the national economy.

Brazil shares many of the global challenges in human resources for health. Although there's not a critical shortage of health professionals, misallocation is a serious issue, with excess in the richest cities and shortages in rural and poor areas. For instance, the concentration of physicians per 10,000 inhabitants varies bottom to top from less than 10 to 30, and there is a shortage of general practitioner physicians and most specialists (Fundação Oswaldo Cruz 2012). Nursing workforce data indicate that 52.3 percent are concentrated in the southeast region, where there are 1.71 nurses per 1,000 population and the largest ratio of nurses per population, while in the north there are 0.94 nurses per 1,000. When all categories in nursing are considered per 1,000

population, there are 9.44 in the southeast and 5.41 in the northeast (RIPSA 2011).

Complex regulation of health professions makes health team attribution and balance hard to achieve. As a legacy of state corporatism, each health profession has a specific regulatory law and a corporate professional council with self-regulatory powers. Councils systematically disagree with the others about each profession's privileges and obligations.

Working conditions in the public services often drive good professionals away, and there are complex interactions of financial and nonfinancial incentives to attract and retain health care workers. One good example is the Family Health Program. Recent studies indicate that, in addition to bringing about significant changes in the health care model and expanding access to health care, the FHP has changed the dimensions and configurations of the labor market and the training of health professionals, most especially for nurses and doctors (IMS/UERJ 2006; Pereira et al. 2009). The major impact of the FHP was the establishment of a new labor market in which the traditional trend toward specialization was replaced by an orientation to primary health care, with an interdisciplinary and multiprofessional approach. Following the ideals proposed in the Alma-Ata, the adoption of primary care teams was done with community participation through local health councils.

The FHP's main weaknesses are in human resource development. To date, the education of health professionals relies on specialized and hospital-based care, and it is difficult to change this status quo. Convincing professionals to adhere to the new orientation is a hard task. This is compounded by the fact that education and training of health professionals has not kept pace with the changes in Brazil's health system.

Although there are examples of innovative changes in some areas, most of the curricula continue to be based on acute, hospital-based care to produce experienced, specialty-focused professionals rather than general practitioners who are focused on team and interdisciplinary practice.

Young medical doctors have many reasons to opt out of work in primary care, and most of these reasons can be explained by the "white follows green" law (Mullan 2002). While general practice and associated salaries may initially attract medical graduates, these professionals are not retained. These positions demand full-time dedication but have poor career opportunities. In particular, it is hard to change the private health insurance market, which reimburses specialty care better than primary care. In addition, the benefits of primary care delivered by general practitioners are not well understood by a society already used to consulting with medical specialists.

Medical education has a role in driving young medical doctors away from primary care. Universities look for prestigious professors, who are often senior specialists in focused areas. These faculty members are ill-prepared to teach young students to be generalists. More importantly, they role model them away from primary care (Frenk et al. 2010). Ironically, this

condition is more extreme in public universities, which value senior researchers who publish in peer-reviewed journals. These values are dissonant with the health system's needs to have well-trained general practitioners. Despite these difficulties, primary care has continued to expand in Brazil over the past twenty years, and research in the area has drawn increasing local and international interest (Buchan, Fronteira, and Dussault 2011).

For nurses, who have a more generalist education and have typically practiced in integrated models of care, the transition to primary care has been easier; it is also where there are more employment opportunities (IMS/UERJ 2006).

The Family Health Program increased the employability for nurses, especially for recent undergraduate nurses. Nursing workforce studies indicates that 43.1 percent of nurses who work in the FHP have four years or less of post-training experience. Nurses occupy 70 percent of the positions as coordinators of FHP (IMS/UERJ 2006).

However, while employment opportunities are high for physicians and nurses in the Family Health Program, there are some disparities related to labor rights, employment contracts, salaries, and social security among health professionals. For example, while nurses and other health professionals earn between five and seven times the minimum wage (on average US\$25,000 annually), doctors earn fifteen to twenty times the minimum wage (on average US\$72,000 annually) (IMS/UERJ 2006). Market trends indicate that the gap will increase in the next years, as medical doctors are in high demand and nursing undergraduate seats grew faster than job offers (Fundação Oswaldo Cruz 2012). Employment is through temporary contracts, which hinders the retention of professionals in rural areas and does not guarantee labor rights. It is estimated that 61.17 percent of nurses did not have guaranteed labor rights (IMS/UERJ 2006). However, the expressive movement of the workforce to primary care opens possibilities for the Ministry of Health to develop strategies and initiatives that address these disparities (Girardi et al. 2010).

A NATIONAL STRATEGY FOR A NATIONAL CHALLENGE

To face this complex scenario, human resources for health was identified as a priority by national authorities. A National Secretariat for Health Personnel Education and Management was established in the top level of the Ministry of Health, and a series of interministerial programs with the Ministries of Education and Labor followed. This fostered an institutional environment to develop human resources for health across the country.

The human resources for health strategy is backed by the Brazilian Network of Human Resources Observatories and consists of twenty nodes, most within existing academic institutions. The network was strengthened in order to implement a decision-making process relying

on specialized analysis. Some of the nodes are highly specialized in certain themes, such as education, labor market, and regulation. Political decision making takes those studies into account as often as they are available.

EDUCATION OF FRONTLINE HEALTH WORKERS

Technical Education

The backbone of the Family Health strategy is the community health worker (CHW). Brazil has 246,130 CHWs distributed across 5,374 Family Health teams working in rural communities and urban areas (Brazil 2006; De Barros et al. 2010). Although recruited from their local communities, they are not volunteers but rather formal employees of the national health system. The requirements to become a CHW include completing the basic level of education and living in the community. Moreover, CHWs maintain local and cultural ties with the community. Their competencies are in disease prevention and promotion of health through health education activities in the communities in accordance with the principles and guidelines of the health system, extending the population's access to information about health, social protection, and citizenship (Brazil 2006).

A specific law was adopted that acknowledges this new cadre of frontline health worker, and a constitutional amendment allows public recruitment from within each community. Because of the heterogeneity of the country, workers in some regions have little formal education, which requires flexibility for their training and supervision. Nurses in Family Health teams are responsible for training and supervising the activities of community health workers (a proportion of fifteen agents for each nurse) according to the needs of the community. A national strategy was adopted to invest in expanding the number of technical frontline workers through a well-managed top-down program. The Ministry of Health is presently supporting the training of an additional 180,000 CHWs. The first 90,000 have completed training. This educational program is structured as a three-step sequence of technical courses for CHWs, totaling a minimum workload of 1,200 hours and distributed as follows: Step I, 400 hours, no education requirement, in order to develop the social profile of the technical agent in community health and its role within the multidisciplinary team of the basic network of Brazil's health system or SUS (Sistema Único de Saúde); Step II, 600 hours of professional training at the technical level, requiring completion of elementary school and focused on health promotion and disease prevention, directed at specific individuals and groups and prevalent diseases; Step III, 200 hours of professional training, technical capability, requiring the completion of high school and with the purpose of consolidating the themes of promotion, prevention, and monitoring of environmental risk and health (Brazil 2006).

The training course as a whole is based on teaching competence, as recommended by laws and resolutions defined in the Board of Medium Level of Education. This training process focuses on health promotion and prevention of diseases. Some states are proposing to increase the length of CHW training programs to 1,200 hours in their state, despite a lack of a national consensus.

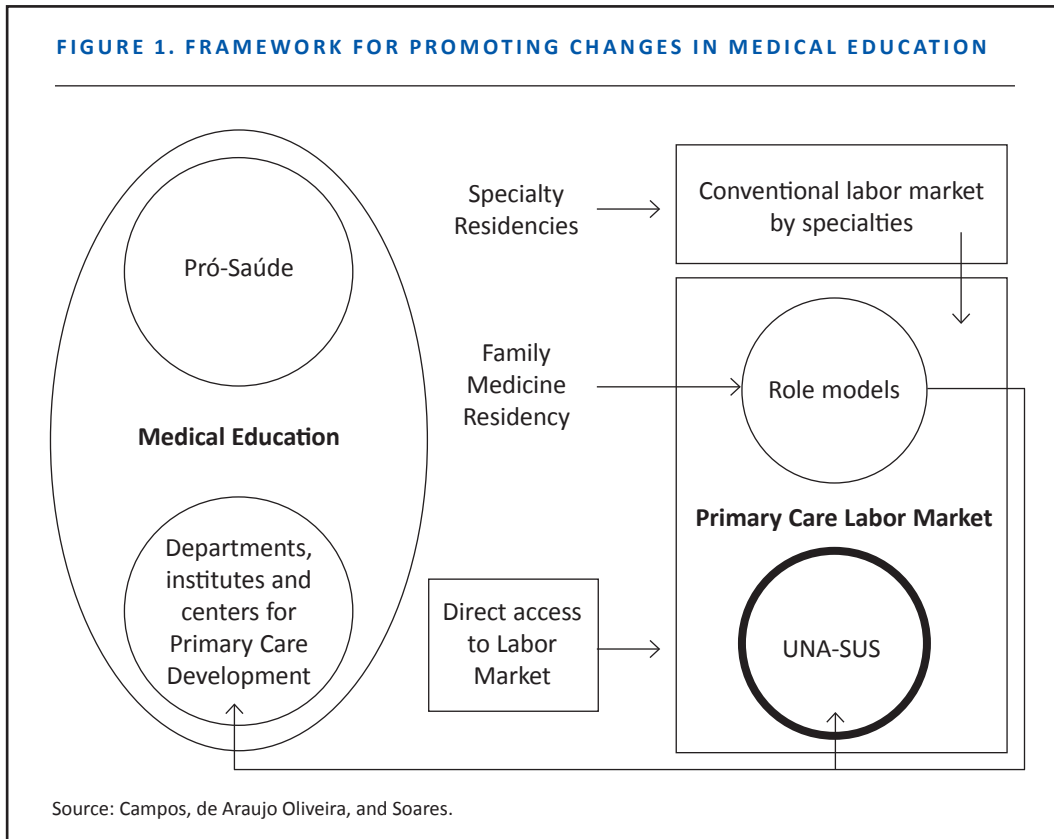
The shortage of nursing assistants (NAs) led to the development of a special initiative, PROFAB, the National Project for Professionalization of Nursing Assistants. PROFAB was established by the Ministry of Health in 2000 and was inspired by the pioneering work of nurse Isabel dos Santos and others, from the program Large Scale that worked with the Public Health Service to organize the training of elementary and middle school students. PROFAB includes the completion of primary-level education as well as technical training with emphasis on specific health care skills and competencies. The PROFAB initiative is decentralized; it is led by thirty-five technical schools of the national health system with most education and training provided by a network of more than two hundred schools of professional nursing across Brazil. Health service delivery sites host trainees in a clinical practicum that provides a link between didactic and clinical learning. The outcome to date is impressive: 300,000 NAs have been trained (Girardi et al. 2011). Currently, this model is being extended to fifteen other technical areas, such as pharmacy, laboratories, home care, and health surveillance.

Education of Health Professionals

Educational reforms for health professionals are even more complex than for health technicians. Universities are autonomous entities in Brazil, even the public ones. As previously discussed, professional associations are strong and must support changes in health professional education for them to come about.

To tackle the challenge of bringing Brazil's medical and health professional education in line with twenty-first-century health needs, a complex set of articulated actions were put in place. The main thrust was to increase the number and expertise of primary care physicians (figure 1).

FIGURE 1. FRAMEWORK FOR PROMOTING CHANGES IN MEDICAL EDUCATION



Source: Campos, de Araujo Oliveira, and Soares.

In Brazil, a two-year internship is mandatory as part of medical school, following which graduates are allowed to practice as fully licensed physicians. Medical school graduates can choose one of three paths. Currently, half of the students choose the first path, which leads to medical specialization and requires the traditional residency training. The other two paths lead to general practice. One is the family medicine residency program, chosen by those willing to teach in medical schools or applying to practice in the best municipalities. The other is to start practice immediately as a physician in a Family Health team, where there are thousands of seats available and where residency training is not required (Oliveira and Belisário 2007).

The MOH's strategy in this area is divided on two fronts: pre-service, with Pró-Saúde, and in-service, with UNA-SUS (Campos et al. 2010). Pró-Saúde is a program that aims to reorient the medical and other health professions' undergraduate education. The Open University of the National Health System (UNA-SUS) is a public educational system dedicated to the health workers in the public health system.

Family residency programs have been firmly supported by the MOH due to its strategic role in reconciling the demand for and supply of primary care medical professionals, but the number

of seats they currently offer is inadequate to supply the primary health care labor market. Family medicine specialists are most valuable in health education. As role models of primary care doctors, they can become preceptors of family residency programs, teachers in medical schools, or tutors in UNA-SUS.

PRÓ-SAÚDE

The government effectively started to take action on reforming medical education on 2001, when the Ministry of Education (MOE) established the new Curriculum Guidelines for Health Professional Courses. These guidelines, based on recommendations from the World Health Organization/Pan-American Health Organization (WHO/PAHO), Professional Councils, Health Professional Education Associations, and a commission of specialists, guide the development of medical courses to train a generalist doctor to be able to deliver comprehensive care, informed by critical thinking. This professional should be competent in health promotion, disease prevention, and treatment of most important health problems. The challenge of the new curriculum is to prepare medical doctors to be part of a cost-effective, integrated, hierarchic, comprehensive, and equitable health system.

The decree of new curriculum guidelines was not, by itself, enough to make medical schools change. Reforming health professional education is not an easy task, because it involves changing a consolidated and traditional way of producing and disseminating knowledge, which impacts the very same professional practice.

The Flexner curriculum framework is discipline-based, which counters a holistic approach to health care and promotes specialty rather than generalist training. Of all the obstacles to reforming traditional medical education, one is particularly challenging: to change the practice setting from the university hospital to unified health system entities, which focus on outpatient and primary care. Universities and health services have different administrations, which leads to conflicts: professors of medicine and health professionals would have to accept different supervisors and be evaluated and paid in different ways while still working as one team. While there is an increasing focus on primary care across the globe and a growing body of evidence-based practice and health services research, traditionally, medical journals have been oriented toward the medical specialties.

In 2002, a partnership between MOH and MOE resulted in the Medical Education Reorientation Program (Promed). Promed's goal was to support medical schools in developing curriculum reforms to achieve the MOE's new curriculum guidelines. These guidelines had just been approved by the National Council of Education and prescribed a focus on health promotion, training in primary care instead of only in university hospitals, and active learning methods. The

idea was to coordinate the official statement on medical education with fieldwork, by offering financial and technical support to the medical schools that were willing to change.

In its first attempt to tackle the problem, Promed faced some difficulties and misunderstandings, such as noncompliance of universities with federal government accounting rules for expending public money and proposals of activities that would not lead to the program's objectives. Even so, more than 60 percent of the twenty schools included in the program succeeded in establishing reasonable partnerships with health services, which allowed learning experiences at different levels of care. However, the influence of university hospitals over medical courses led to an emphasis in pedagogical orientation rather than in the diversification of practice scenarios.

In 2005, Promed was revised with a larger scope and a new name: Pró-Saúde (Pro-Health in English). Pró-Saúde consists of a partnership of the MOH and MOE to support needed changes in health professions courses. In Promed, the MOH only co-signed the call for projects, but in Pró-Saúde it is involved throughout the development of the program. Brazilian MOE participation is very important, since it has a mandate to regulate education, with evaluation processes that are required for governmental authorization of the courses.

Pró-Saúde finances schools willing to promote health education reforms. Projects must be co-signed by both a university and the municipal health secretary—the local health system administrator—and then submitted for MOH approval. Although Pró-Saúde does not cover all the courses of the three chosen professions—medicine, nursing, and dentistry—the project's intent was to clearly show that new guidelines should be adopted and that there are resources available to those schools willing to change. Another expected result is that the innovative schools become role models for the others. The second call for projects covered all health professions. This time a single project was requested from each university, rather than one for each course. Out of 104 universities that applied, 68 were selected. The program also promotes regional and national conferences every year that provide a place to share experiences, discuss challenges, and develop new solutions.

The reforms undertaken in recent years in education of health professionals have affected nursing. The 2001 national curriculum guidelines for courses in the health disciplines aimed to enhance the technical competence of the professional generalist, increase social sensitivity, and promote changes in undergraduate training of human resources in health by focusing on elements such as integral and humanized attention, teamwork, and understanding of reality. This process enabled many changes in nursing education, including flexibility in the curriculum; it allows students more autonomy to develop disciplines from other courses and have more interdisciplinarity.

Policies encouraging expansion of undergraduate and graduate nursing courses between 2000 and 2005 resulted in the creation of 310 new nursing courses, 93 percent (288) from private

institutions and only 7 percent (22) linked to public universities. The expenditure on nursing faculty vacancies increased 1,743 percent (Teixeira et al. 2006).

Brazil's recent health reforms have transformed nursing education and impacted nursing practice by introducing a new configuration of interprofessional teamwork, increasing autonomy and decision making, incorporating new technologies for the management of the population's health, and fostering the development of clinical competencies in health promotion and prevention.

THE OPEN UNIVERSITY OF THE UNIFIED HEALTH SYSTEM

The Open University of the SUS is an educational system created by presidential decree in 2010 to meet the continuing education needs of health workers, through distance learning in health (Brazil 2010). The system is defined by three structural elements:

1. UNA-SUS Network
2. Open Educational Resources for Health (OERH) Repository
3. Plataforma Arouca

UNA-SUS Network is composed of public universities able to offer distance-learning postgraduate courses. To adhere to UNA-SUS, the university must accept membership terms that include publication of the courses as OER and sharing students' curriculum information.

This collaborative network feeds a public and open-access repository of educational resources. Other institutions may collaborate, as long as they meet the national quality standards. The OERH Repository is where the collaborative process becomes tangible as a public asset available to everyone. That is only possible because of the public relations of UNA-SUS. As UNA-SUS deals with public and nonprofit institutions, it is easier to settle copyright issues.

Plataforma Arouca is a web platform where health workers have integrated access to their professional and continuing education timeline. Each health worker may publish his or her continuing education timeline as an official curriculum. Data on the experience of health professionals are gathered from health facilities, and information on postgraduate and continuing education is gathered from medical residency programs, universities, and other health educational institutions. Data exchange is based on web-based services and other automated and secure interfaces. Plataforma Arouca allows for relevant educational activities to be included as part of a health worker's continuing education effort, regardless of where the health worker participated in the educational activity.

UNA-SUS is ruled by a council with participation of the Ministry of Health, the Ministry of Education, and representatives of states, municipalities, universities, and the PAHO. This ensures that the strategic planning covers all the necessary institutional points of view. Participation by

states and municipalities allows UNA-SUS to be nationwide, understanding differences of regions and rural and urban areas. Both MOH and MOE participation allow it to be responsive to health education needs that require immediate and long-term planning by educational systems. The participation of universities allows UNA-SUS to deal better with the autonomy of medical schools and the persistent struggle within: innovation versus tradition. PAHO participation allows UNA-SUS to communicate better with other countries with similar experiences and with their own OER initiative, the Virtual Campus of Public Health.

In addition to this network, other health tools are in use to improve health services in primary care as well. One initiative, known as in-site second opinion through telemedicine, provides support to medical doctors to foster more precise diagnostics and allows a constant exchange of experiences among health professionals. These strategies are also available to other health professionals, such as dentists and nurses. And so far, there have been excellent results, including improved quality of care in rural and remote areas and the ability for patients to avoid “medical tourism”—travel to big cities for health care.

UNA-SUS has, in large part, delivered on its promise to scale up postgraduate and continuing education in Brazil. To date, 50,000 health workers have been included in UNA-SUS educational activities, with 20,000 in courses on family health. It would take ten years to offer this number of seats in traditional residencies and specialization courses. UNA-SUS was able to deliver it in two years.

Thus, the UNA-SUS seeks to advance Brazil’s continuing health education network, based on critical thinking processes that interact with typical practice needs. The system blends distance and e-learning. The resulting system fosters learning and teaching that is multidirectional, continuous, reciprocal, and asynchronous. And, most importantly, it is offered on the largest of scales—to all who are interested.

CONCLUSIONS

The Brazilian experience shows that addressing problems regarding human resources for health requires a national and intersectoral approach. Political support is essential to ensure that required mechanisms are available. This is critical since bridging the gap among the various stakeholders requires a large, concerted effort.

Our experience shows that a careful debate with civil society is very important for developing an effective health professional education policy. This debate is the basis for the undergraduate health reforms, resulting in the national curriculum guidelines that set a common ground for the MOH and MOE to work together.

Meeting the challenge of offering continuing education to every health worker would not be possible without intense dialogue with and cooperation from various levels of government,

intergovernmental relations, public sector partnerships between the health and educational systems, and the adoption of distance learning.

Finally, it also seems that isolated initiatives in human resources for health are not enough to change powerful traditions like medical education. As the Brazilian experience points out, a nationwide joint effort of the MOE, MOH, local health management, and professional health educational institutions is required.

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AUTHOR CONTRIBUTIONS

Francisco Eduardo Campos, the lead author of this paper, was responsible for the paper outline and most of the literature review. He also reviewed the paper along its many revisions.

Vinicius de Araujo Oliveira developed the paper from outline to the final form and contributed literature and data revision, particularly about HRH context, medical education, and UNA-SUS.

Sonia Maria Soares contributed to the content on the of nursing perspective, literature review, insertion of data, writing, and final review of the paper.

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9. COMMUNITY HEALTH WORKER COMPENSATION MODELS: A ROUNDTABLE DISCUSSION WITH VOICES FROM THE FIELD

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Since the late 1950s, formal community health worker (CHW) programs have been implemented in developing countries as a means of reaching poor and underserved communities with basic health services. The 1978 International Conference on Primary Care in Alma-Ata encouraged the development of national CHW programs to improve primary care (Kahssay, Taylor, and Berman 1998). The subsequent upswing in CHW utilization reflected a broad range of programs with many variations in CHW job description, scope, and compensation. While there have been many guidelines made available to help countries and programs create CHW programs, there are still many complex decisions, especially in evolving fields such as medicine and public health, in which important insights can be found from the field.

Attracting and retaining well-trained CHWs is a critical component of any effective program. Yet attrition rates among community health workers range from 3.2 to 77 percent in studies covering the 1990s (Bhattacharyya et al. 2001; Nkonki, Cliff, and Sanders 2011). This disparity has triggered an influx of resources and academic energies into defining the key principles needed to create a successful, context-specific CHW program. These broad principles, taken from multiple sources (Nkonki, Cliff, and Sanders 2011; Prasad and Muraleedharan 2008; Shakir 2010) are summarized in box 1. Specific impediments to programming that have also been identified as playing a key role in causing many CHW programs to fall short of their goals are listed in box 2.

BOX 1. KEY PRINCIPLES IN SUCCESSFUL CHW PROGRAMS

- Well-defined job descriptions
- Recognition by local community and government
- Community involvement, from the beginning of recruitment and selection onward
- Adequate and consistent resources for supplies, job aids, equipment, and remuneration, if used
- Consistent and effective monitoring and evaluation
- Integration within the formal health system
- Adequate training and supervision
- Multiple incentives or motivators
- Advancement opportunities

Sources: Nkonki, Cliff, and Sanders 2011; Prasad and Muraleedharan 2008; Shakir 2010.

BOX 2. KEY PRINCIPLES IN FAILURES OF CHW PROGRAMS

- Poor initial planning without community involvement
 - Unrealistic expectations, changing expectations, or undefined job descriptions for CHWs
 - Inadequate training
 - Difficulty of scale-up due to community tailoring of CHW programs
 - Lack or inconsistency of resources for supplies, equipment, and/or remuneration
 - Lack or inconsistency of incentives and compensation
 - Poor supervision and support
-

Sources: Nkonki, Cliff, and Sanders 2011; Prasad and Muraleedharan 2008; Shakir 2010.

The principles laid out in boxes 1 and 2 suggest that methods of compensation are key to the success of any CHW program. With these concepts in mind, this paper was developed to give readers a real-world view of the methods and challenges involved in creating an effective compensation structure for CHW programs. This discussion focuses on programs in different countries and contexts that employ different compensations for CHWs. Its purpose is to provide readers with a broad view of the various forms of compensation used in CHW models. Each of the authors and programs have been chosen based on the author's experience with CHW programming so as to reflect a diversity of institutional approaches to CHW programs and compensation models.

ROUNDTABLE FORMAT OF THIS PAPER

In an innovative approach to discussing CHW compensation structures, we invited five practitioners in CHW programming to discuss the compensation models used in their programs and respond to each other's questions. The format is meant to be that of a panel discussion, informal and accessible. The discussion begins with a general program description by each practitioner, structured around his or her answers to the following four questions:

1. What system do you use to compensate CHWs?
2. Why was this system chosen? In which context do you use this model, and do you think it is particularly relevant to some contexts but not others?
3. What benefits have you seen as a result of this system?

4. What problems does the system present? How have you tried to address them?

Each of these contributions is followed by a brief response from another roundtable author posing additional questions and, lastly, by the original author's reply to his or her respondent.

CASE 1: BRAC BY MARIA A. MAY AND FARUQUE AHMED

Since its founding in Bangladesh in 1972, BRAC's primary mission has been the reduction of poverty. The health program was born in the early 1980s due to the significant needs observed in the microfinance "village organizations" we first established, when even basic pharmacies were absent from the rural areas. At first, the health program was essentially the selection by the village organization (comprised entirely of poor women) of one member who would serve as the basic source of health information and products. Over the past thirty-five years, the role has expanded significantly: today our community health promoters (*shasthya shebikas* in Bangladesh) are trained to provide important primary health care services, addressing issues including tuberculosis, acute respiratory infection, eye care, and nutrition. In the context of developing countries, where formal health systems have increasing capacity but are often unregulated and increasingly fragmented, another important role of the promoter is to act as a source of referrals, linkages, and accompaniment.

In 2002, BRAC established a program in Afghanistan to apply many aspects of its holistic model (based in microfinance, education, and health) to its impoverished rural communities. Currently, BRAC is implementing variations of this model in nine countries: Bangladesh, Afghanistan, Pakistan, Tanzania, Uganda, South Sudan, Liberia, Sierra Leone, and Haiti. Given the diversity of contexts internationally and increasing within rapidly urbanizing Bangladesh, multiple local experiments and adaptations of the model are under way. BRAC's cadre of community health promoters and workers numbers over ninety thousand in Bangladesh alone, providing care to 100 million people.

What System Do You Use to Compensate CHWs?

We have found that it is crucial to find women who possess an internal desire to better the health of their community and who also have personal resources and networks of support. We do this by including our village organizations in our search and selection process and by visiting the women at home to meet and engage their families.

In Bangladesh, BRAC does not provide a salary to its *shasthya shebikas*. They purchase simple health products, such as iron pills, pain relievers, and iodized salt, from BRAC at a cost, and then sell these for a 10–15 percent markup to the community. In addition, we provide compensations

for specific services. For example, a *shasthya shebika* receives 50 taka (US\$0.67) for linking a pregnant woman with prenatal care, and 500 tk (US\$6.00) for accompanying a tuberculosis patient through six months of directly observed therapy.

These are examples of the compensations we provide, but our experience and studies point to other forms of compensation also at work. Many of these women gain social standing in their communities; they are called *Daktar Apa* (“doctor sister” in Bangla) and are valued by their families and communities more deeply as a result of their work. Almost all report that the work enhances their financial independence.¹

Why Was This System Chosen? In Which Context Do You Use This Model, and Do You Think That This Model Is Particularly Relevant to Some Contexts but Not Others?

When we began to think about elevating health care in the late 1970s, resources in Bangladesh were extremely limited. BRAC’s leaders thought that a performance-based model would be most effective for yielding results and that it would enable us to maximize the number of patients reached. For example, in our Oral Rehydration Therapy Extension Program, in which we educated 13 million households on how to make this lifesaving solution at home, we paid the educators based on how well a random subset of the household members could make the solution when visited by evaluators a month or so later.² We found that educators were extremely creative in devising systems to convince families about the effectiveness of the rehydration solution and in designing tricks that would help families remember the proper proportions needed to make the solution.

Another benefit of the performance-based model is that it keeps *shasthya shebikas* responsive to the community’s priorities. Many of the changes that we have implemented over the years stem from their observations; they alert us to unmet needs because they see opportunities to perform better and increase their income.

BRAC has found the performance-based approach to be quite effective. However, as it is being adapted to the urban areas of East Africa, where women have many more economic opportunities, there are challenges. Retaining talented health promoters and workers is a challenge. We are exploring ways to increase their income through strategies such as creating opportunities to develop new skills, enhancing compensations, and increasing the variety of products they can sell.

What Benefits Have You Seen as a Result of This System?

First, through *shasthya shebikas* we have been able to provide critical services in every district in Bangladesh, including in some of the most remote villages where basic health care was previously inaccessible. In 2011, we successfully cured more than ninety thousand tuberculosis patients, provided antenatal care to 4.4 million pregnant women, and contributed to the national

achievement of ensuring more than 80 percent of all children were fully immunized.³

BRAC not only benefits patients but also impacts policy. In Afghanistan, for example, based on the outcomes of a pilot program, the Ministry of Public Health has incorporated many components of BRAC's model of community-based tuberculosis treatment into its basic package of health services, which means that it is also being implemented nationally by other partners.⁴

What Problems Does the System Present? How Have You Tried to Address Them?

Performance-based systems influence behavior significantly; therefore, insufficiently trained CHWs can spread misinformation and represent great potential risk. To minimize this risk, we conduct extensive training, including regular refreshers, to ensure that community health promoters have sufficient expertise and an opportunity to get feedback concerning the challenges they face. Social support is also important, from other community health promoters, community members, and supervisors.

Management is probably the biggest safeguard to ensure quality of service and the productivity of community health promoters. Both a BRAC program organizer and a community health worker visit each promoter at least once a month, to review her activities and visit a few patients to corroborate the information on which she reports. We are conducting a small pilot using mobile phones to collect and report real-time patient data for maternal care and are excited to see how it has enabled us to improve both our delivery model and program management.

Case 1: Questions for BRAC by Didi Bertrand Farmer

Implementing community health interventions across multiple sites internationally is no easy task, particularly in countries as diverse as Bangladesh, Afghanistan, Pakistan, Tanzania, Uganda, South Sudan, Liberia, Sierra Leone, and Haiti, where BRAC currently operates. I would challenge the author to clarify what are the core components of the BRAC model, and what are the "variations" in place in terms of community health financing and interventions in each country it currently serves. While the author indicates that poverty reduction is the primary mission of BRAC, she fails to iterate how poverty reduction is to be achieved in this model, either through the creation of income-generating activities for CHWs themselves or as part of a broader approach to health as an inherently social issue. *If the former is the case, then how does BRAC rationalize placing the burden of financing community health work on patients who, for example, must pay a 10–15 percent markup on pharmaceuticals to their shasthya shebikas in Bangladesh? If the latter, then how does BRAC mobilize CHWs to address the socioeconomic needs of patients in low-resource settings, if at all?* In either case, more information about the responsibilities of these CHWs is in order. For the purposes of this roundtable, *I would specifically ask the author what the challenges*

have been in terms of financing different types of community health work, as well as community health work across different sites. What BRAC can perhaps best offer to our discussion is a nuanced understanding of how context affects community health financing, drawing on its varied experiences in nine very different countries around the world.

Case 1: Responses by Maria A. May and Faruque Ahmed

Thanks, Didi, for raising these very important issues. Certainly, capturing what the BRAC community health model is has grown increasingly complex as we expand in terms of both depth and scale. In essence, what remains consistent is the idea of a trained and supported woman residing in a village who provides a core set of basic public health services and products, with a focus on the household as the point of distribution. These individual interactions are complemented by community-level health interventions. Other components, such as tuberculosis, maternal and child health, or eye care, are added to this “essential health care” package in various contexts. In East Africa and Bangladesh’s Chittagong Hill Tracts, for example, malaria activities are quite expansive, whereas in Afghanistan, malaria is not a health concern. Coverage per worker varies widely according to the intensity of her work and the population density of the area she serves; a community health promoter in South Sudan cannot be expected to visit nearly as many households as a *shasthya shebika* in Dhaka.

Other variations in the model arise as a consequence of the health financing mechanisms in use in each context. Bangladesh’s health system is quite pluralistic, and funds for *shasthya shebikas* come from many sources. As you mentioned, *shebikas* sell health products to the community for a small markup (at prices similar to local drugstores). BRAC provides payment for some health services (such as providing TB treatment) and for all health products and services provided to ultrapoor members of a community. In addition, during government immunization campaigns, *shebikas* receive a stipend from the government for identifying eligible children. Obviously these factors vary significantly between countries—in Afghanistan, for example, we provide both a fixed stipend and performance compensations.

You rightly frame BRAC’s approach to health as part of a larger social issue, linked with microfinance, schools, and agricultural activities, for example. From this perspective, we see the benefits of the community health worker as far transcending just the financial resources that enter the community. The knowledge and skills that she acquires through this process can be quite powerful in transforming her own family’s life and that of her community. In addition, her visibility and connection with BRAC promotes gender equity, as does her clear impact on health. Bangladesh has virtually universal knowledge of oral rehydration therapy; for a country where diarrheal disease was just a few decades ago the major killer of children under five, we have seen what an army of community health workers can do!

CASE 2: IGANGA-MAYUGE HEALTH CHW, UGANDA BY GEORGE PARIYO

This three-year program based in Uganda was an integrated, randomized study project, designed with a focused, ultimate goal of creating programs for home-based management of fever, with an additional pneumonia component. The project included the recruitment of 132 volunteers who were trained in basic management of malaria and pneumonia and who became the community medicine distributors (CMDs).

What System Do You Use to Compensate CHWs?

Our program is strongly linked with established formal health care facilities. Facility-based health staff were involved in the initial training of CHWs and provide ongoing support and supervision through visits to the CHW in the community and monthly visits by the CHW to the facility. During these visits, the CHW has a chance to interact with others, discuss any issues or problems she may be facing, submit records of drug distribution (for accountability), and choose supplies for the following month. With each visit to the facility, CHWs receive a token financial compensation for their visit, officially referred to as a “transport refund,” equivalent to about US\$5 a month, as well as a lunch allowance of about US\$5. They are provided with a CHW identification card, a uniform, and a bag for carrying their supplies.

Why Was This System Chosen? In Which Context Do You Use This Model, and Do You Think That This Model Is Particularly Relevant to Some Contexts but Not Others?

We adopted this approach because many of us involved in designing this program realized that linking it to existing health facilities was a critical component for success. The transport refund, while not a salary as such, provides reimbursement for costs incurred while visiting the facility as well as for lunch. This is in keeping with the existing policy context in Uganda, where CHWs are community volunteers and therefore officially do not get paid for their work. CHWs value the recognition they get in the community, hence the need to give them a uniform and identification badges. They need bags to carry supplies and to protect them against the elements.

What Benefits Have You Seen as a Result of This System?

We find that this approach works well if close links with facilities are maintained and supervision is regular. CHWs continue to carry out their work as long as they are supported by the formal health care system instead of being regarded as competitors. They help to significantly increase access to first-line treatment by providing appropriately dosed medications to treat pneumonia

and prevent and treat malaria. Experience from the field suggests that the CHW's use of rapid diagnostics (another related pilot project) may help improve appropriate use of anti-malarial medications. Although this has not been formally studied, practical experience and feedback from CHWs and community members provide preliminary information on the value of these rapid diagnostics.

What Problems Does the System Present? How Have You Tried to Address Them?

Logistics is a major challenge. For instance, ensuring a steady flow of drugs and basic supplies depends on the national drug logistics and supply system. Ideally, one should work within the existing supply chain and try not to set up a parallel drug distribution system. However, working within the system often raises problems with the continuity of supplies, a shortage of funding, and so on, sometimes driving the creation of a parallel system. Often, projects work well during the pilot phase when they are visited regularly, have sufficient funds, and motivation is still high. Over time, however, the tendency is for supplies to run out unless there is a strong system in place. In my experience, establishing links with the formal health care delivery system—linking with established health care facilities, involving health facility-based staff in training CHWs and in their supervision—is essential for success and strengthens that said system, although it is alone not sufficient. Having a clear national policy that recognizes the role and integration of CHWs into the national health care delivery system is important for ensuring that they are supported and supervised.

Case 2: Questions for Iganga-Mayuge Health by Maria A. May and Faruque Ahmed, with Responses by George Pariyo

Much of what George writes of the Iganga-Mayuge CHW study in Uganda resonates with our own experience. Building and maintaining linkages with the formal health facility amplifies the value of community health workers, but it requires ongoing attention, resources, and active buy-in at many levels. George's final comments about the role of influential policy to create a system that integrates and promotes CHWs as a key component of a health policy nicely illustrate the need for implementers to participate in and influence national health strategy.

You mention that regular visits to see the CHW are a critical component of management. How are the health facility staff supported and supervised to fulfill this responsibility?

The program has a coordinator at district level (a public health nurse) who is a member of the district health management team (DHMT) with specific responsibility to supervise the CHW program. It is her responsibility to ensure regular follow-up of health facility staff to ensure that they are supporting CHWs adequately, as well as ensuring that monthly reports are made and

consolidated. The coordinator attends some of the monthly meetings between facility staff and CHWs and is at hand to respond to questions, solve problems, and provide support, such as ensuring the flow of logistics. Since the coordinator is responsible for initially training the CHWs, they already know her. Apart from having a dedicated co-coordinator, the other members of the DHMT, including the district health officer, are very much aware of the CHW program; they have been regularly briefed and updated since the start of the program.

Moving from a pilot to a sustainable operation is quite a challenge. What data have you collected that can compel other stakeholders, such as government, donors, or other implementers, to support or adopt your model?

Although we started the program as part of a research effort, we built it on the existing supervision and logistical structures of the district health system. Data are collected monthly on cases treated by the CHWs, doses of antibiotics and anti-malarial drugs dispensed, cases referred to health facilities, and any complications and adverse reactions, among others. We tried to keep a simple reporting requirement that will provide programmatically useful information. As part of this effort, we also collect and document costs involved since start-up, including setup and operational costs such as drugs, supplies, and supervision costs. Such data will help the government and other donors appreciate the program and see that it is feasible within existing resource constraints.

We often think of the diversity of our CHW's basket as a strength of the BRAC model, so it is interesting to read about yours, which is much more targeted. What would you say the advantages are of keeping the scope of the CHW's work relatively specific?

We are not saying that all CHW programs should be targeted. There are advantages and disadvantages of each approach. As I stated, our program started mainly to evaluate the impact of home management of pneumonia and malaria using CHWs; it was not an attempt to see which is the best model or scope of practice. Having said that, keeping a defined scope is useful to ensure that CHWs are not overwhelmed with too many tasks and too much information; thus it can help maintain the quality of the services they perform. On a personal note, I am not much in favor of vertical CHW programs over the long term. However, one can start with a specific scope and expand later, once the program is more established and CHWs and supervisors are more comfortable with their tasks, rather than overloading them from the very beginning. One has to keep in mind that most of the CHWs are not doing this as a full-time job, and in Uganda, they are still considered volunteers.

CASE 3: MINISTRY OF HEALTH, MALAWI BY ANN PHOYA

Using community health workers (CHWs) to improve access to health services has been integral to Malawi's health care system for nearly thirty years. The notion of a community-based health

worker was first introduced in 1973 in response to a cholera outbreak. Malawi's first CHWs were relied upon to contain the spread of the outbreak by monitoring and reporting cases, providing information to communities on hygiene and sanitation, and assisting families with home-based water purification methods. Because of the nature of their work, these CHWs were named health surveillance assistants (HSAs). Following the containment of the cholera outbreak and the introduction of the concept of primary health care by the World Health Organization in 1978, the role of the HSAs was expanded to include the implementation of other community-based health promotion interventions, such as performing immunizations, monitoring the hygienic practices of traditional birth attendants, creating and training village health committees, monitoring child and infant morbidity and mortality rates, and serving as a link between communities and the formal health care system.

The HSA's role is continuously being expanded to include community interventions targeted at emerging disease priorities and health programs, such as counseling for and testing of HIV and AIDS, distributing insecticide-treated bed-nets to prevent malaria, providing family planning services, ensuring follow-up for postnatal mothers and TB cases, and mobilizing communities for safe birth preparedness. As NGOs, with support from development partners, joined the health sector as service providers, especially at the community level, other categories of CHWs were introduced into the health care system. These include, among other categories, community-based distributing agents for family planning, traditional birth attendants, and home-based care providers for treating chronic diseases (especially HIV and AIDS) and for monitoring child survival rates.

What System Do You Use to Compensate CHWs?

The HSAs within the public health sector are an integral part of the salaried health workforce. As salaried health workers, they receive payment monthly, the amount of which is determined by the Civil Service Commission, which also determines the conditions of service for all civil servants in the country. In addition to the salary, the HSAs receive an annual incremental pay increase of about 5 percent, paid annual leave of twenty days, paid sick leave, a uniform, a bicycle, and a pension or gratuity at the end of service. HSAs who completed secondary school can further their education with financial support from the government (Ministry of Health) by training in health professions, including nursing and midwifery. Initial training provided at the time of recruitment is also viewed by the HSA as a form of compensation to join this cadre of health workers. CHWs are also recruited by NGOs and other development partners, but they work as volunteers and therefore do not receive a salary; instead, they receive a variety of compensations determined by the recruiter. These compensations may include uniforms, branded umbrellas, shoes, bicycles, agricultural inputs (seeds and fertilizer), participation in workshops or short training sessions related to their prescribed duties, and service kits containing job aid materials. During workshops

or training sessions, volunteers receive monetary allowances that may be slightly higher than what they need for their subsistence.

Why Was This System Chosen? In Which Context Do You Use This Model, and Do You Think It Is Particularly Relevant to Some Contexts but Not Others?

Ensuring access to services that promote and provide health care is the responsibility of national governments. Experience on the ground has shown that volunteers work for a short time and leave to seek paid employment or concentrate on economic activities that will allow them to earn a decent living. In countries where poverty levels are quite high, such as Malawi, asking poor individuals to spend their time doing unpaid or voluntary work is not justifiable. Creating a cadre of salaried community health workers was the only alternative that assured Malawi a continuity of community-based health interventions.

What Benefits Have You Seen as a Result of This System?

This system for incentivizing community health workers has helped the country implement high-impact interventions that have contributed to the improvement of health indicators, including immunization coverage, use of contraceptives, the number of people accessing HIV testing and counseling, and universal access to TB diagnosis.

What Problems Does the System Present? How Have You Tried to Address Them?

Using salaries to compensate CHWs has indeed worked to the benefit of the public health system and has broader implications for other sectors of government and society. The benefits range from having a workforce that can be relied on to carry out planned activities over a sustained period without the disruptions in service that arise from frequent turnover or unexplained absenteeism. Since CHW positions already exist in the government structure, the public health sector does not encounter problems when it needs to recruit additional numbers; all that is required is to include the needed allocation of resources within annual budgets and strategic plans. Those organizations that depend on volunteers, however, cannot be sure that their volunteers will continue to provide services; volunteers from different organizations tend to compare notes about the compensations various NGOs provide. Due to this competition, volunteers are often temporary as they wait to move to an NGO with better compensation. Because of this, even the use of volunteerism has become an expensive venture for NGOs who then need to seek and train new volunteers.

Case 3: Questions for MOH Malawi by George Pariyo, with Responses by Ann Phoya

I notice that there are different types of CHWs. How does Malawi attempt to standardize these different categories?

Providing CHWs with salaries was itself an attempt to standardize CHWs. All of Malawi's official CHWs are salaried health surveillance assistants. Any partner in the health sector wanting to implement a community-based initiative can employ them. Volunteers are used by NGOs to supplement the work of these official community health workers.

How do you avoid continued fragmentation and verticalization at the community level?

Fragmentation and verticalization are avoided by integrating all health-related interventions into the annual District Implementation Plan (DIP). The DIP maps out priority health interventions, and partners buy into this plan to support the district health management team. Volunteer CHWs engaged or employed by different partners work with official salaried CHWs at the community level.

Doesn't paying CHWs a salary similar to civil servants risk expanding the government wage bill, particularly considering Malawi is already having problems paying existing professional cadres adequately?

Malawi does not have adequate numbers of health workers. The paid CHWs are assisting in improving access to essential health workers through task shifting. The financial resources used to pay CHWs could be redirected to improve the salaries of fewer professional health workers, but this would fail to meet the workload, especially concerning health promotion and preventive activities. A balance, therefore, needs to be created in order to ensure equal coverage of both curative and preventive health services at the community level. What needs to be done is to identify other health financing mechanisms to adequately pay the needed number of staff in order to meet the health needs of the people.

CASE 4: PARTNERS IN HEALTH BY DIDI BERTRAND FARMER

Partners in Health (PIH) has been recruiting and training community health workers for over twenty years, developing community-based platforms for infectious disease care in Haiti that were then scaled up and adapted to address the broader health, social, and economic needs of communities served in countries as diverse as Rwanda, Peru, and the United States. Beginning in the early 1980s, a network of polyvalent CHWs began providing tuberculosis treatment and care to rural communities in Haiti. When the first cases of HIV began to appear in the country, PIH was able to utilize its community health platform to provide treatment and care for HIV-affected households, expanding and adapting the model to provide accompaniment to patients,

including daily medication for people living with HIV/AIDS, and psychosocial support. At that time, prevailing wisdom claimed it was impossible to provide high-quality treatment and follow-up for people living with HIV/AIDS in developing countries. The success of PIH's patients in adhering to the program, however, proved otherwise. In addition to providing patient care, this type of CHW, known as an *accompagnateur*, conducts active case finding in the community to ensure that patients are able to begin antiretroviral therapy and other treatment at an early stage in their illness. Active case finding is complemented by advocacy to ensure that medications and high-quality treatments are both available and accessible.

Since 2005, PIH has been working in Rwanda, where our initial mandate was to support the Rwandan Ministry of Health (RMOH) in facilitating access to treatment and care for HIV/AIDS and TB at the community level. Adapting the model for community-based care from Haiti, a network of *accompagnateurs* first began working in Rwanda's southern Kayonza district. *Accompagnateurs* now serve chronic disease patients in three districts of rural Rwanda. *Accompagnateurs*, as one type of community worker in the Rwandan community health system, offer an enhanced package of care as part of the RMOH-PIH partnership for health systems strengthening in these districts, helping to build a robust referral and transfer network.

What System Do You Use to Compensate CHWs?

The accompaniment model features a direct compensation system in which each *accompagnateur* is offered a base monthly stipend to support a single household; often these households contain multiple patients who suffer from chronic illnesses ranging from HIV and/or TB to diabetes and cardiac disease. The *accompagnateur* is given a supplementary stipend for each additional household he or she supports. The maximum number of households for which one *accompagnateur* can take responsibility is restricted in order to ensure quality care, which is crucial given PIH's holistic approach to patient accompaniment. "Support" in this context means directly observed therapy, liaising with health and social services on behalf of the household and/or offering individual psychosocial support to patients and family members.

Why Was This System Chosen? In Which Context Do You Use This Model, and Do You Think It Is Particularly Relevant to Some Contexts but Not Others?

The PIH direct compensation system may differ from the national community health compensation system, depending on the country in which PIH is working. For example, the system used by the RMOH to compensate primary care and maternal and child health CHWs is performance-based financing (PBF). Rather than direct payment, Rwanda's PBF system provides capital to CHW cooperatives, which allows CHWs to invest in income-generating

activities through their cooperatives. This differs from PIH's direct compensation model for *accompagneurs* in Rwanda.

The *accompagneur* role is dynamic, changing along with the patient's needs. *Accompagneurs* must be available to offer directly observed therapy for chronic and infectious illnesses, to accompany patients to health centers for hospital visits, to provide psychosocial support, and to support patient involvement in associations for people living with HIV/AIDS. PIH supports patient associations by providing members with loans for micro-finance activities. *Accompagneurs* also play a critical role in their communities, fighting discrimination and building solidarity and trust. Further, many *accompagneurs* are also primary care or maternal and child health CHWs through the national community health system in Rwanda, which adds additional responsibilities to their workload. Direct payment, therefore, assures a modest compensation, allowing *accompagneurs* to offer sustained, quality care without having to labor elsewhere.

In Rwanda, where the rural economy is primarily agricultural, direct compensation in PIH-supported districts enhances the Rwandan incentive system by ensuring that multidisciplinary CHWs have access to funds to hire workers for their fields and to maintain their households while they are providing health services in the community. Access to direct compensation increases retention rates in the community health program, allowing CHWs to perform their responsibilities in the community while receiving resources to ensure their family is cared for. As the PIH model has been developed primarily for rural communities with agricultural economies, we have found the direct compensation model particularly useful for supporting CHWs. In other contexts, perhaps where *accompagneurs* could sustain themselves with less time-intensive and remote labor, a different compensation model would prove equally effective.

What Benefits Have You Seen as a Result of This System?

The accompaniment model has produced exciting results. A retrospective study from 2012 of over 1,000 patients served by *accompagneurs* for HIV and/or TB in three PIH-supported districts of Rwanda recorded program retention rates of over 92 percent (Rich et al. 2012). Internal program monitoring and evaluation show adherence rates of around 94 percent, as well as mortality rates estimated at less than 1 percent since 2005. Patients in the program benefit from increased support not only from CHWs but also from the community as a result of CHW advocacy to build solidarity and reduce the stigma that surrounds HIV/AIDS. Further, patients and CHWs often build strong, supportive relationships, which benefits patients, their families, and the CHWs who view their work as important and meaningful.

What Problems Does the System Present? How Have You Tried to Address Them?

In response to the immediate needs of the government of Rwanda, the accompaniment model was developed in 2005 to specifically address the burden of HIV/AIDS. As the Rwandan priority at the time was providing HIV/AIDS treatment and care, the accompaniment model was designed as a targeted program that would work in parallel with the national community health system, which was itself undergoing a major reorganization. We are now entering a new era of community health in Rwanda where the country wishes to integrate chronic disease management into the package of primary health care services provided at the community level. Based on the success of the accompaniment program, PIH is working with the RMOH to develop the best framework to fully integrate accompaniment into the national system. The integration process, however, takes time to implement and requires active communication between the RMOH and partner organizations. While integration has been successfully completed in one PIH-supported district, it is only with time that we will see the effects of harmonizing these two systems. Further, effective training and continuous support will be necessary to build the confidence, experience, and skills of CHWs so that they will have the expertise to successfully deliver an integrated package of health services.

Case 4: Questions for PIH by MaryAnn Dakkak, with Responses by Didi Bertrand Farmer

It is clear that PIH has a successful model of *accompagnateurs* for specific health issues. My questions stem from issues of context and generalizability.

Do you feel that there is any conflict in having a different model of compensation in Rwanda alongside their PBF model?

*It seems that you use your *accompagnateurs* for very specific disease states—HIV, TB, preventing mother-to-child transmission. Do you think that the compensation structure you use is only applicable to programs like DOT or other intensive, specific health issue programs? Or, would you argue it could be used in different contexts, and if so, which?*

*How do your *accompagnateurs* work alongside the Rwandan health system? Are they in any way integrated within the public health system?*

Thank you for asking such important questions at a time when PIH and the RMOH are currently considering how best to integrate the accompaniment model into the national community health system. We began by piloting the integration of the accompaniment program with the national community health system in one PIH-supported district. Building on what we learned from the pilot integration, we have successfully merged the two community health systems in that district and are currently in the process of completing integration in all PIH-supported districts. PIH provides innovative support to the national community health

system, partnering with the RMOH to incorporate elements of the accompaniment model into the national community health system throughout the country. Through integration, CHWs will be able to provide a package of primary health care services that includes chronic and noncommunicable disease care.

As we develop an integration framework and prepare to scale services up to the national level, we are in the process of harmonizing compensation structures. Currently, multidisciplinary CHWs receive PBF through cooperatives, in addition to earning direct compensation for services in PIH-supported districts. Thus, PIH provides strategic enhancement to the national community health system through direct compensation. Additional PIH enhancements to the national system include developing tools for supervision, training, and program support.

At this critical juncture, PIH is conducting internal evaluations of the accompaniment program, speaking to patients, *accompagneurs*, supervisors, and health center staff. These evaluations are providing important insights into how the program has grown over the past seven years and how it can be further refined and adapted for integration into the national system. For example, the evaluation asks how the program can best adapt to the changing needs of patients who remain in the program over time. Preliminary results attest to the many benefits of the program in terms of its positive impact on both patients and service providers. We look forward to continuing to refine the accompaniment model within the Rwandan context to create a sustainable platform for the RMOH to successfully integrate accompaniment into community health across the country.

CONCLUSION

The participants of this roundtable discussion make clear that the employment of CHWs is no longer a novelty. Decades of experience across almost all continents show that, given a chance, CHWs can profoundly influence the health of whole populations (Bhutta et al. 2010; Haines et al. 2007; Mitnick et al. 2003). Expert opinion and contemporary comprehensive reviews continue to confirm this notion and have further clarified the magnitude of the effect of these programs (Berman and Franco 2012; Earth Institute 2011; Freeman and Freeman 2011; Frehywot and Wuliji 2012; Perry and Townsend 2012). The cases presented in this discussion represent a broad range of CHW models that have had a positive impact across a number of health indicators. Yet, the variety of the participants' responses underscores that we are still seeking novel ways to unlock and maximize the vast potential of the CHW concept. In order to do this, we need to pay attention to the key themes and tensions these discussions highlight.

From a bird's-eye view, the participants—informed by a wealth of field experience—describe the ways in which CHWs in different contexts are motivated to perform their work. Worker

motivation is a broad and complex topic that has been discussed profusely in the business and management literature. There exist a variety of models, many drawing on insights from psychology and organizational behavior, which map out factors that underlie employee motivation (Nohria, Groysberg, and Lee 2008). For many CHW program architects and managers, this issue is often reduced to the practical question of how to effectively remunerate CHWs for their work. When addressing this question, the participants in this roundtable describe three CHW employment patterns: volunteer, salaried, and variably compensated (table 1).

TABLE 1. MODELS OF CHW WORKERS, ADVANTAGES AND DISADVANTAGES

CHW Model	Potential Advantages	Potential Disadvantages
Volunteer	<ul style="list-style-type: none"> • This model may offer a cost savings in the short term. • Workers are chosen based on sense of duty. • Workers are often committed and integrated in the communities they serve. • Workers may gain social standing in their communities if they are valued deeply (use of badges, uniforms, supplies, certificates may help with this) 	<ul style="list-style-type: none"> • Lack of wages may increase chances of attrition to paid jobs. This attrition is expensive in the long term due to the loss of start-up costs to recruit and train those CHWs.* • Turnover may harm community. • System is dependent on altruism alone. Different communities may not produce the number of altruistic people necessary to meet the demand. • Model may require more management and supervision to ensure that volunteers stay motivated and committed.**
Salaried	<ul style="list-style-type: none"> • Salaries may be a form of job security to some CHWs. • Attrition rates may decrease. • Absenteeism rates may drop. • Workers may have the social benefits of being a CHW along with the economic stability and opportunity for career advancement. 	<ul style="list-style-type: none"> • System can be costly definitely up front, but also in the long term, and will depend on ongoing funders or policies dedicated to the program. • Without other motivators or adequate supervision, job security may decrease the incentive to work hard.***

Continued

Table 1, continued

CHW Model	Potential Advantages	Potential Disadvantages
Variably compensated	<ul style="list-style-type: none"> • This model offers variety and flexibility of different compensations (e.g., as job aids, reimbursement, training, meals, direct payment for specific interventions, free health coverage). • It can be less costly depending on compensations used and retention of CHWs. • Interventions may be prioritized based on compensations. • Different compensation schemes can supplement either volunteer or salaried CHW programs. 	<ul style="list-style-type: none"> • The compensations may become more important than the job; i.e., workers may focus more on achieving the short-term objective that will activate their compensation than on working for a long-term impact.**** • Depending on context, there may still be risk of high attrition rates where there are better economic opportunities.

Sources: *Kironde and Klaasen 2002; Walt 1988; **Jones and George 1998; Robinson and Larsen 1990; Stekelenburg, Kyanamina, and Wolffers 2003; ***Delfgauw and Dur 2008; ****Scott and Shanker 2010.

No model is ideal. Every system wants to get the job done; these organizations strive to promote health, detect and refer diseases, cure acute diseases early, and manage chronic ones over the long term. They also aspire to maximize other benefits, such as boosting the local economy, increasing social capital, building capacity, and empowering marginalized groups. They certainly try hard to minimize potential harms, such as jealousy, destructive competition, elite capture, and corruption. The question at hand is: how can this best be achieved? Unfortunately, there is no one-size-fits-all model.

DISCUSSION

Different inputs in different contexts will produce different outcomes. We need to be clear about what we really want from our systems, and then have ways to monitor the results. Beyond comprehensive interim analyses that tend to be time-consuming and costly, measuring several key CHW-specific performance indicators during the regular workflow would assist in measuring impact, while not disrupting the actual tasks in progress. Among the many possibilities, such indicators may include retention, quantity of work (e.g., home visits, hours worked), quality of work (e.g., adherence to protocols, health outcomes), job satisfaction, and satisfaction of clients/patients/households (i.e., the CHW's "reputation within the communities they serve") (Lee 2012). In particular, retention may most clearly demonstrate the success of specific motivation schemes. While the unique complexities of local contexts will negate the possibility of ever formulating a standardized CHW type, as demonstrated by PIH's and BRAC's experiences with expansion, a common set of performance indicators will help us recognize those projects that perform at uniquely high levels. Through continued discussion, such as this roundtable, the experiences and techniques of program managers and architects can be disseminated and hopefully adapted by policymakers to different contexts, adopted across sites for cross-program quality improvement, or even synchronized in-country to formulate standardized national programs across districts.

By exploring these dynamics through this type of roundtable discussion, we can begin to stock the spice rack of options that will be available to us when developing a new program for a specific context. CHW leaders need to understand the chemistry behind these ingredients so that they can find the right balance between the various tensions in their context. There is no formula to cook up the perfect program, nor should there be. For any model, practitioners on the ground will need to learn not only how to implement a program but also how to adapt to inevitable challenges. Programs like the one described in Uganda give us a sense of how a pilot project can test a strategy in a focused context, while the broader-based experiences of national programs—such as those in Malawi or those run by multinational NGOs like PIH and BRAC—represent multicontext laboratories in which concepts can be tested and lessons learned.

BOX 3. RECOMMENDATIONS: THE SUCCESS OF ANY CHW INITIATIVE IS BASED ON PEOPLE, PROGRAMS, AND POLICIES

1. People

- CHWs hired through a rigorous process guided by merit, ignoring nepotism, and connected to teams and the existing communities and health networks

2. Programs

- Clear goals
- Clear tasks
- Context, via strong linkages between providers and stakeholders in their programs and alignment with local strategies and capacities
- Reliable inputs and compensations (including salaries if used)
- Adequate training and supervision
- Adequate and timely monitoring, evaluation, and revision of program

3. Policies

- Working alongside government and multinational actors to compensate investment in CHW programs
- Creating national models of CHWs

This discussion highlights a number of key themes that bear mentioning (see box 3). Essentially, the best programs will have (1) reliable people working in (2) well-designed programs that are supported by (3) sound policies. Reliable people are those selected by a rigorous process that is guided by merit, ignores nepotism, and is connected to the teams that work toward a common mission. Well-designed programs are those that have clear goals, defined tasks, and strong linkages between every worker participating in the process. In order to accomplish the final goals of the system, each cadre of worker should have an equal sense of responsibility for the specific tasks accorded to them. To do a good job, a worker needs a job worth doing, adequate training, and managers who lead with a spirit of teamwork and comprehensive support. This is, finally, where good planning and sound policies play a key role. Complex problems require comprehensive solutions, and comprehensive solutions need deliberate investments. We must focus on the outcomes to be achieved and then think of what investments are needed to reach them. In the end, we will need not only creative ways to maximize CHW compensation using what resources we have but also ways to motivate health policy and health financing to ensure that CHWs have access to the jobs, coworkers, work environments, and support they need to achieve a job well done.

ENDNOTES

¹ Income varies widely across and within countries, as the payment structures and basket of goods varies. Interested readers should see the research monograph by Reichenbach and Shimul, available at http://www.bracresearch.org/monographs/Monograph_49.pdf.

² The oral therapy extension program is thoroughly documented in *A Simple Solution* by A.M.R. Chowdhury and R.A. Cash (Dhaka, Bangladesh: University Press Ltd., 1996).

³ See the 2011 BRAC Annual report for more details, available at www.brac.net/content/annual-report-and-publications#.UBDO0Fb0_eM.

⁴ A book on BRAC's experiences in TB, called *Making Tuberculosis History: Community-based Solutions for Millions*, was released in 2011 by the BRAC Health Programme (Dhaka, Bangladesh: University Press Ltd.).

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Maria A. May: Writing contribution.

George Pariyo: Writing contribution.

Ann Phoya: Writing contribution.

Daniel Palazuelos: Concept, related research, conclusion, discussion.

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10. LEADERSHIP AND MANAGEMENT TO EMPOWER THE HEALTH WORKFORCE

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A broken health system is a silent killer. It results in more illness and death despite the fact that the public health and medical knowledge exists to greatly reduce illness and save millions of lives every year, especially in developing countries. What is missing is the leadership capacity to ensure that the management systems are in place to apply and scale up this knowledge. More simply put, global health initiatives must invest in the leadership of those running health systems, especially in low-resource settings where every dollar counts and every health worker is indispensable. Doing so is essential if governments are to meet the health needs of their own populations (Dwyer, Johnson, and Vriesendorp 2006).

The goal of this paper is to present voices from Africa affirming how strengthened leadership and management contributed to improvements in health workforce performance in Kenya, Tanzania, and Ghana. Time after time, they echo the feeling of empowerment and motivation they have, as nurses, doctors, pharmacists, community health workers, and health providers, when they work together in teams to lead a plan to improve health services.

LEADERSHIP: A MISSING INGREDIENT IN HEALTH SERVICES

Health care in developing countries is a multibillion-dollar endeavor. Yet, the people charged with leading and managing this work often have little formal preparation. Senior health care managers around the world express the urgent need to professionalize the leadership and management of health care services. Their argument for better preparation of these crucial leader-managers comes from their own experience.

The head of a major health program in Kenya remembers: "I was appointed a district medical officer in 1993, straight from a surgery ward and within a week I had to manage an entire district. It was a totally different world. Doctors definitely need training in leadership and management and it should not be short term" (MSH unpublished data, Director of the Malaria Control Program, Kenya, 2006).

It is common practice to promote good clinicians into leadership positions, but this often has the unfortunate consequence that the system loses a good clinician and gains a mediocre or weak leader. The management of the health workforce calls for better health management practice guided by competencies in leadership and management.

Conversations with health leaders across the continent have revealed many reasons why health leadership and management have traditionally not been high on the agenda of institutions that produce health professionals, or the governments that employ them:

- Role of health care managers is not well understood and thus cannot be fully valued.
- Curricula of medical, nursing, public health, and allied health professions are already very crowded, making it hard to find a space for management and leadership modules.

- Human resource managers who play a key role in the performance of the health workforce generally have little influence over how health personnel are prepared for promotions into leadership and management positions.
 - Cost of poor leadership and management is not known.
 - There is an assumption that good doctors and nurses will also be good leaders and managers.
- As a result, service providers who are advanced into new management positions encounter challenges of a different nature from the ones they prepared for in school (box 1).

BOX 1. MANAGEMENT CHALLENGES FACED BY HEALTH MANAGERS

- How to scale up services to reach more people as populations grow
- How to motivate workers who are poorly paid and work in difficult circumstances when there are no financial incentives
- How to assure consistent delivery of high-quality services with limited staff and weak capacity
- How to develop (and then maintain) systems and capacity to accommodate new funding streams
- How to use data for decision making when the data may be of poor quality, incomplete, or not timely
- How to move from donor-influenced management to institutional models of management
- How to rationally deploy health workers
- How to change the mind-sets of individuals who are used to focusing on activities to paying greater attention to results
- How to decentralize decision making to managerial levels closer to the communities
- How to maintain transparency in the face of corruption and misuse of funds

These challenges are exacerbated by the constant urgency to save lives and demonstrate results for the influx of megafunding organizations such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria; the Bill & Melinda Gates Foundation; the US President's Emergency Plan for AIDS Relief (PEPFAR); and many other European and foundation donors.

The Management Sciences for Health (MSH) Leadership Development Program (LDP)

illustrates what can be done to meet these leadership challenges and improve the management of health systems and the performance of the health workforce.

Origins of the MSH Leadership Development Approach

In 2002, the Egypt Ministry of Health and Population faced the challenge of improving access to and quality of services in rural Upper Egypt in the face of low morale among health workers and managers. From 1992 to 2000, the ministry, with donor support, had succeeded in reducing the nationwide maternal mortality rate by 52 percent. Nevertheless, a gap remained between urban and rural areas (Mansour, Mansour, and EL Swesy 2010).

In 2002, Egypt's Ministry of Health, with funding from the United States Agency for International Development (USAID) and assistance from MSH, introduced a leadership development program. The program aimed to improve health services in three districts of the Aswan Governorate by increasing managers' ability to create high-performing teams and lead them to achieve results. The program introduced leadership and management practices and a methodology for identifying and addressing service delivery challenges. Ten teams of health workers participated.

Results. After participation in the LDP, the districts of Aswan, Daraw, and Kom Ombo increased the number of new family planning visits by 36 percent, 68 percent, and 30 percent, respectively (ibid.). The results in Egypt indicated that attention to management and leadership skills could contribute to improvements in health workforce performance and service delivery.

This was the prototype of what came to be known as the Leadership Development Program (LDP). The hypothesis tested in Egypt proposed positive links among the manager's behavior, the work environment, and service improvements. A last link, between service improvements and health outcomes, would be a contributing rather than a causal factor.

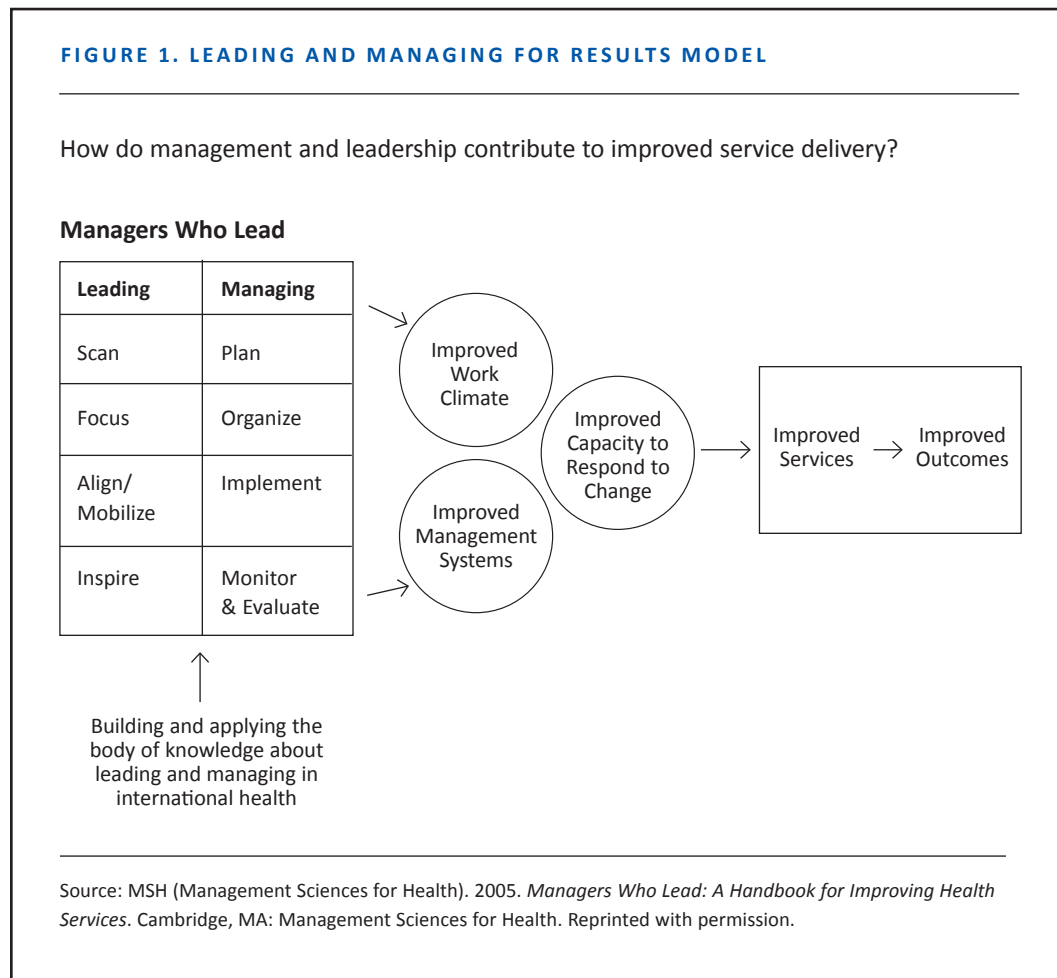
After the US funding ended, local doctors and nurses independently scaled up the program to 184 health care facilities and trained more than 1,000 health workers. From 2005 to 2007, the LDP participants focused on reducing the maternal mortality rate as their annual goal. They succeeded in reducing it from 85.0 per 100,000 live births to 35.5 per 100,000. The reduction in the maternal mortality rate in the governorates implementing the LDP was much greater than reductions in similar governorates in Egypt (ibid.). Managers and teams across Aswan demonstrated their ability to scale up effective public health interventions through their increased commitment and ownership of service challenges.

In subsequent years and the next generation training, the district teams reported improved morale, work climate, attitudes, and skills of health workers in Aswan District (ibid.). Service results such as an increased number of prenatal visits per woman (from 1.3 to 3.7 per woman) and child care visits (from 1.1 to 3.5 per child) suggest that attention

to management and leadership skills can spill over into workforce morale, empowerment, responsibility, and productivity. The relationship between clients and health workers also changed with a positive effect on other health practices. Later iterations of the program produced a better medical information system and an increase in the use of various contraceptive methods (ibid.).

Key Factors and Model

Two key factors that make the LDP model successful are that it is team-based and it is results-focused. The Leadership Development Program is a four- to six-month process that includes four modules based on the Leadership and Management Framework (figure 1).



In the process, teams choose a challenge that they are facing and work to solve it. Their action plans are based on measurable results. At the end of the program, teams present their challenge and progress to date in implementing their action plans.

Themes

A number of themes have emerged from a decade of MSH's interventions in strengthening leadership and management in Africa. The LDP has been conducted in forty-five countries with more than a thousand teams and five thousand participants. Often assisted by local LDP facilitators, it has produced positive results, which have been documented in formal and informal reports and in internal and external evaluations (Jamanka 2009; Jamda et al. 2009; Khalil and Topçuoğlu 2005; MSH 2010, 2012; Perry 2008; Seims 2012; Seims et al. 2012; Sherk 2004; Shrestha 2007; Topçuoğlu 2003; Topçuoğlu and Nawar 2004). In reviewing these reports and the comments people have made about their experience in these programs, several themes emerge that are of particular importance to their success. These themes are consistent with the literature (Block 1987; Bragar 1990; Covey 1989; Daloz Parks 2005; Heifetz 1994; Kotter 2001; Kouzes and Posner 1987; MSH 2002, 2005; Senge 1990; Wheatley 1992):

- **Connection:** Because the LDP is team-based, it has enabled people to feel connected and become more aware of the larger environment in which they work. In the process, they become more empowered to take on challenges that impede their vision of healing the sick.
- **Work climate:** Managers often sense when the work climate is affecting staff's performance, which can be seen in absenteeism, unmet performance objectives, lack of initiative, and reduced interest in their work. Managers and leaders can often turn their work groups around by applying leadership and management practices that promote on-the-job clarity, support, and challenge.
- **Focus:** Developing a focus for action provides the team with a common sense of purpose and a specific challenge they feel is important to achieve their goals. With a focus on a specific challenge, the team is able to develop a plan to guide their activities, identify the resources they need, track their progress, and align with other key stakeholders.
- **Vision:** A shared vision is a powerful element in improving the motivation and performance of the health workforce. Through improved leadership practices, health workers regain the common sense of purpose and vision they share. This is inspiring, not only to them but also to others around them.
- **Sustainability:** Practical leadership, or the concept that people can lead at any level and, in the process, learn to take on a challenge and mobilize resources to produce change, is a powerful antidote to low morale. By itself, the practice of team leadership is sustainable because people would rather feel empowered and take action than not.

COUNTRY CASE SELECTION

Case studies from Kenya, Tanzania, and Ghana are presented here because each of these programs has been rigorously evaluated for its impact on health service delivery. Each of these programs was funded by USAID through the Center for Leadership and Management at MSH. Also, in each of these countries, the Leadership Development Program was a key intervention by MSH, whereas in other African countries, the LDP was one of multiple interventions carried out by MSH as a package of technical assistance, capacity building of community service organizations (CSOs), business planning, human resource management, and policy development.

In each of these countries, the evaluation was designed to examine the processes through which leadership and management development can lead to improved health workforce performance and health service delivery. The evaluation studies on which this paper is based were first reported in a variety of published papers and internal reports.

It is worth noting that the projects reviewed in this study differ along many variables, including (1) the period of implementation, from as little as one year to up to four years; (2) the point of intervention, such as regional, provincial, district, or health facility levels; (3) budget; and (4) number of participants.

The methods used to collect data on the results of the Leadership Development Program and the specific study questions also differed. The study in Kenya was largely quantitative, using a quasi-experimental design to compare LDP team performance with performance in comparison areas. The study in Tanzania was also quantitative but used a before-and-after design without comparison groups. The study in Ghana, however, was largely qualitative and used in-depth interviews to identify factors that influenced LDP team performance and the sustainability of outcomes. What was common about all three studies, however, was that they examined the service delivery outcomes of programs implemented by teams trained in management and leadership and they identified factors that contributed to successful and sustained outcomes

Kenya: Linking Changes in Management and Leadership to Service Delivery Outcomes (2008–2010)

Challenge. During the 1990s, there was a decline in Kenya's national health indicators, which the government attributed to the failure of management systems and coordination (Ministry of Health, Republic of Kenya 2005). In response, the Kenyan government developed the National Health Sector Strategic Plan (NHSSP I) to improve coordination, planning, and implementation of health services.

The challenge for the Ministry of Medical Services (MOMS) and the Ministry of Public Health and Sanitation (MOPHS) was to "reverse the decline of health indicators," and in response, they initiated an unofficial call to action, which included a series of health reforms to decentralize

operations. To be successful, implementation of these reforms required a higher level of competence in management and leadership at the provincial and district levels.

Intervention. MSH and the Ministries of Health in Kenya developed a National Assessment of the Management and Leadership Competencies of Health Managers (hereafter called the National Assessment), which was conducted in 2007 (Ministry of Medical Services and Ministry of Public Health & Sanitation, Republic of Kenya 2008). The National Assessment and the resulting draft National Strategy for Leadership and Management formed the foundation for the leadership program in Kenya that began in July 2008.

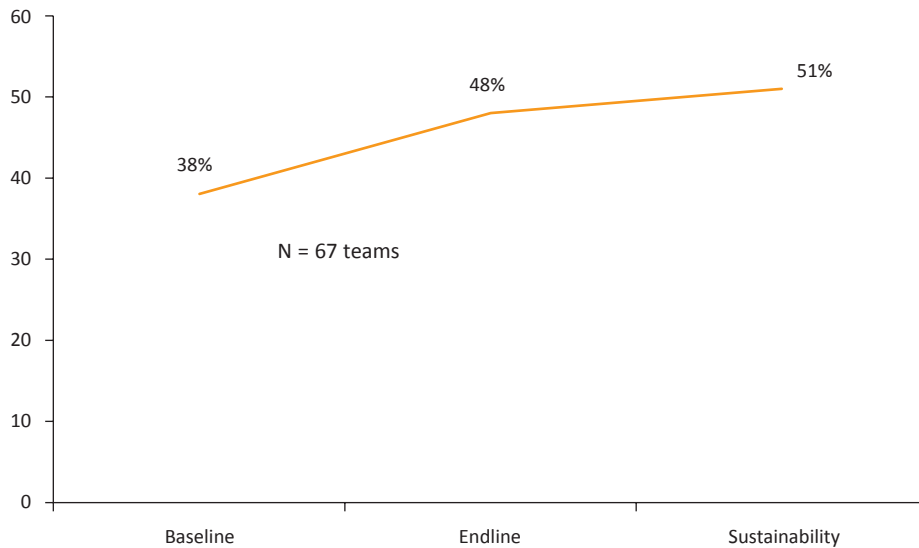
From February to April 2010 a study was conducted of sixty-seven teams that had participated in the LDP up to that point and had implemented interventions focusing on service delivery outcomes. The assessment included data on quantifiable service delivery indicators for the sixty-seven teams along with data from a matched sample of districts and facilities that served as comparison groups (Seims 2012). The teams focused on the following challenges, the first three of which relate to the Millennium Development Goals health indicators:

- Increasing coverage of fully immunized children under age one (twenty-five teams)
- Increasing delivery by a skilled birth attendant (twenty-three teams)
- Increasing the proportion of pregnant women receiving four or more antenatal care visits (ten teams)
- Increasing coverage of another service delivery intervention (nine teams)

Results. As depicted in figure 2, aggregated data for all sixty-seven teams indicate that coverage for the teams' key outcome indicator was at 38 percent before implementation of the LDP. At the end of the program, approximately six months later, coverage had increased to 48 percent. These results were sustained at 51 percent six months after the end of the LDP.

Data were examined for the same indicators and same time periods for comparison districts and facilities. The LDP team and comparison districts and facilities were matched for a number of criteria to increase the closeness of the match. (Districts were matched on size and location; facilities were matched on type, location, number of beds, and family planning service statistics.) Data from the comparison sites remained relatively stable throughout the same time period, with differences between intervention and comparison groups statistically significant (t test, p value = $\leq .05$). The data indicate that following exposure to the LDP, the health indicator coverage associated with the teams improved.

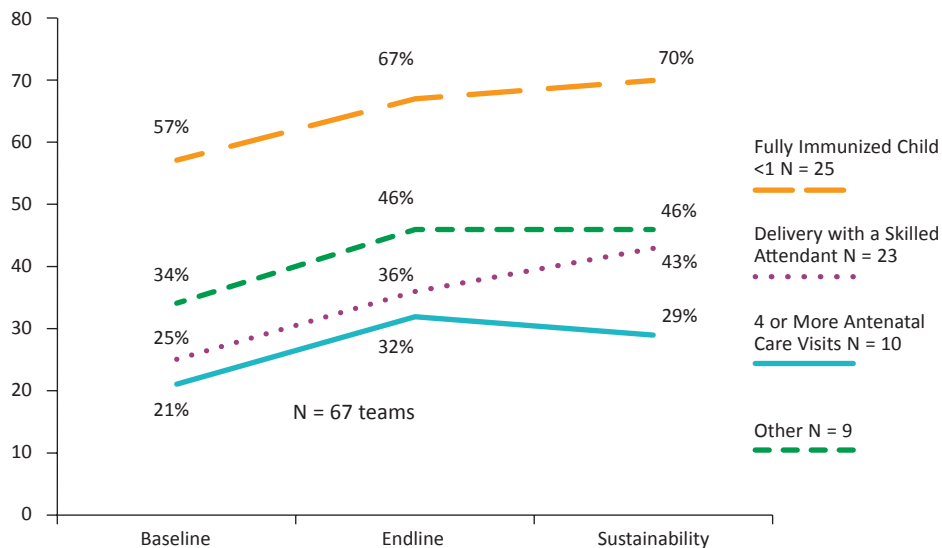
FIGURE 2. AVERAGE COVERAGE RATES FOR AGGREGATED HEALTH SERVICE DELIVERY INDICATORS FOR INTERVENTION TEAMS, KENYA, 2008–2010



Source: MSH, unpublished data, 2012.

Although the focus of the assessment was on team results, and because the results by specific interventions have relatively small sample sizes, the data also suggest that coverage increased for each of the interventions, as illustrated in figure 3.

FIGURE 3. AVERAGE COVERAGE RATES FOR AGGREGATED HEALTH SERVICE DELIVERY INDICATORS FOR INTERVENTION TEAMS, DISAGGREGATED BY INDICATOR, KENYA, 2008–2010



Source: MSH, unpublished data, 2012.

The teams were comprised of leaders and managers. Nearly two-thirds of the sixty-seven teams interviewed cited that they supervised staff. Their duties included approving staff leaves, handling disciplinary issues, performing medical supervision, coordinating community health workers, setting work climate, conducting staff appraisals and making salary recommendations, and managing support staff. The remainder reported that they were in charge of deployment of staff throughout the district.

For the forty-three teams (64 percent) where health indicator coverage was sustained at the same or higher level six months after the end of the LDP, factors cited as contributing to sustainability were (1) redeployment of staff to generate demand through social mobilization and health education, (2) increasing access by providing more outreach sites or more service hours or days, (3) an improving work climate, and (4) training a new cadre of workers. These factors were outside of the LDP, but the participants felt they helped to maintain health coverage.

Legacy. Since the results of the Ministries of Health National Assessment and Strategy on the need for leadership and management strengthening in the health sector were first published in 2008 there has been a dramatic increase in the understanding of the critical role that leadership,

management, and also governance play in improving the quality of health workforce performance and health service delivery in Kenya. To highlight this progress and build on the accomplishments of the past few years, the Ministries of Health in Kenya, in partnership with MSH, held a National Conference on Health Leadership, Management, and Governance in January 2013. The conference included a wide range of ministries, donors, and key stakeholders who underscored the critical role that leadership and management play in improving the quality of health service delivery in Kenya.

Tanzania: Leadership Development for Family Planning Services

Challenge. Access to family planning services is one of the key pillars to improve maternal health outcomes in Tanzania (Ministry of Health and Social Welfare, United Republic of Tanzania, Reproductive and Child Health Section 2008). As part of a major initiative of the Ministry of Health and Social Welfare to revitalize family planning, increased access to family planning services is a key strategy to address the health needs of women of reproductive age and to improve maternal and child health.

Access to family planning services, as a key priority, requires the effective delivery of family planning interventions, including the availability of quality services; adequate stocks of contraceptive supplies at service delivery points, particularly in remote areas of the country; and educational programs on family planning methods for women of reproductive age. Yet, at the same time, the Ministry of Health was faced with serious challenges. Health centers were underperforming, poor coordination existed between district activities and those of the health centers, and health centers were feeling isolated and unsupported.

Intervention. In January 2006, staff from MSH's Leadership, Management, and Sustainability Program, in collaboration with staff from the USAID-funded ACQUIRE Project and the Tanzania Ministry of Health and Social Welfare, initiated a six-month Leadership Development Program in Kigoma, a remote rural province in western Tanzania. The aim of the collaboration was to integrate leadership and management development into ongoing technical assistance in the ACQUIRE-led family planning program to revitalize family planning in the region and ultimately improve maternal and child health through improved health workforce performance at the service delivery level.

Six health facility teams and three district teams participated in the program. With the assistance of Eastern and Southern Africa Management Institute staff—located in Arusha, Tanzania—and a local consultant, all three LDP workshops were delivered in Swahili. Between the initial workshop and additional workshops in March and June 2006, Kigoma-based ACQUIRE staff and district-level Ministry of Health staff provided follow-up coaching to the teams to help them refine their action plans and apply the leadership skills they learned in the program.

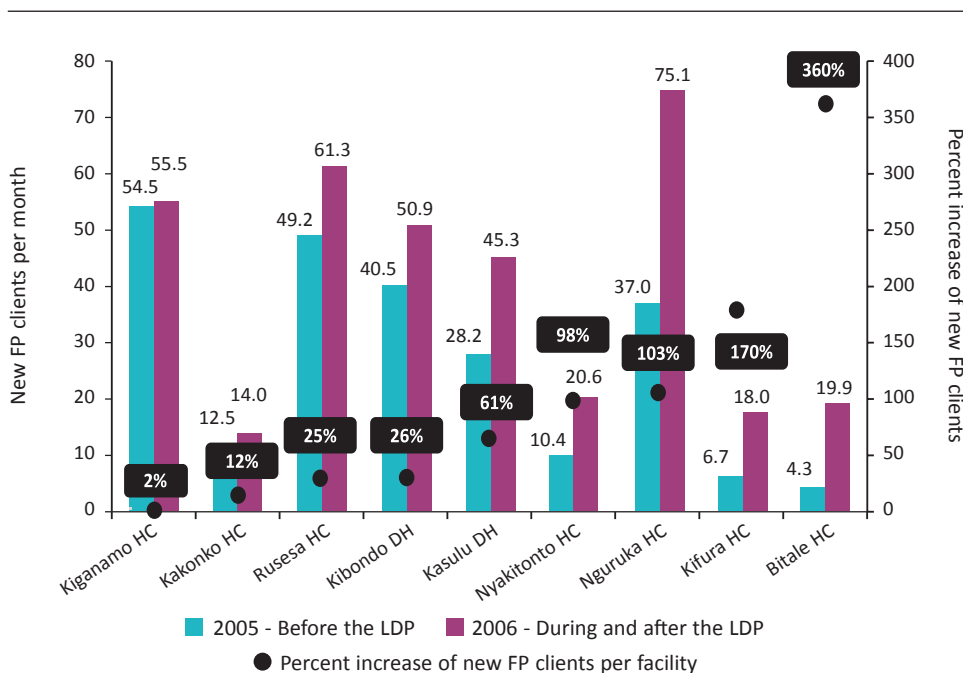
Early in the LDP, teams were asked to consider how they were doing in addressing family planning and to assess weaknesses and strengths. All were originally of the opinion that they

were doing relatively well, but the scanning exercise revealed very modest results vis-à-vis family planning utilization. District teams acknowledged that health centers were underperforming, in part due to poor coordination of district activities and those of the health centers within their jurisdiction, resulting in situations where health centers felt isolated and unsupported.

The participating teams successfully used the tools introduced in the LDP program to identify priority activities, action planning, resource mobilization, and monitoring and evaluation. As a direct result of their data analyses, teams reallocated health personnel to ensure adequate numbers of health workers were available for family planning counseling and service delivery, provided training and refresher training for providers of family planning, and raised awareness in the communities served by the facilities about the importance of family planning for the health of women and children.

Results. As depicted in figure 4, all the participating health facilities (health centers and district hospitals) were able to increase the number of new family planning clients per month from a low of a 2 percent increase in Kiganamo Health Center to a high of a 360 percent increase in Bitale Health Center.

FIGURE 4. AVERAGE NUMBER OF NEW FAMILY PLANNING (FP) CLIENTS PER MONTH IN HEALTH CENTERS AND DISTRICT HOSPITALS, KIGOMA, TANZANIA, 2005–2006



Source: MSH, unpublished data, 2012.

Legacy. The leadership development work carried out in Tanzania left an impressive imprint in terms of family planning service delivery results. The achievement of such results motivated the Kigoma LDP facilitators from ACQUIRE and the Ministry of Health to scale up the program to twenty more dispensaries and health centers in two districts on their own without technical assistance from the MSH Program staff.

Short-term interventions like the LDP can result in service delivery improvements as documented in the Kigoma experience. However, after this promising beginning, a national shortage of family planning commodities in Tanzania in 2008 impacted the program, and the LDP could no longer continue to be scaled up. One of the key lessons that the participating teams learned was that sustaining service delivery improvements in family planning requires the availability of essential commodities, such as contraceptive supplies, and an effective system for their distribution at service delivery points. Otherwise, the lack of such commodities becomes a major barrier to sustaining those initial improvements. The purpose of the LDP is to empower managers to address obstacles that are in their control. Unfortunately, not all constraints are in their control.

Ghana: Scaling up the LDP

Challenge. The Ghana Health Service (GHS) was created in 1996 with the responsibility to manage the provision of health care services to the people of Ghana. The GHS employs more than forty-two thousand staff. But the distribution of health workers is skewed toward more affluent regions, largely in the southern half of the country. Highly skilled health professionals are concentrated in the greater Accra Region as well as in the Korle Bu and Komfo-Anokye teaching hospitals, in the greater Accra and Ashanti Regions respectively. These two teaching hospitals employ more than 45 percent of the country's doctors; however, less than 15 percent of Ghana's doctors practice in the district hospitals. Human resource managers are assigned at the regional level and at teaching hospitals; training coordinators are responsible for in-service training at the regional levels and at the teaching hospitals. The limited health personnel in the regions where the health needs are greatest justify the need for optimal management of available resources (Ghana Health Workforce Observatory 2011).

Intervention. USAID supports interventions to improve family planning and maternal, neonatal, and child health in Ghana. As a component of USAID's effort to improve health results, MSH introduced the Leadership Development Program in 2007.

In a May 2012 interview for a study conducted by MSH about why the LDP was first introduced, one of the coordinators of the LDP since the beginning of the program in Ghana, who is a deputy director in the GHS, explained: "There have been a lot of concerns raised about productivity and outputs in the health sector. Looking at the amount of monies that are pumped

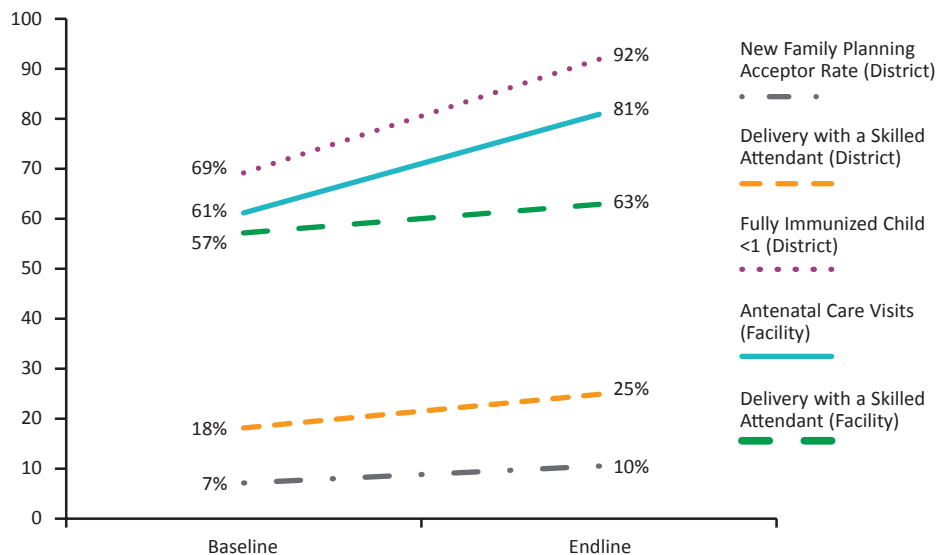
into health services, the indicators are still where they are—maternal mortality, low coverage and so on. . . . We know we have all the technical know-how, and fairly adequate resource allocation funding from agencies and donors, but still we are not getting anywhere. . . . So, these discussions . . . really crystallized the issue. . . . Let’s focus on developing managers who lead to show results” (Seims et al. 2012).

A pilot program was first conducted in Cape Coast in the Central Region in 2008 with funding under the Leadership, Management, and Sustainability (LMS) program. The program began with eight facilitators, four of whom were still facilitating the LDP four years later. In 2009, the LDP was implemented in Kumasi for regional, district, and facility teams from Ashanti Region, which spurred a locally driven, region-wide rollout of the LDP. The LDP training is continuing in the Ashanti Region with funding from the regular regional budget of the GHS. Also in 2009, a Training of Trainers was offered to potential LDP facilitators to assist in the scale-up of the LDP.

The LDP was next rolled out to the Volta Region in August 2010, using GAVI Alliance support for health systems strengthening in the GHS. The program also expanded to the greater Accra, Western, and Central Regions in 2010. As of July 2011, 295 staff in fifty teams had been trained in the LDP. In 2012, with funding from UNICEF, the LDP was rolled out in three regions in the northern part of the country, namely, the Northern, Upper West, and Upper East Regions.

Results. In May 2012, MSH conducted an evaluation of the LDP in Ghana that included key informant interviews with twenty individuals who had key roles as LDP participants. The purpose of the study was to identify the changes that followed the LDP and to determine which changes, behaviors, practices, and outcomes were sustained and why. Interviews were conducted in greater Accra, Ashanti, Central, and Volta Regions; all interviews were digitally recorded and transcribed. Five of those interviewed cited data for their team’s health indicators for both before and after the LDP. These data were cited from internal health management information system reports and are not available externally. One participant reported a district-wide increase in fully immunized children under one year old from 69 percent to 92 percent, exceeding their target of 90 percent (MSH unpublished data, District Director, GHS, May 23, 2012). Other district teams reported an increase in the family planning acceptor rate, from 7 percent to 10 percent (MSH unpublished data, LDP Facilitator, May 18, 2012), and in the proportion of births with a skilled birth attendant from 18 percent to 25 percent (MSH unpublished data, District Director, GHS, May 18, 2012). One large facility reported an increase in the proportion of pregnant women who received antenatal visits, from 61 percent to 81 percent; another reported an increase in the proportion of births with a skilled birth attendant, from 57 percent to 63 percent (MSH unpublished data, Acting District Director, GHS, May 23, 2012). These improvements are illustrative of the magnitude of the change that teams in Ghana were achieving (figure 5).

FIGURE 5. SELECT TEAM RESULTS BEFORE AND AFTER LDP INTERVENTION, GHANA



Source: Seims, L. 2012. *Sustainability of the Leadership Development Program in Ghana: A Eureka Experience*. Unpublished internal report. Arlington, VA: Management Sciences for Health. Reprinted with permission.

Other findings are more difficult to quantify. For example, in the Volta Region, the mechanical workshop of the Regional Health Directorate had approximately one hundred vehicles for transporting patients as well as staff for supervision. At any point in time, however, a large proportion of their fleet was out of use awaiting repair or not roadworthy. The Regional Health Directorate selected revamping the mechanical workshop and improving the transport as their LDP challenge. No funds were expended for new vehicles. Instead, they invested in new tools, parts, supplies, and training for mechanics. At present, most vehicles can now be repaired within twenty-four hours. Having vehicles in good working order improved patient access to health services and improved management and supervision of staff throughout the region.

The mechanical workshop also became a source of income generation. The region now offers fee-based vehicle repair services for GHS vehicles outside the region and for United Nations vehicles.

Legacy. The LDP has become integrated with Ghana’s policy process, which has helped to institutionalize the method and support its rollout. LDP tools are now routinely used in the

development of new public health sector projects; every level of the GHS “must be introduced to the LDP” (MSH unpublished data, Training Director, GHS, May 18, 2012).

A former director general of the GHS views the LDP as his legacy. As noted in a testimonial given by an LDP facilitator, “Their Director General said that that is the legacy he wanted to leave with the Ghana Health Service. He said on two or three occasions that—I was there—that the LDP is the legacy he wants to leave” (MSH unpublished data, LDP Facilitator, May 22, 2012). Many of those interviewed view part of the legacy of the LDP as the expansion of LDP team training within the GHS to more sites and to regions not previously covered. LDPs have involved public sector health staff at all levels, from national to regional, district, and subdistrict, especially from hospitals. At the national level, the Human Resources Division rolled out the LDP to its own staff. One regional director emphasized that LDP fostered a culture of teamwork that has been institutionalized as regional policy and that this policy is reinforced during field supervision visits.

COST AND SUSTAINABILITY

As long as the real costs of poor management and leadership remain hidden, the cost of management and leadership skills training will typically be considered merely an additional expense. It is only when the payoff (better services, more lives saved) becomes visible that the cost of investing in leadership and management will likely be seen as a positive investment.

It is difficult to identify a common cost for the process of strengthening leadership and management through LDP. The core operational cost of implementing one LDP ranges from US\$120,000 to US\$180,000, but there are many parts to the process that imply variables. In some cases, there is a request for expatriate staff; in many other cases, local facilitators manage the process. Other variables include venue, travel costs, and the degree of coaching and mentoring required. As more and more local facilitators are trained, the costs diminish.

Sustainability

For the purposes of leadership development, sustainability is defined as having adequate numbers of trainers within the country to continue to implement the program as well as the commitment of the organization to support it on a continuing basis. In the three countries discussed here, local trainers were an essential part of the implementation process, and the Ministries of Health were committed to its mission. A true measure of sustainability of the resulting changes in leadership and management practices lies in the institutionalization of the LDP methodology, tools, and concepts within organizations that have seen improved service

delivery as a result of the program. The following are illustrative of this evidence:

1. In Ghana, there are influential champions in the Ghana Health Services and the Ministry of Health as well as a pool of experienced facilitators. This is also true for Kenya.
2. In South Sudan, Tanzania, South Africa, Namibia, and Lesotho, the LDP has become an integral part of USAID-funded health systems support.
3. Universities have included elements of the LDP in their pre-service curricula; these include the College of Health Sciences, Makerere University, Uganda; Mbarara University of Science and Technology, Uganda; Ghana Institute of Management and Public Administration (GIMPA); Medical Education Department, Suez Canal University, Egypt; Kenya Medical Training College (KMTC), Nairobi.
4. As previously mentioned, the Ministries of Health in Kenya hosted a National Conference on Health Leadership, Management, and Governance in January 2013.
5. While not part of the cases described here, MSH is aware that following the LDP the Ministry of Public Health in Afghanistan now has a department that is exclusively focused on management and leadership development, called the Management and Leadership Development Department, housed in the Ministry of Public Health's General Directorate for Human Resources. Created in 2011, following five years of the LDP program being implemented in-country, this department sees its mission as the following: "The Management and Leadership Department of the Ministry of Public Health is committed to enable health care human resource facilitators and strengthen the health system through development and scaling up of management and leadership practices" (MSH 2012).
6. In South Africa, the pharmaceutical leadership development program is looking for accreditation with the South Africa Pharmaceutical Council, a statutory body.
7. In Egypt, the LDP continued under its own steam once the project funding ended.
8. Due to the highly positive impact of the LDP in Ghana, the GHS, USAID, and the UN, through a variety of programs, continue to support the scale-up of the LDP in the Central and Western regions of Ghana.

Limitations of Case Studies

The key limitation of these case studies lies in the difficulty of collecting data on an ongoing basis. As demonstrated, a monitoring and evaluation procedure requires additional budget and the support of specialists in monitoring and evaluation. This is frequently beyond the scope of the budget and capacity of the country to implement.

A further limitation is attributing causality. In recent years, donors, global organizations, and national governments have increasingly acknowledged the importance of leadership, management, human resources for health, and health system strengthening in addressing their

health challenges. As a result, other initiatives in these areas would have likely also been a part of the landscape in these countries.

LESSONS LEARNED

Lessons learned from strengthening management and leadership practices of health staff can be summarized as follows:

1. Following short-term leadership development interventions, improved service delivery outcomes can be realized and sustained despite the complex environment that low-income settings present for the effective delivery of public health interventions.
2. Leadership development interventions appear to play an important role in strengthening health systems, including service delivery improvements at any level of the system in low-income settings.
3. Both integrating leadership development into existing structures and coordinating with Ministries of Health, other USAID collaborating agencies, and donors help to ensure sustained attention to leadership development in low-income countries.
4. Programs that target the district level often do not cascade down to lower-level facilities, so it may be important to implement facility-based leadership development programs to achieve desirable effects. Lower-level leaders should be part of the planning and start-up phases.
5. It is critical to attach the LDP to health indicators so that it is not a stand-alone leadership program without any associated work performance targets.
6. The LDP creates an improved work climate that promotes better health service delivery and workforce performance.
7. There is a need to institutionalize leadership development in pre-service and in-service health training programs.

CONCLUSION

Management and leadership development are often confused with management and leadership training. The two are not the same. The MSH approach to strengthening these skill sets is anchored in addressing current challenges faced by program participants and the operationalization of management and leadership as a set of practices that anyone, at any level, can learn to do better.

The cases presented here show some of the diversity of applications—yet the approach remains the same: (1) work with members of existing professional teams to identify a

challenge in their work that they are committed to address; (2) teach them the practices and how to be systematic about using them; (3) strengthen the ability of team members to use metrics and measurements to monitor progress; and (4) encourage them to make course corrections.

The LDP provided leaders in the health systems with a practical method to take responsibility, ownership, and action rather than waiting for superiors to step in and solve problems. It is a scalable process that, once planted, enables participants to continue to harvest the benefits of the investment by transferring the tools to their local colleagues. Most critically, the LDP is being used to contribute solutions to some of our most stubborn, persistent, and deadly health problems.

One participant noted: “When I occupied this office . . . the LDP gave me a ‘can do.’ It placed in me a ‘can do’ spirit. This is exactly what we need in our health workforce today” (MSH unpublished data, Regional Deputy Director, Clinical Care, May 31, 2012).

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