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THEME ISSUE: Human Resources for Health

Guest Editorial: Toward a Systemic Approach to the Global Health Workforce

The Global Health Initiative and the Health Workforce

Reducing Maternal Mortality in Senegal: Using GIS to Identify Priority Regions for the Expansion of Human Resources for Health

Making Non-discrimination and Equal Opportunity a Reality in Kenya's Health Provider Education System: Results of a Gender Analysis

Will They Stay or Will They Go? Putting Theory into Practice to Guide Effective Workforce Retention Mechanisms





- 3 **Guest Editorial: Toward a Systemic Approach to the Global Health Workforce**
Bruce J. Fried
- 5  **The Global Health Initiative and the Health Workforce**
Maurice I. Middleberg
- 13  **Reducing Maternal Mortality in Senegal: Using GIS to Identify Priority Regions for the Expansion of Human Resources for Health**
Philip Massey
- 23  **Making Non-discrimination and Equal Opportunity a Reality in Kenya's Health Provider Education System: Results of a Gender Analysis**
Constance Newman, Anastasiah Kimeu, Leigh Shamblin, Christopher Penders, Pamela A. McQuide and Judith Bwonya
- 34  **Will They Stay or Will They Go? Putting Theory into Practice to Guide Effective Workforce Retention Mechanisms**
Barbara Stilwell



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Guest Editorial

Toward a Systemic Approach to the Global Health Workforce

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There are several interrelated themes in the global health workforce literature. Some writers focus on broad issues of supply and metrics for assessing need and the adequacy of the health workforce. Attention is given to provider/population ratios, benchmarking, population and needs-based estimates of need, institutional staffing ratios, and other approaches to health workforce planning. The quantitative nature of this approach and presumed ease of measurement have made it popular with ministries of health and other governmental and non-governmental bodies. However, each approach is fraught with difficulties and drawbacks. Measurement is far more complex than appears at first glance, and interpreting numbers and ratios often presents more questions than answers (Ricketts 2008).

Another theme in global workforce writing and research deals with issues of recruitment, deployment and retention of the health workforce. That is, once need is established for health workers through some methodology, how do we recruit, deploy and retain health workers? It is here that the focus of attention moves from estimates of need to the development and implementation of effective management practices. Some of this literature also deals with alternative ways of organizing work, such as job sharing and task shifting. Among the themes addressed are questions of motivation and job satisfaction, training, reward systems, quality improvement and patient safety, organizational climate, performance management and emigration (Chopra et al. 2008).

More recently, another area of focus is on integrating various “vertical” interventions and programs with health system strengthening. This comes at a time when vast sums of money have been spent on disease-specific (e.g., HIV/AIDS) initiatives, but often without addressing the attendant needs for sustainable health system infrastructure improvement – including workforce development (Oliveira-Cruz et al. 2003).

This issue of *World Health and Population* provides a current sample of recent work in each of these thematic areas. We hope in this issue to convey the importance of addressing the complexity of the health workforce crisis through multiple perspectives and points of leverage.

In his article on the Global Health Initiative, Middleberg argues that US global health strategies have traditionally focused on specific disease programs but have neglected specific strategies to address broad health workforce problems. Middleberg argues that all health programs share a common need for a well-trained workforce, yet a measured way to address this issue has been absent

from the current design of the Global Health Initiative. The development and implementation of a coordinated health workforce strategy is a key element in health system strengthening.

Massey takes a micro-level approach to health workforce planning through his description and analysis of how Geographic Information Systems (GIS) software can be used to identify more precisely high-priority areas for workforce development. His approach moves beyond traditional practitioner/population ratios, which do a poor job accounting for small area variations in need. Instead, his work focuses on linking maternal health indicators with the distribution of human resources. While his focus is on maternal mortality, use of GIS can be applied to virtually any area of health to more precisely identify areas of need.

In her article on workforce retention, Stilwell looks at the fundamental questions of how we attract and retain employees in our organizations. Although there are certainly differences among cultures in issues pertaining to employee satisfaction and motivation, Stilwell draws linkages between the classic literature on motivation and recent experiences with attracting and retaining health workers. She also emphasizes the gap between what we know about worker retention and implementation of proven strategies. Part of this gap is attributable to the lack of leadership and understanding in ministries of health in strategically managing human resources. I would argue as well that this is a problem that is not limited to healthcare or developing countries. While there is a substantial body of evidence on effective human resources management strategies, implementation continues to be inconsistent globally and across industries (Pfeffer and Sutton 2006). At its worse, our management practices are destructive to motivation and productivity.

When we solicited manuscripts for this issue, we were intrigued by the submission by Newman and others on discrimination and equal opportunity in Kenya's health-provider education system. Those of us familiar with human resources management in North America are well acquainted with the centrality of discrimination and equal employment opportunity. In the United States, this has been an important driver of workforce management since at least the mid-twentieth century. With the exception of a few countries, little global literature addresses discrimination in the health workplace and in health workforce training programs. Although there is a very substantial literature on gender and health, relatively little has been written about equal employment issues and discrimination in healthcare organizations and training programs. Discriminatory practices are persistent and usually deeply embedded in the culture – and thus difficult to change. We will be interested in seeing how the recommendations in the paper from Newman and colleagues are implemented and whether they can decrease gender discrimination.

Workforce issues extend from basic problems of recruitment and supply through to how we manage people once they choose to work in our organizations. Workforce issues will continue to present challenges in years to come, particularly as we see a global increase in the aging of the population and the need for not only a larger health workforce, but one that has the competency to work with a broad range of health issues. We hope that this issue of *World Health and Population* stimulates interest among our readership in the continuous search for new and innovative solutions.

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The Global Health Initiative and the Health Workforce

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Abstract

The United States Government (USG) strategy for global health is embodied in the Global Health Initiative (GHI), announced by President Obama in 2009. The GHI addresses the array of US global health programs and concerns. There is laudable recognition of the health workforce crisis as a major barrier to achieving the Millennium Development Goals and the USG's global health goals. Significant funding is provided to train health workers and conduct other activities that may be seen as addressing the health workforce crisis.

Unfortunately, the USG approach to the health workforce is not guided by a coherent strategy. In sharp contrast to its approach to more traditional, disease-specific programs, the GHI fails to articulate objectives, technical approach, metrics, organization, staffing or resource allocation with regard to the health workforce. The result is a series of projects unguided by any framework.

This article outlines a health workforce strategy for the GHI. It proposes objectives, a technical approach, key indicators of progress, structural reforms and resource requirements.

Introduction

Since the release of the 2006 World Health Report, there has been widespread understanding that the health workforce deficit in low- and middle-income countries stands as a fundamental barrier to achieving the Millennium Development Goals. Where there are no health workers, improved health is difficult or impossible. While primary responsibility for developing the health workforce rests with the developing countries and their governments, donor nations and multilateral institutions must play their part in a coherent and thoughtful manner. The Joint Platform for Health Systems Strengthening is the designated vehicle by which the major multilateral organizations (The World Bank; the Global Alliance for Vaccines and Immunization [GAVI]; The Global Fund to Fight AIDS, Tuberculosis and Malaria; and the World Health Organization [WHO]) propose to strengthen health systems, including the health workforce. The Global Health Initiative (GHI) is the overarching United States global health framework and includes strengthening the health workforce as a goal.

This article lays out a strategy for strengthening the health workforce within the GHI. However, the principles set forth here – effective leadership, priority countries, clear objectives, integration and coordination, regional and global approaches, sound technical approach and measuring progress – could be equally applied to other elements of health systems strengthening and by other donors.

It is remarkable that President Barack Obama chose to assert global health as a priority for his Administration during the first months of his presidency. The United States (US) can already take great pride in its contribution to global health. US technical leadership and financial contributions have been critical to achieving historic gains in child health, maternal health and family planning, as well as reducing the impact of malaria, combating HIV/AIDS and fighting tuberculosis. The GHI builds on this history.

One of the more intriguing elements of the GHI is its commitment to strengthening health systems. While less glamorous than explicitly fighting deadly diseases, strengthening health systems is essential to long-term success in all areas of public health. The means of preventing and/or curing many of the major causes of disease and death are well known and highly cost-effective, for example, vaccines, antibiotics, antiretrovirals, insecticide-treated nets and antimalarials. However, the systems for delivering these life-saving interventions are often quite weak: the cure never gets to the patient. These health systems weaknesses are explicitly recognized in the GHI: “Achieving sustainable health outcomes requires a purposeful effort to strengthen country health systems and transition to country-owned health delivery platforms, overcoming barriers that constrain the delivery of effective health interventions” (United States Global Health Initiative 2011).

Of particular importance is strengthening the health workforce. There is abundant evidence supporting the common-sense conclusion that increasing access to health workers improves health outcomes. For example, one cross-national study found that every 10% increase in the health workforce was associated with about a 5% decrease in maternal mortality and a 2% decrease in both infant and child mortality (Anand and Barnighausen 2004). The GHI concurs with this conclusion, calling for “Increased numbers of available and trained health service providers, public health workers and community health workers, appropriately deployed in the country and providing quality health services” (PEPFAR 2011: 19).

Fifty-seven countries fail to attain even the bare minimum ratios of doctors, nurses and midwives relative to population

The dimensions of the problem are dramatic. A billion people will never see a health worker (Global Health Workforce Alliance 2011a). Fifty-seven countries fail to attain even the bare minimum ratios of doctors, nurses and midwives relative to population (WHO 2006). Health workers are often concentrated in urban areas where they care for the relatively affluent, leaving those in rural areas and the poor badly underserved. The education of health workers is often weak, both in terms of the capacity to train the needed numbers and in the quality of the education provided. Health workers are often badly managed and supported, and the basic mechanics of a personnel system (i.e., recruiting, hiring, compensating and supervising) are often in shambles. Typically, countries lack even the most basic information about their health workforce – how many, where they are, what education they have received – which greatly inhibits informed policy making and planning. Health-worker productivity and the quality of care are frequently low as health workers cope with poor work environments.

The US spends a great deal of money on the health workforce. Training is embedded in virtually every US global health program, ranging from tuberculosis to child survival. There are very good global and bilateral projects focused on the health workforce. Dedicated experts in the US government (USG) are doing their best to address the health workforce crisis.

That said, the rudiments of a coherent health workforce strategy are absent from the GHI. The Lantos-Hyde legislation reauthorizing the United States President’s Emergency Plan for AIDS Relief (PEPFAR) has a clear goal of training and retaining 140,000 new health workers (GovTrack 2008). Beyond that, the GHI has failed to define the following with regard to the health workforce: objectives, priority countries, resource allocation, technical approach, organizational structure, leadership, staffing, metrics or approach to monitoring and evaluation. It is impossible to discern how much the

USG is spending on the health workforce. The United States Agency for International Development (USAID) report to Congress on health systems acknowledges that its mechanisms are ill-suited to aggregate and report on expenditures aimed at strengthening health systems (2009). In short, the USG is spending a large but unknown sum of money on a set of projects that, however individually laudable, are not guided by a coherent approach.

The ambiguity surrounding the USG health workforce “program” stands in sharp contrast to the GHI approach to disease-specific (“vertical”) programs. In areas such as maternal and child health, family planning, HIV/AIDS, malaria and tuberculosis, there are clear numeric goals, focus countries, evidence-based technical guidance, and well-defined structures for leadership and accountability, as well as metrics for assessing progress. These programs are, in principle, adapted to the needs of each country.

Some argue that clear biomedical markers make it easy to set goals and indicators for disease-specific programs (e.g., percent of children immunized, contraceptive prevalence and number of people receiving antiretroviral treatment for HIV/AIDS), while unambiguous markers of success for health workforce strengthening are missing. This line of reasoning is unconvincing. Measurable objectives for the health workforce can be set. Enormous effort has gone into developing health workforce indicators; see, for example the Handbook on Monitoring and Evaluation of Human Resources for Health developed jointly by the WHO, The World Bank and USAID. These indicators reflect the stocks and flows of health workers. There is no compelling intellectual or practical reason why health workforce stocks and flows are beyond enumeration. What is most needed is the willingness to set and be held accountable for unambiguous targets.

The current political environment gives added urgency to the need for strategic coherence. In this age of fiscal austerity, the US Congress will surely demand answers to basic questions about the health workforce program, such as, “What are the goals?,” “How is progress being measured?,” “What are the priority countries?,” “Who is in charge?” and “How much money is being spent on this program?” The GHI cannot currently provide meaningful answers to these questions.

Proposal for a GHI Health Workforce Strategy

Here is a modest proposal for a GHI health workforce strategy that consists of seven key elements: (1) establishing leadership, (2) identifying priority countries, (3) setting clear objectives, (4) encouraging integration and coordination, (5) supporting regional and global approaches, (6) defining a sound technical approach and (7) assessing progress.

1. Put Someone in Charge

The GHI health workforce strategy needs a leader and dedicated staff. No one in the USG has responsibility for the health workforce, and no one is accountable for progress. This diffusion of responsibility is very different from most USAID programs, such as HIV/AIDS, maternal and child health, family planning, malaria, tuberculosis and neglected tropical diseases. In each case, a clearly identified manager has responsibility and authority for the program. The health workforce, like other health systems issues, is handled by committee. It is hard to imagine how a vigorous, well-coordinated response to the health workforce crisis can be achieved when no one is in charge.

The GHI should establish the position of Health Workforce Coordinator, give the Coordinator the needed budgetary and management authority and provide him or her with adequate staff.¹

2. Identify a Set of Priority Countries

A health workforce strategy should build on and complement investments made in other areas. Fortunately, priority countries have been identified for most of the USG’s vertical programs. So one starting point is to identify the overlap between those countries that are of high priority for multiple vertical programs and those countries that have been identified by the WHO as having a health workforce crisis (WHO 2006). The following 25 countries meet these criteria: Afghanistan, Angola, Bangladesh, Benin, Cambodia, Democratic Republic of the Congo, Ethiopia, Ghana, Haiti, India,

Indonesia, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Pakistan, Rwanda, Senegal, Tanzania, Uganda, Zambia and Zimbabwe. This list includes 18 African and six Asian countries as well as Haiti, while incorporating six of the eight GHI-Plus countries² – Bangladesh, Ethiopia, Kenya, Malawi, Mali and Rwanda (PEPFAR 2011).

Focusing on these 25 countries would have several advantages. Combined, they have a population of 2.4 billion and represent much of the world's underserved population. Since multiple USG programs are already under way in each country, there are opportunities for pooling training and other health workforce resources from the programs to maximize efficiencies and impact. Focusing on a particular set of countries would also create new opportunities for partnerships with bilateral and multilateral donors aimed at the common goal of health workforce strengthening.

3. Set Clear Objectives

The 25 countries listed above have a collective shortfall of about 3.8 million health workers. However, India and Indonesia are special cases, as neither can plausibly claim to lack the domestic resources to train and deploy the needed health workforce. It would be hard to make the case that the US taxpayer should invest large sums in developing the health workforce of either country, though they may need some highly specialized technical assistance that the US could support. The other 23 countries have an aggregate deficit of 2.3 million health workers. Historically, the US share of major development challenges has been proportionate to its share of global GDP, which now stands at about 25%. Using that as a barometer would leave a goal of training, deploying and retaining about 580,000 health workers.

This cannot be achieved all at once. Following the lead of the WHO Task Force on Scaling Up Education and Training of Health Workers, a 10-year time frame might be set for meeting the goal. Some scaling up of the goal would be needed to compensate for population growth, which ranges from 1.3% in Zimbabwe to 3.0% in Benin.

Simply increasing the health workforce is not enough. More health workers could be badly deployed, poorly managed and unproductive. With that in mind, the GHI health workforce objectives could be reformulated as follows:

- Train, retain and equip 580,000 health workers over 10 years;
- Increase equity of access to health workers;
- Increase the capacity of countries to produce appropriate health workers;
- Increase health worker retention; and,
- Improve health worker productivity.

Additional objectives may be appropriate for a particular country context.

4. Encourage Integration and Coordination within Country Programs

While the vertical programs support health-worker training, they tend to focus on short-term in-service training that helps achieve service delivery goals. This creates two problems: Strengthening the health schools that increase the supply of new health workers is generally neglected (though the Medical Education and Nursing Education Partnership Initiatives are welcome exceptions). The vertical programs have little incentive to support increased output of health schools because they are focused on achieving near-term gains in use of specific services. But increasing the output, quality and efficiency of medical, nursing and other health schools is the only sustainable solution to increasing the health workforce.

The vertical approaches also tend to distort in-service training. Each program offers courses, workshops and other training opportunities that are largely not tied to any national strategy for systematically upgrading the competencies of health workers. A better approach would be to support the development and implementation of comprehensive in-service training strategies that meet the needs of health workers and the populations they serve. Integrating and coordinating the

workforce development efforts of the multiple USG programs in a country to strengthen health schools and achieve more strategic in-service training would ultimately yield higher impact than a set of disjointed courses. The USG contribution should be coordinated with the inputs of other donors and domestic sources, all serving a single national strategy for upgrading the competencies of the health workforce.

More broadly, there are many aspects of vertical programs that contribute to strengthening the health workforce, including improving supervision, leadership, equity of access to services, retention of health workers and gender equity that, if strategically integrated, could achieve both efficiencies and greater impact.

5. Support Regional and Global Approaches

Regional and global institutions that are addressing the health workforce crisis include the Asia-Pacific Action Alliance on Human Resources for Health, the African Population and Health Research Center, the African Platform on Human Resources for Health and Partners for Population and Development, among others. At the global level, the WHO Human Resources for Health department and the Global Health Workforce Alliance are making important contributions. USAID should expand its support for strengthening the capacity of regional and global institutions engaged in South–South cooperation. Regional approaches would build upon natural affinities (e.g., Francophone Africa, southern Africa, south Asia) and increase efficiency in providing technical assistance, training and other essential services.

6. Define a Clear, Evidence-Based Technical Framework

A high level of technical rigour has marked the most effective US global health programs. The knowledge and experience gained over many years has been distilled into core technical guidance documents that shape the formulation and implementation of programs ranging from child survival to HIV/AIDS to malaria. Comparable technical guidance with regard to the health workforce has not yet been published by USAID or other US agencies contributing to health workforce strengthening.

The body of evidence on key issues in health workforce strengthening should be distilled into a technical framework that serves as a resource for USG field programs and provides a standard against which programs can be assessed. Of course, gaps in knowledge remain, the evidence will continue to evolve, and every program must be adapted to the country context. The technical approach should evolve to keep pace with the state of the art.

Let me suggest the key elements of such a framework:

Building the Constituency for Global Health

The health workforce issue cuts across many sectors and actors. To ministries of health must be added the ministries of education that oversee health schools, civil service agencies that regulate public employment, ministries of finance, professional councils, nongovernmental organizations, faith-based organizations, for-profit health schools and health providers, donors, and organizations representing health workers. Addressing the health workforce crisis requires mobilizing a broad coalition of actors. The Global Health Workforce Alliance is promoting the creation of country coordination and facilitation groups that bring together the concerned stakeholders to oversee development and implementation of health workforce strategies. The USAID-funded CapacityPlus project has developed stakeholder leadership guidelines to help with the management of these coalitions. The GHI should support the development of country coordination and facilitation groups or similar stakeholder groups.

Optimizing Policies, Plans and Management Systems

According to a survey carried out by the Global Health Workforce Alliance, only 24 of the 57 health workforce crisis countries have evidence-based, fully costed plans for the health workforce (an additional 20 countries have some type of plan) (2011b). The GHI should help priority countries develop sound plans that can guide action.

Even more important than plans that may end up on the shelf are policies and systems for bringing about change. One critical element is structuring multidisciplinary health teams that address the most important health needs of underserved populations. These teams bring together doctors, nurses, midwives, community health workers, pharmacists, laboratory technicians and other health workers. In some countries, innovative health cadres, such as surgical technicians in Mozambique, will be needed. Responsibilities should be optimally allocated among team members to maximize equitable access to essential care. Developing health teams will sometimes require changes in laws and regulations to ensure that different cadres of health workers have the legal authority to carry out needed tasks.

Health teams must be supported by strong human resources management systems. In many countries, the human resources department in the ministry of health is understaffed and ill-equipped for its nominal responsibilities. The mechanics of human resources management, such as recruitment, hiring, deployment, supervision and compensation, are often weak. Basic information about the health workforce is frequently lacking, and functioning human resources information systems are rare. Strengthening human resources management systems is essential to addressing the health workforce crisis. The importance of such systems is illustrated by the case of Kenya, where nursing vacancies in rural health posts were largely the result of the inability of the bureaucracy to hire trained nurses even though budgets had been allocated. A management reform led to hiring 830 nurses and placing them in 200 rural health facilities in about six months (Fogarty and Adano 2009).

Educating and Training Health Workers

Health schools in countries with health workforce crises lack the capacity to produce enough of the right kind of health workers. Three lines of action are needed. First, there must be greater investment in educating health professionals. More is needed from developing-country governments and donors. But the public sector is only one source of capital. Nongovernmental and faith-based organizations already make important contributions to educating health workers, and public policy should encourage their increased contributions. Similarly, there is a burgeoning private school movement where an appropriate mix of incentives and regulations to ensure quality and equity are needed.

Second, health schools must become more efficient. Up to 30% of African health school students drop out before graduating (Global Health Workforce Alliance 2008). More attention must be paid to the nuts and bolts of school management – budgets, financial management, facilities, libraries, equipment – to ensure that limited resources are used to best effect.

Finally, there must be a shift toward educating students from rural areas in the skills needed by underserved populations in schools located outside the capital city. Educating urban elites in the capital, using models appropriate to developed countries, is not a solution to health-worker deficits in rural areas. Students from rural areas are more likely to serve where they are most needed, especially if they attend schools near their homes (WHO 2010a). The allocation of educational resources should be aligned with health teams that can meet the health needs of the population to be served. As a practical matter, this means giving prominence to mid-level and community health workers who, if properly supervised and supported, can alleviate much of the disease burden facing underserved populations. Curricula and teaching methods must also be adapted to focus on the needs of the poor and underserved.

Mali provides a good case in point for educational reform. The Gao School of Nursing is located in an underserved rural area. The curriculum and pedagogy have been adapted to match the health needs of the population of the Gao region. Students are nominated by communities from the surrounding area and are actively encouraged to stay and serve their home areas upon graduation (Capacity Project 2008).

In-service training of health workers is another area needing attention. In-service training is frequently no more than a pastiche of workshops, courses and seminars offered by an array of donors and nongovernmental organizations. Attendance is more often dictated by whose turn it is to collect per diem rather than any coherent training plan. The GHI should support the development and

implementation of strategic approaches to in-service training that reflect an evidence-based assessment of the training needs of current health workers.

Attracting and Retaining Health Workers

The out-migration of health workers from developing countries to developed countries (including the US) has received a great deal of attention. One study of African medical schools found that out-migration is the leading cause of loss of faculty (Mullan and Buch 2010). In 2010, this culminated in the adoption of the Global Code of Practice on the International Recruitment of Health Personnel. The Obama Administration is to be commended for its support of the Code, which calls for signatory countries to adopt voluntary standards of practice consistent with the Code. The GHI could play a leadership role in spurring adoption of standards of practice for international recruitment of health personnel by the US.

Attracting and retaining health workers in underserved areas is even more of a problem than international migration, with huge disparities in health worker densities between urban and rural areas. In part, the solution lies in training new health workers who are from the areas where the need is greatest. To this must be added crafting incentives that will induce health workers to move to and stay in rural and remote areas. The most important lesson learned in crafting an incentive package is, "Ask the health worker." Health workers have complex motivations, and salary is only one factor. Housing, schooling for children, social isolation, gender discrimination and educational opportunities are all considerations for health workers. The WHO global policy recommendations for rural retention identified 16 categories of health worker incentives (2010b). Attracting and retaining health workers depends on developing context-specific incentive packages that respond to the motivations of health workers.

The incentives that attract and retain health workers also tend to be those that help health workers be productive and offer good quality care. These include supportive supervisors and the supplies and equipment needed to be effective.

Addressing Gender Inequity

Gender inequity in the health workforce is ubiquitous. It affects access to education and training, choice of health profession, recruitment and hiring, compensation, career paths, incentives and workplace climate. The health workforce is disproportionately female. Any serious effort to address the health workforce crisis will have to redress gender imbalances.

7. Assessing Progress

Progress against these objectives must be regularly assessed in the priority countries. The following indicators could be used to monitor progress against each of the five objectives:

- *Increased number of health workers*: Total number of health workers (by category)/total population;
- *Increased equity of access to health workers*: Total number of health workers (by category) in rural areas/total rural population;
- *Increased capacity of schools to produce health workers*: Number of health school graduates/total number of health workers;
- *Increased health worker retention*: Total number of health workers leaving the health workforce/total number of health workers; and
- *Increased health worker productivity*: Number of specific tasks performed (e.g., immunizations, surgeries)/total number of health workers.

Health workers are the linchpin of any health system. Every other goal of the GHI depends on having enough of the right kinds of health workers where they are most needed. The USG deserves credit for its efforts to address the health workforce crisis. But the hard work of many talented people

is not being guided by a thoughtful strategy that sets priorities and allows progress to be assessed. Reasonable people may disagree with the outline of a health workforce strategy proposed in this article. No doubt it can be improved. However, the absence of a strategy is a sure recipe for failure. Developing and implementing an evidence-based, comprehensive strategy for health workforce strengthening is therefore a matter of urgency if the ambitions of the Global Health Initiative are to be realized.

Notes

- ¹ Ultimately, the Health Workforce Coordinator might report to an overall leader for health systems strengthening.
- ² GHI-Plus countries have been designated for additional technical, managerial and financial support to accelerate implementation of the GHI strategy.

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Reducing Maternal Mortality in Senegal: Using GIS to Identify Priority Regions for the Expansion of Human Resources for Health

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Abstract

In 2005, Senegal had an estimated maternal mortality ratio of 980 deaths per 100,000 live births, well above the global average of 400. The concentration of health workers has been shown to be associated with improved health outcomes, including maternal mortality. To explore this relationship, this paper uses geographic information systems (GIS) to examine the regional distribution of human resources for health and related maternal health indicators in Senegal. Results show that a regional imbalance in the distribution of health personnel and health indicators exists in Senegal. This disparity may contribute to the disproportionate burden of disease experienced in the eastern part of the country. Based on a spatial analysis, a priority index is used to identify regions to target for the recruitment and training of midwives. GIS is an appropriate and practical tool for governments and other agencies to use in identifying regional disparities and for priority setting.

Introduction

Reducing maternal mortality is recognized globally as a major health priority and is listed as a United Nations Millennium Development Goal (Sachs and McArthur 2005). Emphasis has been placed on addressing maternal mortality in developing countries, where 99% of pregnancy and childbirth complications occur annually (WHO et al. 2010). However, even in developing countries, maternal deaths are not distributed evenly, with the worst maternal health indicators occurring in sub-Saharan Africa.

Contributing to these poor health indicators is the scarcity as well as maldistribution of human resources for health, most notably in regions with the greatest global burden of disease, such as sub-Saharan Africa. According to the World Health Report 2006, despite bearing nearly 25% of the global disease burden, sub-Saharan Africa has only 3% of the global health workforce. This can be

compared to the Americas (namely the United States and Canada), which bears 10% of the global disease burden but has nearly 40% of the global health workforce (WHO 2006).

Examining current resources across countries and regions may be an effective first step in addressing the general dearth and disparity of human resources for health. This paper uses national health data from Senegal, a country of 12 million inhabitants located in West Africa, to spatially examine the regional distribution of human resources for health as well as health indicators related to maternal mortality. Geographic information systems (GIS) software was used to present the data and to identify priority regions in Senegal that require targeted programs to mitigate regional disparities in maternal health. Findings from this research will contribute to the GIS health-related literature in showing that GIS can be used to examine spatial disparity and to prioritize areas of need.

Maternal Health in Senegal

Each year approximately 250,000 women die of pregnancy-related causes in sub-Saharan Africa (WHO 2006), representing nearly 50% of global maternal deaths. In Senegal, the World Health Organization (WHO) estimated a maternal mortality ratio of 450 deaths per 100,000 live births in 2008. To place this number in context, the United States had a maternal mortality ratio of 24 deaths per 100,000 live births in 2008 (WHO et al. 2010).

Maternal deaths are clustered around labour, delivery and the immediate postpartum period (Ronsmans and Graham 2006). Moreover, maternal deaths are highly associated with three delays that affect the utilization of life-saving obstetric services: (1) a delay in the decision-making process to seek care in the event of an emergency, (2) a delay in reaching obstetric services, and (3) a delay in receiving the emergency care upon reaching obstetric services (Killewo et al. 2006; Ronsmans and Graham 2006). Expanding the coverage of health workers who are present at birth, particularly that of midwifery care, can have an impact on each of these delays, thus minimizing the risk of severe complications that could lead to death (Killewo et al. 2006; Hongoro and McPake 2004).

There is strong evidence that the number of health workers in a region is associated with improved health outcomes, including maternal mortality (Hongoro and McPake 2004). Moreover, increasing the coverage of professional midwifery care at birth has a great impact on reducing the number of maternal deaths, both in developed and developing countries (Hongoro and McPake 2004; Van Lerberghe and De Brouwere 2001). Major initiatives that expanded professional training and care in Sri Lanka, Malaysia and Thailand have markedly lowered the maternal mortality ratio to under 50 deaths per 100,000 live births (Van Lerberghe and De Brouwere 2001). It is important to note that the expansion-of-care campaigns in these countries were multi-pronged approaches that targeted an increase in access to hospital care as well as a reduction in infectious diseases. That is, no single strategy is likely to achieve similar success in reducing maternal deaths. This evidence does, however, show the importance of professional care at birth in reducing maternal deaths.

Geographic Information System (GIS) and Health

The association between geography and health outcomes has been well researched and articulated (Cummins et al. 2007; Curtis and Jones 1998; Kearns 1993; Macintyre 2002). The theory behind the associations between geography and health stems from shared patterning and diffusion of physical and biological risk factors as well as shared social and economic conditions (Curtis and Jones 1998). That is not to say that processes and variation occurring at the individual level do not influence health outcomes; rather, it is acknowledging that people and geography have a reciprocal relationship (Cummins et al. 2007). Within regions and communities there may be variation in health status and outcomes that are not attributable to place; however, examining the relationship between health variation and geography provides important contextual information.

More specifically in the developing world context, geography plays a significant role in health-care access (McLafferty 2003). Environmental barriers, such as access to trained health providers or proximity to a healthcare facility, greatly influence maternal health outcomes in the developing world, especially among women (Ojanuga and Gilbert 1992). Recent studies have used GIS tools

to examine the relationship between place and health (Bullen et al. 1996; Foody 2006; McLafferty 2003; Plescia et al. 2001) and have generally concluded that place and location are important and significant determinants when examining health outcomes.

... increasing the coverage of professional midwifery care at birth has a great impact on reducing the number of maternal deaths, both in developed and developing countries

A recent review of the GIS health-related literature identified four main categories of GIS application in public health: disease surveillance, risk analysis, health access and planning, and community health profiling (Nykiforuk and Flaman 2011). The most common and traditional use of GIS in public health is in disease surveillance. Used in this way, data on disease incidence and prevalence are tracked spatially and subsequently mapped (Nykiforuk and Flaman 2011; Gao et al. 2008). This paper applies GIS as a tool for community health profiling. Community health profiling spatially examines health behaviours and health access, allowing for the analysis of relationships between health and setting. Moreover, identifying geographic disparities may lead to targeted strategies to meet the health needs of communities (Nykiforuk and Flaman 2011).

Community health profiling using GIS can be an invaluable asset for policy makers, public health officials and community development projects to show resources and need based on geographic areas (Maclachlan et al. 2007). Examining maternal health indicators and the current distribution of human resources for health in Senegal through a community health profile lens may provide important information for policy development and targeted intervention. Specifically, results from this investigation can help inform both governmental and non-governmental agencies on the allocation of resources to best mitigate regional disparities (Maclachlan et al. 2007). In an effort to prioritize midwife service expansion, GIS is used to describe and examine the relationship between the spatial distribution of human resources for health and regional variations in maternal health outcomes in Senegal.

Methods

Despite a rather standard definition, measuring maternal mortality can be challenging and the accuracy of data can vary greatly from region to region (Ronsmans and Graham 2006). Due to the complexity of measurements, indicators of maternal mortality are often available only in the aggregate; that is, only countrywide maternal mortality ratios are reported. To investigate variations in maternal health within countries, examining multiple regional health indicators can provide more specific information (Ronsmans and Graham 2006). Regional health measures that may be used as maternal health proxies include the percent of childbirths occurring unassisted by health professionals, the number of antenatal care visits during a pregnancy and the location of childbirth (Ronsmans and Graham 2006).

Data from the National Agency for Demography and Statistics (2008) were used to examine the regional distribution of human resources for health in Senegal. All maternal health indicators, as well as city locations, were gathered from the 2005 Demographic and Health Survey (Ndiaye and Ayad 2005). Maps for Africa and Senegal were obtained from the Environmental Systems Research Institute (ESRI). Locations for health services, including hospitals, health centres and health posts, were obtained from the WHO.

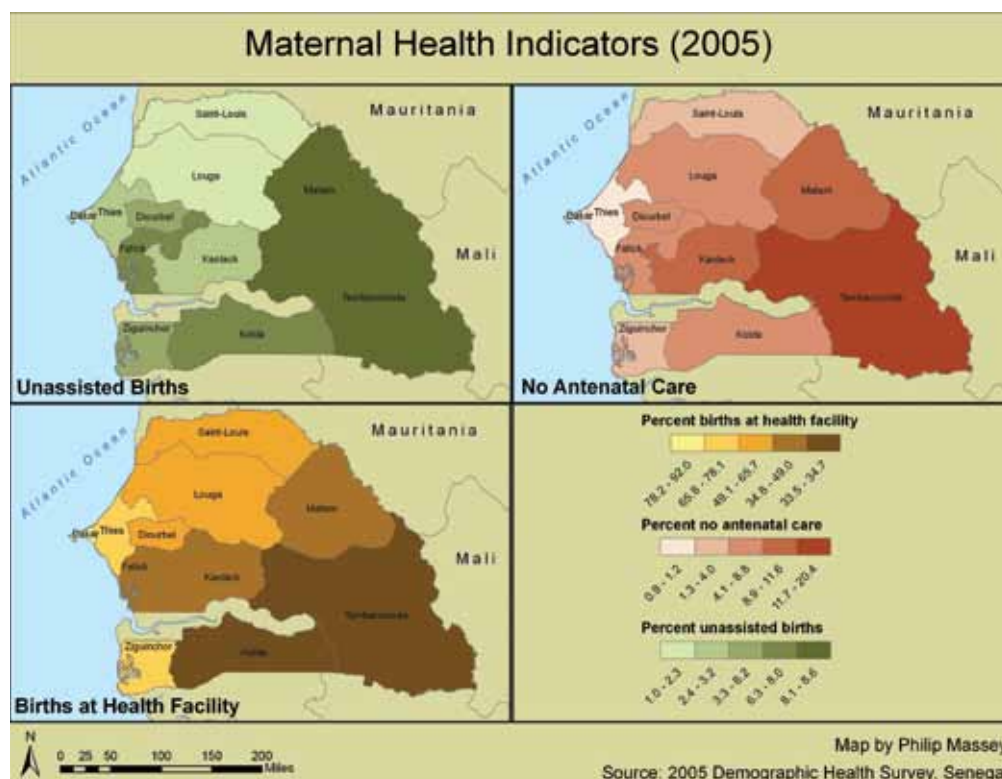
Two indices are used to analyze maternal health and healthcare access across Senegal: (1) index for shortage of midwives, and (2) priority areas index for midwife service expansion. The first index is calculated by taking the current number of midwives by region in Senegal and dividing it by the WHO-recommended number of midwives per population (1 midwife per 300 women of reproductive age), creating a “percent met” indicator (WHO 2010). Percent shortage is then calculated by subtracting the percent met from 1 and multiplying by 100.

The second index highlights priority regions for midwife service expansion based on a hot spot analysis of four indicators: (1) percent shortage of midwives, calculated at the regional level as described above, (2) percent of childbirths per region occurring unassisted by health professionals, (3) percent of women per region who receive no antenatal care during their pregnancy, and (4) percent of childbirths per region that take place at a health facility. A hot spot analysis can display aggregate data based on parameter settings, in this case priority levels by region. To conduct the hot spot analysis, each indicator is first made into an ordinal variable using the Jenks natural breaks classification method (Jenks 1977). Next, the variable is assigned a numerical value based on the regional indicator prevalence; higher values are given to prevalence rates associated with poorer health outcomes. The four indicators are then summed and mapped by region, creating a hot spot analysis that identifies regions with the poorest cumulative maternal health indicators. Based on this analysis, regions are then prioritized for midwife service expansion.

Results

To better identify spatial patterns of health disparity, maternal health indicators are mapped at the regional level in Senegal. Figure 1 shows the regional prevalence rates of the three health indicators: percent of childbirths occurring unassisted by health professionals, percent of women that receive no antenatal care during their pregnancy, and percent of childbirths that take place at a health facility. Dakar has the lowest percent of unassisted childbirths at 1%, whereas Tambacounda and Matam both have greater than 8% of childbirths occurring without assistance by a trained professional. Furthermore, Dakar exhibits the lowest percent of women who attended no antenatal care visits during their pregnancy, at less than 1%. The two eastern regions of Tambacounda and Matam both exhibit the greatest percent of women who attended no antenatal care visits, at 20.4% and 11.6% respectively. The percent of births at health facilities is also uneven, with Dakar exhibiting the greatest percent and Tambacounda and Kolda the lowest. In general, the eastern regions of Matam, Tambacounda and Kolda present the poorest health indicators.

Figure 1. Regional maternal health indicators, Senegal, 2005



Environmental barriers, such as proximity to health facilities, may contribute to the regional disparity in maternal health indicators. Figure 2 displays the density of health facilities in Senegal; health facilities include hospitals, health centres, health posts, health huts and pharmacies. Note also that the densely populated western regions of Senegal also exhibit the highest density of health facilities. The eastern part of the country, which includes the regions of Matam and Tambacounda, has the lowest density of health facilities. Not surprisingly, these same regions have the lowest percent of births at a health facility, displayed in Figure 1.

Figure 2. Density of health facilities, Senegal, 2008

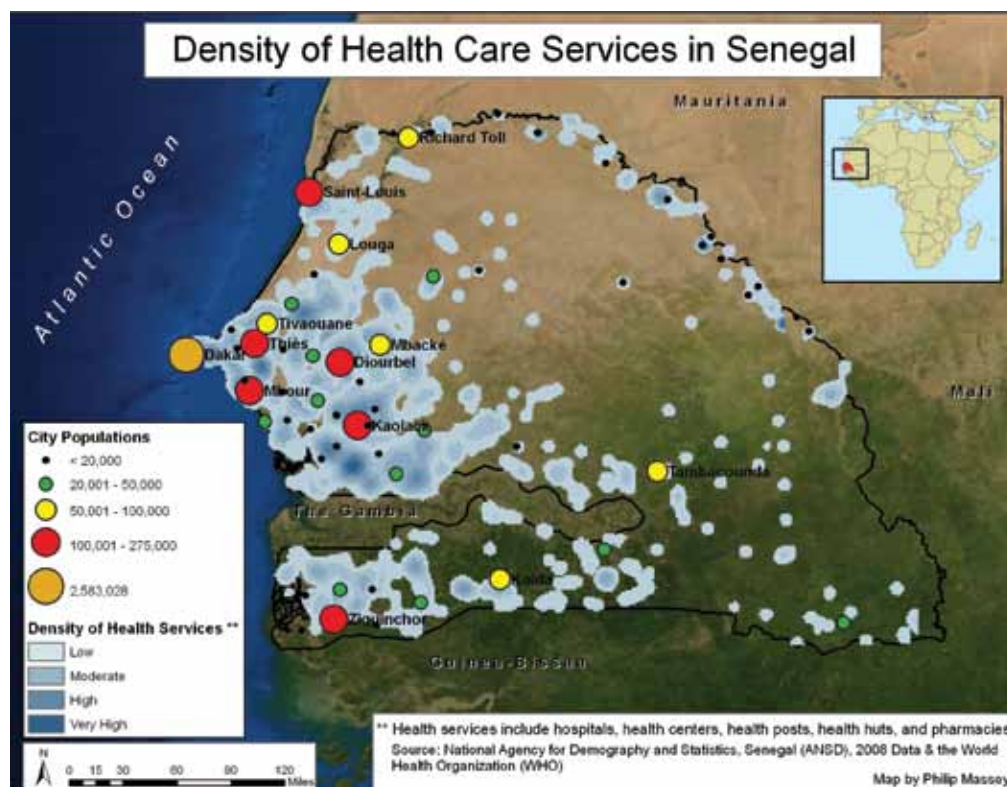
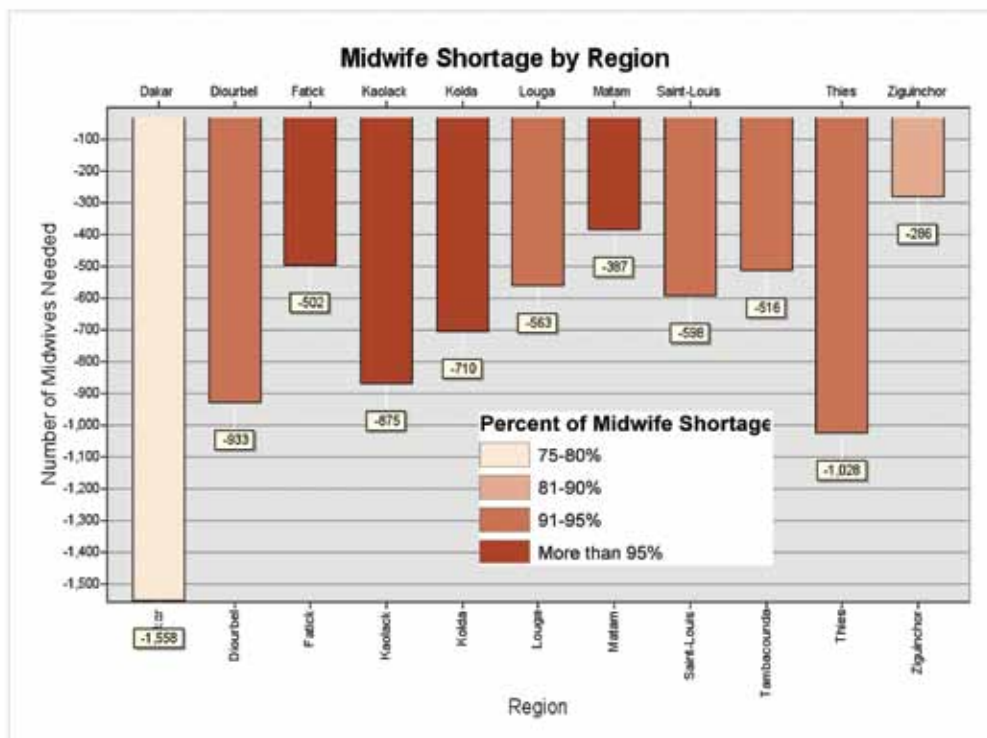


Figure 3 shows regional variations in the shortage of midwives. The four regions of Matam, Fatick, Kaolack and Kolda exhibit the greatest shortage of midwives. Conversely, the region of Dakar has the lowest percent shortage of midwives; however, based on WHO recommendations per population, Dakar has the greatest need in crude number of midwives needed, as shown in Figure 4.

Figure 3. Regional midwife shortage, Senegal, 2008

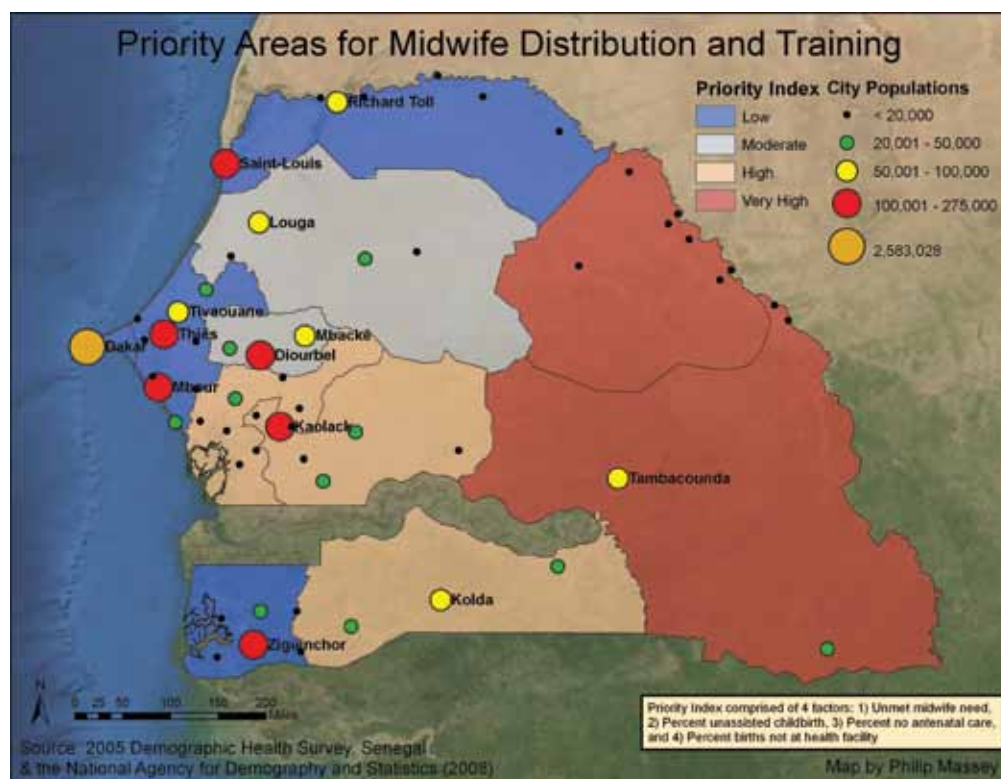


Figure 4. Number of midwives needed per region based on WHO recommendations, Senegal, 2008



To prioritize regional maternal health needs, an index was created using the three maternal health indicators as well as the percent shortage for midwives. Figure 5 shows the regional priority index for midwife expansion. Based on the midwife priority index, the regions of Matam and Tambacounda have the highest need and should be targeted for midwife recruitment and training.

Figure 5. Regional priority index for midwife workforce expansion, Senegal, 2008



Discussion

Expanding Health Worker Coverage: A Determinants Framework

Based on the imbalance of health professionals in Senegal, strategies that extend workforce coverage to reduce maternal health disparities and ultimately lower the maternal mortality ratio should be pursued. Expanding coverage will require focusing on recruitment, training, deployment and retention (Dussault and Franceschini 2006; Koblinsky et al. 2006). To be most effective, strategies should target areas of need and incorporate determinants for health practice in underserved areas (Wilson et al. 2009). Recruitment and training of health personnel should be tailored and targeted to maximize its potential for success, applying the findings of this investigation.

Recent studies have identified a set of factors associated with the distribution of the health workforce in the developing world (Dussault and Franceschini 2006; Lehmann et al. 2008; Wilson et al. 2009). These factors are individual factors, the organizational environment, the healthcare and educational system, the institutional environment and the socio-cultural environment (Dussault and Franceschini 2006; Wilson et al. 2009).

Individual factors, including birthplace and career aspirations, are strong predictors for practice in underserved and rural areas (Dussault and Franceschini 2006; Wilson et al. 2009); therefore, recruitment of health professionals from underserved settings may serve to mitigate the maldistribution of the workforce. Once health professionals have been recruited, factors in the organizational

environment, including management style, salary scales and career ladders, can serve as strategies to retain health workers (Dussault and Franceschini 2006; Fitzgerald and Carlson 2002; Golith 2000).

The healthcare and educational system focuses on the location of training facilities. Health workforce coverage can be expanded to underserved areas by developing more medical training facilities or satellite campuses in or around those settings (Wilson et al. 2009). The national government can also play an important role in shaping the institutional environment; decentralization of training and service delivery can improve local resources and increase regional authority in decisions related to health worker recruitment and retention (Koblinsky et al. 2006).

Lastly, socio-cultural factors are important determinants in the distribution of health professionals. Negative socio-cultural factors, including extreme conservative practices and fundamentalism, can limit the dispersal of health personnel, particularly that of midwives and other female health workers (Wilson et al. 2009). On the other hand, access to social, cultural, educational and professional opportunities can greatly increase the likelihood of a professional staying in a particular location (Dussault and Franceschini 2006).

These five categories provide a robust set of factors associated with the distribution of the health workforce in developing countries. However, despite its comprehensiveness, the list is not exhaustive but rather provides a framework from which to identify salient factors to be incorporated into program and policy development.

Recommendations for Moving Forward

To mitigate the inequitable burden of disease and maldistribution of human resources for health in Senegal as well as in other environments with similar needs and resources, this paper presents a set of five factors developed through prior research that are associated with health worker recruitment, training, deployment and retention (Dussault and Franceschini 2006; Lehmann et al. 2008; Wilson et al. 2009). Based on these factors as well as the data presented, “contextually competent” initiatives should focus on developing regional capacity to manage daily maternal health needs as well as emergencies.

A recent program implemented in Senegal entitled “Plan Cobra” is an example of an initiative targeting organizational and institutional change that gives health workers more control over tailoring their worker contracts (Zurn et al. 2010). This program allows health workers to negotiate for a specific post for a specific length of time. Along with increased negotiating power, the workers are entitled to special benefits provided by the government (Zurn et al. 2010). The program’s success (witnessed through the re-opening of 122 health posts) indicates that flexible contracting systems can have a role in reducing disparities in health worker distribution. Additional strategies that decentralize semi-professional medical training may also serve as a positive influence in reducing regional disparities.

Another organizational strategy that may expand health workforce coverage is the advent of career ladders (Fitzgerald and Carlson 2002; Golith 2000). This strategy could target trained birth attendants and midwives, promoting career advancement that includes increasing salaries, benefits and training based on service location. This strategy will not only improve the distribution of health personnel, but may also serve to improve the quality of services. This is evidenced through a study in Senegal that found that more training completed by a health worker is associated with a higher quality of service delivery (Bitran 1995).

Finally, strategies aimed at developing the Senegalese health workforce may leverage the increasing role of new technologies. A recent World Bank report on global indicators asserted that among African nations, Senegal was second only to Morocco in the amount of money spent on information and communication technologies proportionate to its GDP (World Bank 2010). The increasing access and utilization of digital and mobile technologies throughout Senegal can be used for training, capacity building and professional development of human resources for health through distance learning programs. As Internet centres continue to expand throughout Senegal, there is a need to expand distance learning and training programs for semi-professional health workers to mitigate the

imbalance of health professionals. Furthermore, increased access to technologies may help address socio-cultural factors, particularly if technologies can be used to connect isolated health workers to allow better information sharing and support (Thioune 2003).

Conclusion

The application of GIS in examining geographic health disparities and in identifying priority regions for targeted intervention provides a novel approach for community health profiling. These data provide another layer of information that is critical in identifying disparities and is often more easily understood by policy makers as well as for community members. With this information, both governmental and non-governmental agencies can implement strategies in areas with the greatest need for maternal health personnel.

However, although these data show spatial disparities in the number and concentration of midwives in Senegal, they do not provide information on the quality of services or accessibility of services by particular sub-groups. This limitation is acknowledged; the data only provide a crude picture of the distribution and infrastructure of healthcare professionals in Senegal.

More broadly, understanding the relationship between geography and health is important in developing and delivering contextually competent policy interventions. The significance of geography should not supersede the impact of individual factors on health outcomes. Rather, work should be conducted in concert to provide a holistic understanding of individual and population health.

Individual characteristics are no longer thought to be the sole contributor to health outcomes; rather, individuals operate within a broad social system with structural constraints and resources that affect personal development and functioning. In other words, only examining individual characteristics as the sole determinant of health is incomplete and inadequate, as it does not address larger structural conditions in which individuals function. As evidenced through this investigation on the distribution of health personnel and maternal health indicators, there is a significant structural component to need in Senegal. Specifically, poorer health outcomes are concentrated outside the capital region of Dakar. Targeted and tailored policies are necessary to address health worker imbalances as well as the disproportionate health burden experienced throughout Senegal. As research in this field continues to develop methods for prioritizing need, GIS should be considered an appropriate and useful tool for examining health within a geographic context.

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Making Non-discrimination and Equal Opportunity a Reality in Kenya's Health Provider Education System: Results of a Gender Analysis

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Abstract

IntraHealth International's USAID-funded Capacity Kenya project conducted a performance needs assessment of the Kenya health provider education system in 2010. Various stakeholders shared their understandings of the role played by gender and identified opportunities to improve gender equality in health provider education. Findings suggest that occupational segregation, sexual harassment and discrimination based on pregnancy and family responsibilities present problems, especially for female students and faculty. To grow and sustain its workforce over the long term, Kenyan human resource leaders and managers must act to eliminate gender-based obstacles by implementing existing non-discrimination and equal opportunity policies and laws to increase the entry, retention

and productivity of students and faculty. Families and communities must support girls' schooling and defer early marriage. All this will result in a fuller pool of students, faculty and matriculated health workers and, ultimately, a more robust health workforce to meet Kenya's health challenges.

Background

Gender equality in human resources for health means that women and men have an equal chance of choosing a health occupation, developing the requisite skills and knowledge, being fairly paid, enjoying equal treatment and advancing in a career. When gender inequalities and discrimination operate in the workforce outside of the awareness of human resource managers, they may impede entry into health occupations or contribute to attrition, absences from work, lower productivity, poor quality of care, poor health and low morale of health workers. In addition to being violations of employees' rights at work, gender inequality and discrimination result in a limited pool of formal and informal health workers to deal with today's health and development challenges (Newman 2010). Human resources leaders and managers in pre-service and service settings must be aware of and eliminate gender-based obstacles to entry, retention and productivity of students and faculty and, ultimately, of service providers in the health workforce.

The Government of Kenya is committed to improving accessibility and equity of essential health-care services. Kenya has established critical and ambitious targets for providing health services to its population, set forth in its policies, strategic frameworks and operational plans (see box). Achieving these service targets requires a well-managed, equitably distributed health workforce with appropriate skills.

Key Kenyan Frameworks

- Vision 2030 plan
- 2010 Proposed Constitution of Kenya
- National Policy Framework (1994–2010)
- National Health Sector Strategic Plan (NHSSP) II (2005–2010)
- NHSSP II Mid-term Review (2007)
- Kenya Essential Package for Health (2005–2010)
- e-Health Ministries' Strategic Plans (2008–2012)
- Ministerial Annual Operation Plans
- Employment Act of 2007
- United Nations Millennium Development Goals (2015)
- 2000 Gender and Development Policy

To address overall human resources challenges, the Ministry of Medical Services and the Ministry of Public Health and Sanitation developed the National Health Sector Strategic Plan (NHSSP II) (2005–2010), which spells out strategies to improve health services delivery and reverse declining health outcomes. To make progress, all health cadres must be prepared to perform and adapt to changing situations in the workplace at various service levels outlined in the Kenya Essential Package for Health. Understanding the performance of education systems requires consideration of all factors that influence performance, not merely provision of knowledge and skills. Therefore, the ministries of health (MOH), with support from the US Agency for International Development (USAID)–funded Capacity Kenya project, led by IntraHealth International, and in collaboration with a multi-sector stakeholder technical working group, conducted a performance needs assessment (PNA) in 2010. The PNA assessed health workers' competencies to deliver health services at different health system levels and the educational and training systems' capacities and gaps. One of these gaps was equal opportunity and treatment for women and men with respect to education, occupation and

employment in the health provider education system in the context of Kenya's strategic planning, equal opportunity and gender policy environment.

Kenya's Gender Equality Policy Environment

Understanding barriers to equal opportunity, access and treatment in pre-service education will increase entry into and retention in health delivery systems and ultimately yield a more robust health workforce to meet Kenya's health challenges. Kenya's National Gender and Development Policy establishes clear expectations regarding enrolment and retention in "women and men-friendly institutions" (Republic of Kenya 2000). There is also a supportive, evidence-based policy environment in the labour sector. Kenya has ratified the International Labour Organization (ILO) conventions on equal opportunity and non-discrimination in employment and occupation (C.111), human resources development (C.142) and equal remuneration (C.100); it may also soon ratify conventions related to maternity protection (C.183) and family responsibilities (C.156) (International Labour Organization 2011). Kenya's 2007 Employment Act states: "an employer shall promote equal opportunity in employment and strive to eliminate discrimination in any employment policy or practice," specifically acknowledging and prohibiting pregnancy discrimination and sexual harassment (Republic of Kenya 2007: 12-13). Importantly, it recognizes the distinctions between direct and indirect discrimination, which are relevant for this analysis. Direct or indirect discrimination against women, associated with pregnancy, marital status and family responsibilities, often results in occupational segregation and wage discrimination. Finally, the Proposed Constitution of Kenya states that "Women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres" and

"To give full effect to the realization of the rights guaranteed under this Article, the State shall take legislative and other measures, including affirmative action programs and policies designed to redress any disadvantage suffered by individuals and groups because of past discrimination" (Republic of Kenya 2010: 24).

Key Concepts

Direct discrimination occurs if an individual or group is treated less favourably than another in comparable circumstances because of a particular attribute, such as age, disability status or sex. This means that factors unrelated to merit, ability or potential of the individual or group are used as an explicit reason for excluding or otherwise discriminating against them. This form of discrimination tends to be more obvious, such as a student experiencing sexual harassment or a married employee being told she cannot be considered for a promotion because it is expected that she will be taking pregnancy leave. Some forms of direct discrimination may not be evident, such as when employers offer less favourable remuneration packages on the basis of race or sex. However, in some cases, a policy, rule, condition of work, procedure or practice may seem fair and neutral because it applies to everyone, though it can only be complied with by a higher proportion of people without an attribute or personal characteristic, such as age, sex or disability status (International Labour Organization 2006). An example of this would be that all tutor consultation times for a subject are held after 5 p.m. While this requirement applies equally to all students, it may have a disproportionate (negative) impact on students with family responsibilities. (In the United States, this would be called "disparate impact"). The requirement may therefore amount to indirect discrimination (Anti-Discrimination Commission 2007). This is a serious problem for workforce development and retention because it is typically unintentional and more difficult to recognize than direct discrimination.

In this report, the term *gender discrimination* refers to "any distinction, exclusion or restriction made on the basis of socially constructed gender roles and norms that prevents a person from enjoying full human rights" (World Health Organization 2001: 43). These gender roles and norms are often associated with the biological characteristics and functions that differentiate women from men (e.g., pregnancy, childbirth or breastfeeding). Gender discrimination also includes gender

beliefs and stereotypes that result in sexual harassment and occupational segregation. These gender-related distinctions, exclusions or restrictions are typically experienced more by women than men in the workforce and can result in a negative educational or employment outcome.

In 2006, the President of the Republic of Kenya issued a decree ... 30% of all recruitment, appointments and promotions in the public sector must be women.

Affirmative action is “a legal policy requiring employers to seek out skilled women and minorities and place them in valued jobs, educational programs and positions of authority in greater numbers than would otherwise occur” (Ridgeway and Correll 2000: 114). In 2006, the President of the Republic of Kenya issued a decree on affirmative action that 30% of all recruitment, appointments and promotions in the public sector must be women. This directive was intended to create equity in employment of men and women and promotion of women to senior positions in the public sector, including education. The purpose of affirmative action in Kenya is to address past discrimination by increasing the chances for marginalized groups such as women to participate in political, social and economic decision making and policy implementation. Affirmative action is not considered discrimination by the ILO, in Kenya's 2010 Proposed Constitution or in the 2007 Employment Act. However, enactment of legislation to implement affirmative programs and policies is surrounded by controversy in Kenya's male-dominated Parliament. One source of this controversy may be traced to culture and tradition, wherein “The subject of gender (equality) has ... been misconstrued to mean replacing patriarchy with matriarchy or privileging women over men” (Kimani 2006).

Gender Analysis Method

This article focuses on an analysis of PNA data that identified gaps in equal opportunity and treatment for women and men with respect to training, education, occupation and employment in Kenya's health education system. Data were collected through focus group discussions, key informant interviews and an analysis of student and faculty numbers in various programs or faculty positions, respectively. During the PNA, various actors in health provider education were asked to share their views and understandings of the role of gender in the system. Students were asked whether they felt their learning opportunities were limited by gender and, if so, how. Respondents from the MOH and regulatory bodies, as well as school directors were asked to describe gender-based challenges that students face in the health training system. They were also asked how gender affects faculty recruitment, retention and advancement, and how to improve gender equality for both students and faculty. The analysis was not based on systematic measurement of discrimination with respect to how students and faculty are selected or hired or how students and faculty are treated in the health education system.

Results

When asked to respond to the statement, “My learning opportunities are limited by my gender,” 87% of students disagreed. However, twice as many female as male students perceived learning opportunities as more limited by gender. Gender issues raised in student focus groups included the following perceptions: health training is not flexible with respect to age and family constraints; female clients do not want to be treated by male students; some female students left in male wards alone, especially at night, fear that male patients will attack them (a preceptor in a public mid-level training institution also expressed this perception); male candidates are not encouraged to pursue nursing; female candidates are favoured in nursing school admissions; and male students are given opportunities to learn more complex procedures than female students (e.g., males catheterize; females make beds). In the next section, we report on occupational segregation in the student and faculty bodies, sexual harassment, pregnancy and family responsibility discrimination, and then offer conclusions and recommendations.

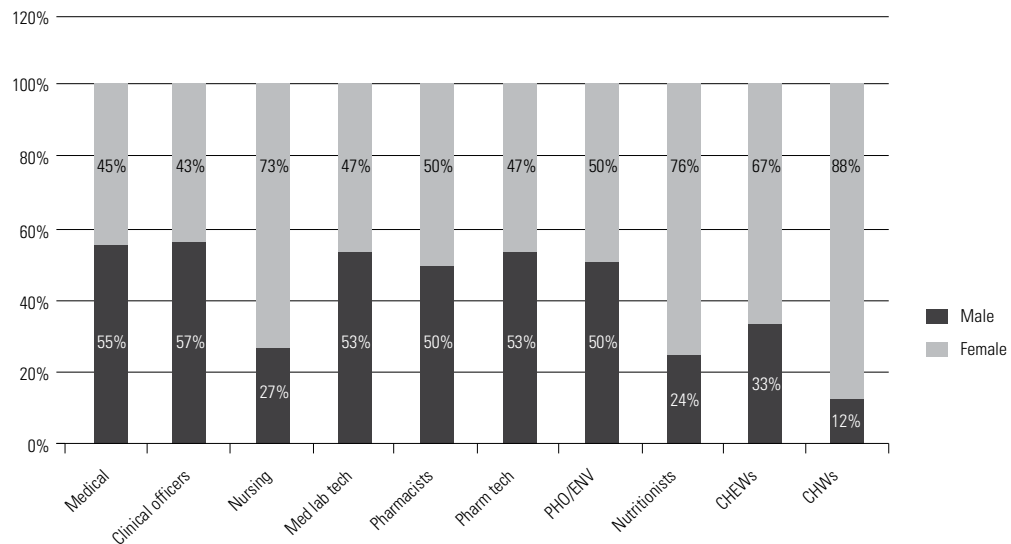
Occupational Segregation

Findings suggested occupational and task segregation in some training institutions. Occupational segregation by gender is a pervasive and widely documented form of gender inequality in which women and men are expected to work in culturally defined occupational roles (Anker 1997; Anker et al. 2003). Women are concentrated in marginal, lower-status, and/or less-well-paid caring occupations, such as nursing and teaching, horizontally segregated from men who are typically concentrated in technical, managerial or strength-based jobs such as physicians, managers and police officers.

Student Body

Because the qualitative results suggested occupational and task segregation, the PNA team analyzed the quantitative data to assess patterns of occupational segregation. Descriptive data show that within 42 training institutions sampled, and the 15,798 currently enrolled students based on total enrolment reported by sampled institutions, there was unequal distribution by gender in various career tracks (e.g., medicine, nursing, nutrition). Figure 1 shows differences in the concentration of female and male students in key occupational programs. For example, there were more women enrolled in nursing (73%), nutrition (76%), and community health worker (CHW) (88%) programs, while more men were enrolled in medicine (55%) and clinical officer (57%) programs. Percentages are based on data from those schools that provided a breakdown.

Figure 1. Student enrolment by gender and cadre



CHEWs = Community Health Education Workers; CHWs = Community Health Workers; PHO/ENV= Public Health Officer/Environmental

The data suggested that some occupations were “female jobs,” with the most striking segregation appearing in the nursing and CHW occupations. A regulatory body director and a school director perceived this segregation, observing “Nursing is seen as a woman’s occupation,” and that a man is “lowering his dignity by taking it up.” This position is consistent with findings of other research. For example, as early as 1987, researchers noted that performing jobs that are seen as “women’s work” is considered demeaning to men and their manhood (Sen and Grown 1987). This sentiment has been documented more recently in Lesotho (Newman et al. 2011), in Soweto, South Africa, and Tanzania (Peacock and Weston 2008) and in Latin America, where Chilean men reported that they

clandestinely carried out tasks associated with women so as not to “ruin” their reputations (Barker 2009). Occupational segregation in health caregiving – whether formal or informal – usually reflects gender beliefs of male primacy and the denigration of jobs traditionally performed by women (Newman et al. 2011).

Faculty

Figure 2 shows that there are more male faculty (285) than female faculty (173) in 20 nursing schools that reported faculty and staff levels. This may seem surprising, given the female profile of the nursing occupation, but the finding is consistent with other research that found teachers are more likely to be men than women as one progresses from primary to tertiary level (International Labour Conference 2009).

Figure 2. Number of faculty by position and gender in 20 nursing-only education institutions

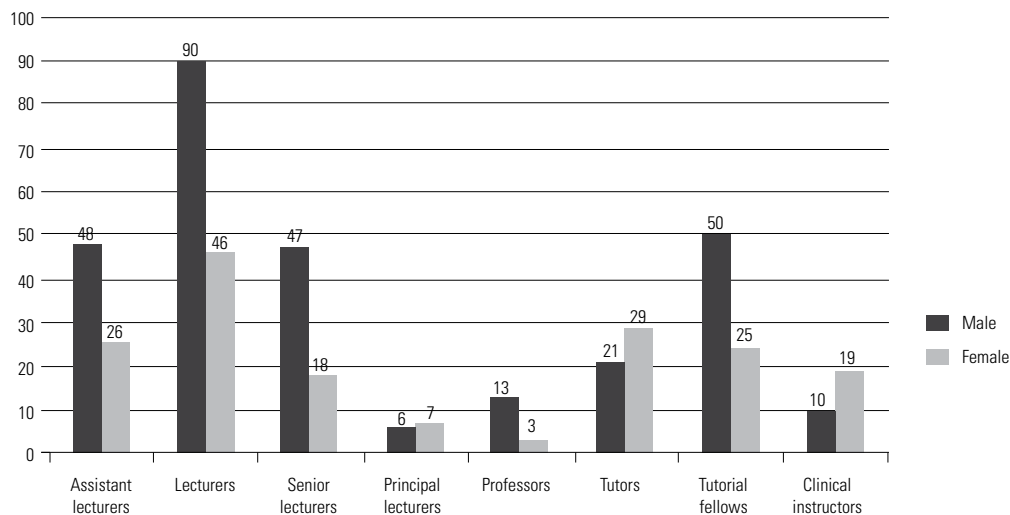
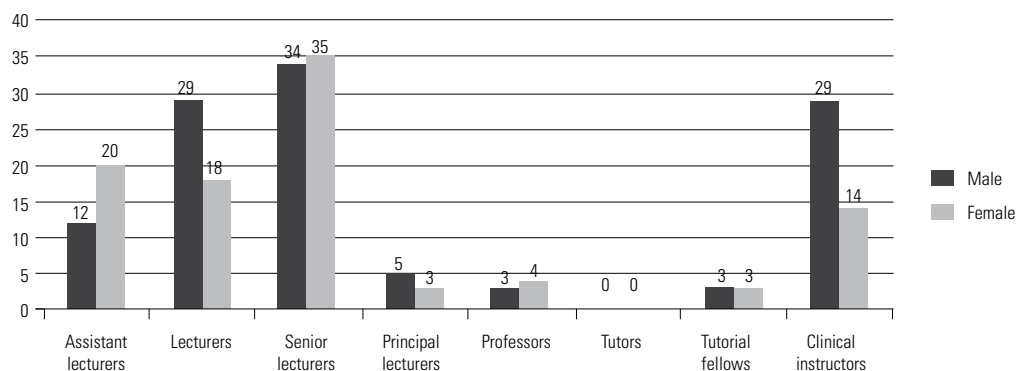


Figure 2 shows men more heavily concentrated in five of eight faculty positions such as lecturer (66% versus 34%), senior lecturer (72% versus 28%) and professor (81% versus 19%). Women hold more tutor (58% versus 42%) and clinical instructor (66% versus 34%) positions.

Figure 3 shows that in four clinical officer training institutions (*Clinical Officer* refers to a health provider who, having successfully undergone a prescribed course of training in clinical medicine in an approved training institution, holds a certificate issued by that institution, and is registered under the 2009 Clinical Officers Act), men are more concentrated in lecturer (62% versus 38%) and clinical instructor (67% versus 33%) positions. Women are more heavily concentrated in the assistant lecturer position (63% versus 37%). The other positions seem to be “equal opportunity” jobs.

In summary, PNA results suggest some “male” and “female” occupations in the Kenyan health workforce. The PNA provided a cross-sectional snapshot and did not capture hiring trends. Thus, it would be useful to examine trends in recent hiring to ascertain whether the gender imbalance in faculty positions is improving, remaining constant, or becoming further segregated. Likewise, it would be useful to examine trends in student enrolment by gender. In addition, the PNA did not collect data on vertical segregation in the workforce such as the percentage of men and women in management, leadership and administration jobs. This information may be useful in the future to training institutions and to nursing and medical councils that pursue equality of opportunity in career advancement.

Figure 3. Number of faculty by position and gender in clinical officer-only education institutions



Sexual Harassment

In the Kenya 2007 *Employment Act*, sexual harassment encompasses both quid pro quo and hostile environment sexual harassment (Republic of Kenya 2007). Kenya's *Sexual Offences Act* addresses quid pro quo sexual harassment in educational institutions (Republic of Kenya 2006).

Students' Experience of Sexual Harassment

Students were asked to describe gender-related challenges in the learning environment, including sexual harassment. Two categories of sexual harassment have been recognized in the laws and policies of several nations: (1) hostile environment, which is conduct of a sexual nature that creates an intimidating, hostile or humiliating work environment for the recipient such as to change the terms and conditions of work; and (2) quid pro quo, where a person's rejection of, or submission to, such conduct is used explicitly or implicitly as a basis for a decision that affects that person's job. Despite a clear legal framework, female students participating in focus group discussions reported incidents of quid pro quo sexual harassment in educational institutions. Some female students reported harassment by male faculty, especially during exams, stating "there are 'sex engineered grades' whereby a male lecturer will require a student to perform sexual favours before being awarded a certain grade." Participants reported that some instructors requested female students to "give in" before they are assisted in their work and if the student did not comply, she would be given a failing grade. Female students who reported being harassed by male tutors also stated that they perceived there was no avenue for recourse. In some cases, students (in addition to school directors) reported having to pay a "demotion fee," which most students cannot afford. Male participants reported being involved in "love triangles" and being bullied or harassed by male lecturers who were interested in the same female students. Female students who were harassed were perceived by some as having an unfair competitive advantage, being favoured by male tutors and obtaining grades they would not otherwise have achieved, as when a male student remarked, "Where there are ladies, favouritism must be there ... a girl is favoured since she can go to the extent of using herself."

Evidence from this assessment suggests that quid pro quo sexual harassment by male faculty is a problem for female students and constitutes unequal and detrimental treatment of women and an obvious roadblock to equal opportunity. Also, shortly after PNA data collection ended, a news article appeared reporting a wider systemic problem in that more than 1000 teachers in mostly rural primary schools had been fired for sexual abuse in the previous two years (BBC News Africa 2010).

Pregnancy, Family Responsibilities and Discrimination

Discrimination based on pregnancy consists of exclusions, restrictions or distinctions made on the basis of pregnancy, childbirth or related conditions. It often includes unwillingness to hire, promote or retain female students or workers who may get pregnant and leave the workforce or require maternity leave

and benefits (Newman 2009). Pregnancy discrimination may also be thought of in a larger category called "family responsibilities discrimination," in which discrimination occurs against workers who have family caregiving responsibilities, such as mothers and fathers of disabled children, and workers who care for family members (WorkLifeLaw 2011). Indeed, it is difficult to separate the two forms of discrimination, since exclusion from school or a job may be linked to the actual pregnancy, as well as to the risk of pregnancy and an expectation of subsequent caregiving responsibilities.

Students' and Faculty Experience of Pregnancy and Discrimination

During focus group discussions with students, there were reports in six of the 15 focus groups of the disruption to female students' studies caused by pregnancies. In some cases, students mentioned that female students had been forced to leave educational institutions or had experienced demotion and/or disruption of their studies because of family responsibilities. Quotes from students illustrate both the disruption and elements of discrimination:

"When the female student becomes pregnant, the attitude of the male lecturers is negative towards them."

"When [female nursing students] get pregnant, they will be given time off to deliver and nurse the baby for a few months, and then come back, but they have to pay the demotion fee of Ksh 50,000 (about 600 US dollars) on return."

When asked about gender-based challenges that students face, 21 of 37 school directors mentioned pregnancy. Twelve of these suggested that pregnancy was "not a problem now" because "previously girls who got pregnant could not come back but now [they] do." Nine of these directors indicated, however, that pregnancy continues to be a major cause of disruptions for female students. Illustrative perceptions include:

"Girls who are pregnant have to leave when delivery is due, while boys who impregnated them continue with studies" (school director, public middle-level institution).

"They become pregnant, and this hampers their learning and continuity with studies, and it affects practical lessons" (school director, public tertiary institution).

Faculty may also face discriminatory practices. As one mid-level school director noted, "They would rather employ a male lecturer than female because females need a lot of duty (i.e., maternity leaves)." Maternity leave poses long-term institutional challenges. A public institution school director notes that "Female lecturers go for long maternity leaves and this provides some sort of shortages."

Students' and Faculty Experience of Family Responsibilities

The qualitative data suggested that some students and faculty face challenges related to family responsibilities, which may constitute direct or indirect discrimination. Female students stated that they had to manage family responsibilities, such as household duties and childcare, while also studying full-time, implying that they could not pursue educational opportunities under the same conditions as their male counterparts (or female students without children). As one female tertiary student noted:

"We have different roles. If we go home the two of us, I make sure the baby is well fed, then asleep, husband taken care of ... that affects my concentration ... while [when] he goes home he expects food [to] be ready."

The qualitative data suggested that balancing work and family obligations was also perceived as problematic by faculty, highlighted in the quotes below:

"As a woman, domestic responsibilities become a major hindrance to advance my training because I have to seek consent from my spouse to go back to school" (clinical preceptor, public middle-level institution).

“In most cases, women in this facility have not been interested in precepting. Most times precepting is conducted by men. Most theories classes (i.e., those taught in classrooms as opposed to practicum/placement sites) start at 2 p.m., but most women instructors would be breaking off for the day. So women find it inconveniencing to come back in the afternoon because they are busy preparing food for their families” (male clinical preceptor, rural health training facility).

A ministry respondent remarked that “women are disadvantaged because of commitments in caring for family.”

Conclusions

These results add further evidence that equal opportunity for education, occupation and employment are constrained by gender in Kenya's health provider education system, including forms of discrimination based on pregnancy and family responsibilities, sexual harassment and occupational segregation (Kabubo-Mariara 2003; Onsongo 2006). PNA results are consistent with other available data from Kenya, including the 2000 National Gender and Development Policy, the National Commission on Gender and Development's October 2006 Desk Survey on Gender Issues in Kenya, and findings from other studies. The conflict between life cycle events and school or work requires a more family-friendly perspective in health training policy and planning. It also appears that some willing male candidates may experience cultural and institutional obstacles to entering nursing and other “female occupations.” Evidence of these gender constraints points to the need to at least promote non-discrimination and equal opportunity and treatment in health provider education institutions with respect to specific barriers to entry, performance and retention of students and faculty (Gregory 2003). However, some believe a strict equal opportunity policy holds mothers to a model of competition in which they cannot equally compete. It is probable that existing laws have not been operationalized or disseminated effectively. Implementing non-discrimination and equal opportunity policies is a step toward a more equitable training system and, ultimately, a more robust health workforce. However, gender discrimination, whether cultural or situational, begins in the family and community. Girls must be able to attend school, have time to complete homework and get unbiased vocational counselling.

Recommendations

Gender inequality and educational disadvantage and poverty are key hindrances to achieving desired outcomes in healthcare provision in Kenya. These hindrances are experienced before students enter the health education systems and persist within the education system. PNA findings suggest the need to take policy, program and community action on occupational segregation and sexual harassment, and to further study the existence of and intersection between pregnancy and family responsibilities discrimination. There are five broad recommendations:

- Health and education ministries, regulatory bodies and training institution leaders should reach consensus on how equal opportunity and non-discrimination should be integrated into the health provider education system.
- The MOH should undertake a situational analysis to identify existing equal opportunity policies, and if they exist, create sector-wide awareness.
- Health ministries should convene a task force to develop a plan to develop, revise and implement non-discrimination and equal opportunity policies.
- These ministries should sponsor further research to document the forms and severity of sexual harassment, family responsibility and pregnancy discrimination.
- The Ministry of Education should build tomorrow's health workforce starting in primary and secondary schools.

Table 1 summarizes specific recommendations to health training institutions for making equal opportunity a reality.

Table 1. Recommendations to health training institutions for making equal opportunity a reality

<p>Occupational Segregation</p> <ul style="list-style-type: none"> • Eliminate gender stereotypes in curricula. • Develop institutional recruitment, admission and retention policies to assure non-discrimination and equal opportunity to pursue and advance in all occupations. • Promote equality in recruitment, targeting male entry into “female” health occupations and vice versa. • Provide dormitories for both male and female students. • Offer social support to men and women who choose “non-traditional” health occupations. • Ensure that male and female students demonstrate the same competencies prior to completion of training. • Develop a communication strategy to change societal beliefs about essential male and female traits, the relative value of “women’s work,” and men’s equal sharing of family responsibilities. • Analyze the reasons for the concentration of men and women in certain faculty positions.
<p>Sexual Harassment</p> <ul style="list-style-type: none"> • Develop or apply policies and programs to protect students from sexual harassment. • Develop new, or enforce existing, codes of conduct that define and prohibit sexual harassment, including termination of faculty members who sexually harass students. • Orient students and faculty on sexual harassment. • Create a “safe space” to anonymously report sexual harassment without fear of reprisal. • Assess risk of sexual harassment and assault in hospital wards; implement prevention and response measures accordingly.
<p>Pregnancy and Family Responsibility Discrimination</p> <ul style="list-style-type: none"> • Through policies, enable students and faculty with family responsibilities to engage in education and employment without discrimination and, to the extent possible, without conflict between work and family responsibilities. • End punitive policies or practices that target pregnant female students, and introduce alternatives to reduce dropout rates. • Encourage male faculty and students to take paternity leave to relieve the burden of family responsibilities, taking into account cultural factors and expectations in educational and certification requirements such as bridging programs. • Engage with professional bodies in advocacy to ratify ILO [International Labour Organization] conventions to ensure that maternity and family responsibilities are not sources of discrimination in access to education and employment. • Assure unbiased vocational counselling in high school. • Engage families and communities in support of girls’ education and delayed marriage.

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Will They Stay or Will They Go? Putting Theory into Practice to Guide Effective Workforce Retention Mechanisms

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Abstract

Policy makers in healthcare in all countries are faced with challenges of designing and implementing strategies that will achieve three major and essential goals: produce enough health workers for a cost-effective skills mix to deliver high-quality care; attract trained health workers into the workforce; and deploy health workers where they are most needed and keep them there. Yet these apparently straightforward strategies are seldom wholly successful, and there is little clear evidence to guide the frustrated policy maker.

This paper explores the reasons why it may be so difficult to come up with strategies that guarantee success and looks at what we do know about attracting, retaining and motivating health workers to get them and keep them working productively where they are most needed.

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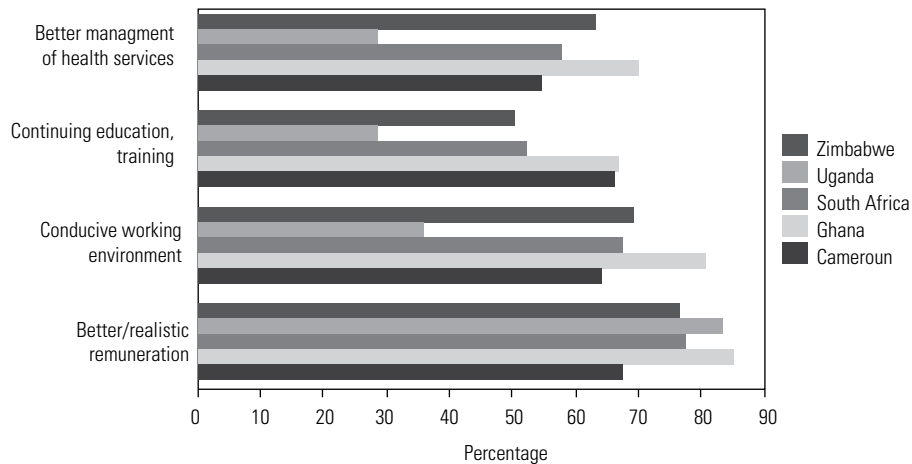
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Work and Motivation

The psychology of motivation as it relates to work is complex and has been studied since the beginning of the 20th century. Motivation (in the context of work) is defined as “the individual’s ability to exert and maintain an effort towards organizational goals” (Franco et al. 2002: 1255-6). What complicates the formulation of strategies to motivate workers is that motivation and job satisfaction are two different things. When someone is satisfied with their job, they are not necessarily motivated to perform well. In a seminal study in the 1960s, Herzberg demonstrated that different factors result in job dissatisfaction and motivation (originally published in 1968 and republished in Harvard Business Review Book [HBRB] 1990). Herzberg called this the “Two-Factor Theory.” The first set of factors do not necessarily lead to job satisfaction. However, the absence of these “hygiene factor[s]” (using Herzberg’s original terminology) may lead to job dissatisfaction. These include company administrative policies and behaviours, relationships with supervisors, working relationships and compensation. However – and this is the heart of the complexity of the issue – modifying these factors did not increase motivation but reduced job dissatisfaction. Factors that increased motivation, or motivators, included achievement, recognition, responsibility and the worthwhile nature of the work itself.

The implication of Herzberg’s theory, which has been tested by others in 12 countries in the intervening years (Vroom 1990), is that problems of workforce retention will have to be addressed by changing factors different from those that lead to poor performance, though the two sets of factors are linked. Herzberg’s Two-Factor Theory is supported by many studies of health worker motivation undertaken in the past decade. For example, Awases et al. (2002) questioned health workers in five countries about the reasons why they were considering leaving their jobs. The four most highly rated reasons are shown in Figure 1.

Figure 1: Most highly rated reasons health workers were considering leaving their jobs (Awases et al. 2002)



All of the factors listed are aligned with satisfiers, that is, their absence can lead to dissatisfaction. Changing them for the better – increasing pay, for example – can result in better retention of workers, though not necessarily better performance at work. However, there are likely to be overlaps with motivating factors that derive from professional development and a good working environment. In essence, decreasing the dissatisfiers will mean having a more satisfied workforce but not necessarily one that is satisfied enough to be motivated or feel valued.

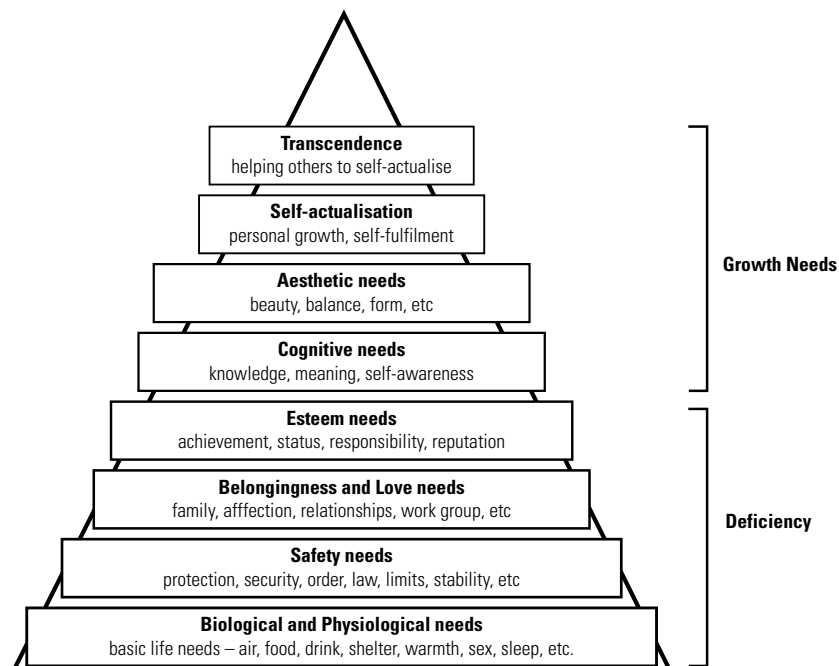
What Herzberg theorized – and what remains important in the health sector today – is that even if work-related satisfiers are addressed, so that working conditions are good and pay is adequate, the individual motivation of health workers is what will drive productive performance. Motivation is influenced, too, by perceptions of equity in the workplace. An individual will consider that he is treated fairly if he perceives the ratio of his inputs to his outcomes to be equivalent to those around him at the same level. So it is not only salary level that is important in motivation, but also how it relates to that of peers.

In many low-income settings, studies have shown that the time health workers spend on productive activities may be just over half of their working day (Adano et al. 2008; Kurowski et al. 2007; Ruwoldt et al. 2007). The reasons for poor productivity among health workers may be related to poor job design – for example, Kurowski et al. cite absence of patients in rural clinics, which means that for long periods health workers have nothing to do. Another reason may be having too few health workers, which results in burnout, stress and thence poor motivation among those who are having to work harder. Tackling the complexities of unproductive time could result in a potential productivity gain of 20%, or one day a week, from the existing health workforce. This is important where there are shortages of health workers; increasing the number of staff through better retention is an important strategy, but so is ensuring that existing staff are working productively to achieve the goals of the health system. Hence, for the health policy maker there will be greater efficiencies in tackling both the environmental factors that influence job dissatisfaction, such as poor conditions of work or bad job design, together with the individual motivators, such as equity, that influence health worker productivity.

Where to Begin?

The key to unravelling all of these factors lies in understanding another theorist, Maslow, who proposed a hierarchy of human needs based on two groupings: deficiency needs and growth needs (see Figure 2).

Figure 2. Hierarchy of human needs (1990s eight-stage model based on Maslow)



Within the deficiency needs, each lower-level need must be met before moving to the next higher level, and an individual will only act on growth needs if deficiency needs are met. (See Huitt 2007 for a discussion of Maslow's hierarchy.) For a health worker, this means that when basic deficiency needs are met – needs such as food, water, housing and a sense of belonging – there will be an ability to learn and grow. Providing a health worker with no or poor housing, or posting someone to a remote area where they have no family close by, can result in a lack of motivation to perform well, be productive or learn anything new. In addition, it means that there will be problems with keeping health workers, as the deficiency needs align with Herzberg's satisfaction factors.

Putting Theory into Practice

The lessons from these classical studies remain relevant to today's health policy maker. Firstly, health workers will neither be retained nor be maximally productive unless their basic needs are being met. Having a basic need met is not a motivational incentive: it is a factor that reduces job dissatisfaction.

Basic needs will include a salary sufficient to pay rent, utilities and food bills, and hence the salary has to be paid on time and for every pay period. In addition, using Maslow's hierarchy, basic needs will include safety at work and having relationships – family or otherwise – that are meaningful, along with higher-order needs such as being able to exercise responsibility and having a sense of achievement and some status in society. Though it may be tempting to think of the latter measures as motivators, they are not; they are satisfiers, and their absence will result in job dissatisfaction and probably attrition. Their presence will create work satisfaction and a foundation upon which motivators can be introduced.

Dambisya (2007) comments on the swift and dramatic effect that incremental salary increases can have on recruitment and retention. In Swaziland, a 60% salary increase resulted in many workers immediately opting to stay in the public sector, while in Malawi a 52% pay increase for health workers stopped them from leaving their posts within a few months. What characterizes these particular cases is that they come from the public sector in low-income countries, where public sector salaries may be too low to pay for a family to live in comfort. This is why Herzberg's theory remains important – increasing salary may only reduce dissatisfaction rather than increase motivation. A huge salary increase may keep people in the public sector but not motivate them to work any harder. In addition, raising salaries to this extent is not without problems for the policy maker. Clearly it is an expensive option to implement and maintain, but it is also a strategy that has to be reviewed constantly to ensure that it continues to meet basic needs with inflation and increases in living costs. At the same time, there is a danger that financial incentives can become dissatisfiers if not carefully handled; if, for example, I get a \$1,000 bonus this year and a \$500 bonus next year, I have received bonuses for two years. But because the second bonus is less, it can seem like a pay cut and therefore become demotivating.

The challenge for the thoughtful health-workforce-strategy developer is to understand what is causing dissatisfaction and demotivation in the health workforce and begin by meeting basic needs, then to review this strategy regularly to ensure that it is still working well. Enough of these basic needs have to be met for motivators to be effective (McCaffery et al. 2009).

Combinations of Satisfiers and Motivators

Most studies of health workers' views on their work reveal a combination of factors that cause both dissatisfaction and loss of motivation. In a study in Mali, Dieleman et al (2010) surveyed and interviewed more than 400 health workers to elicit what motivated and demotivated them (and these were the terms the researchers used). Table 1 shows the top factors identified in both categories.

Table 1. Health worker motivators and demotivators (Dieleman et al. 2010)

Motivators	Demotivators
Feeling responsible	Lack of materials
Increase in salary	Lack of recognition
Receiving training	Difficult living conditions
Being held accountable	Lack of a job description
Being appreciated	Subjective performance appraisal
Promotion	Poor management
Getting incentives	Partner living far away
Team spirit	Poor functioning of [local administration]
Having a partner living near the workplace	Living far from an urban centre
Having good colleagues	Being far from the place where decisions are made

Developing successful combination strategies requires a reduction in the dissatisfiers as well as creating a motivating environment. Meeting basic needs is essential, as discussed in the previous section; pay increases, being with family, being appreciated for work and having tolerable living conditions would all fall into this category. Salary features in the factors identified by health workers as being motivating. Without being able to ask more questions, it is difficult to know whether this answer was because salary was insufficient to meet basic needs. But would an increase in salary have meant only that people stayed in their job, rather than increased the level of their performance? In low resource settings, more investigation is needed to clarify the role that money plays in motivation.

Other factors identified as motivating, such as being held accountable, being appreciated and feeling responsible resonate strongly with findings from Herzberg's studies (Vroom 1990). Herzberg cautioned managers against "loading jobs horizontally," by which he meant giving workers more of the same tasks to do but without increasing their autonomy or control over their work, thus "increasing the meaningless of the job" (Herzberg quoted in HBRB 1990: 60). Instead, Herzberg suggests vertical loading, enriching jobs by increasing responsibility and accountability. Among the examples he gives are allowing assistants who write letters to be responsible for creating, checking and signing them; giving a worker more difficult and complex tasks to do, supported by training; allowing workers to become experts in one area by allocating that to them; and giving feedback directly to the worker on performance improvements. Interestingly, this aligns well with recent work by Pink (2010). He asserts that the conditions necessary for highly motivated workers are related to three factors: autonomy, as discussed above; mastery, by which he means being able to be creative and to show real excellence in performance; and flow, which refers to having clear goals and a sense of being able to accomplish them. Pink cites an example from a study of hospital cleaners, nurses, and hairdressers. It was found that some members of the cleaning staff at hospitals, instead of doing the minimum the job required, took on new tasks – from chatting with patients to helping make nurses jobs go more smoothly. Adding these more absorbing challenges increased these cleaners' satisfaction and boosted their own views of their skills. "By reframing aspects of their duties they helped make work more playful and more fully their own" (Pink 2010: 117).

What is needed to improve most health systems is a strong management system and encouragement of creativity and leadership. Sadly, in many low-income countries, management systems remain weak and leadership is not developed (Adano et al. 2008). Enriching jobs requires performance support, training and supervision, and managers able to do this are rare in low-income settings (and not all that common anywhere).

Moving Forward

So what can the policy maker, strategy developer and manager use from the theories and research? While there is a growing evidence base of what has been implemented to increase productivity and improve retention, the evidence is largely weak, as it has not been tested on a large scale, nor within different contexts and with varied populations. Certainty of success in designing retention strategies remains elusive, but, at the same time, the research that has been done for several decades does point to some conclusive findings. It is now clear that financial incentives cannot be a complete or a sustainable way of motivating health workers (Bennett and Franco 1999). A combination of incentives is needed that address basic needs, such as for housing, food, safety and affection, as well as the human need to be appreciated for work and to have interesting and meaningful work.

Progress has to be made incrementally (see Figure 3) and based on knowledge of what are the satisfiers and motivators in a particular context. There are now many methods available to survey health workers' motivation, including Discrete Choice Experiment (Jaskiewicz et al. 2010), which bundles and ranks preferences and may have predictive strength. But the real key is to ask health workers what influences their behaviour, no matter what tool is used. In itself, such a survey can be motivating, as it shows interest and concern for the health worker. But if nothing changes as a result of a survey, it can also be demotivating.

Figure 3. A sequence for incremental improvement (McCaffery et al. 2009)

- Low job satisfaction
 - Identify the main dissatisfiers (beyond salary)
 - Target specific incremental actions
- This gradually minimizes the dissatisfier, and over time turns it into a satisfier
 - Identify the main motivator(s) – soliciting health worker perceptions is helpful here
 - Target specific incremental actions to enable motivators to work
- Outcome: Improved retention and performance

Unfortunately, findings on successful implementation are missing from the research on health worker motivation. There are many assessments but few large-scale evaluated studies that have looked at the results of implementing changes based on the assessments. Stronger and more strategic human resources leadership capacity within ministries of health is needed to support better management to champion a strategic focus on satisfiers and motivators – to formulate the policies, shape the budgets and identify and help implement targeted improvements. As long as strong management is missing, there is little chance of large-scale implementation of changes.

The good news for policy makers, and those with the budgets to dispense, is that many strategies that will motivate health workers will not cost much financially. But these are perhaps the most important element of all for the health workers themselves: putting in place appraisal mechanisms to acknowledge excellence or delegating decision-making authority so physicians and nurses feel responsible, enriching their jobs and giving them importance and meaning.

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