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Rural Health Care Access and Policy in Developing Countries

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Abstract

Compared to their urban counterparts, rural and remote inhabitants experience lower life expectancy and poorer health status. Nowhere is the worldwide shortage of health professionals more pronounced than in rural areas of developing countries. Sub-Saharan Africa (SSA) includes a disproportionately large number of developing countries; therefore, this article explores SSA in depth as an example. Using the conceptual framework of access to primary health care, sustainable rural health service models, rural health workforce supply, and policy implications, this article presents a review of the academic and gray literature as the basis for recommendations designed to achieve greater health equity. An alternative international standard for health professional education is recommended. Decision makers should draw upon the expertise of communities to identify community-specific health priorities and should build capacity to enable the recruitment and training of local students from underserved areas to deliver quality health care in rural community settings.

INTRODUCTION

The World Health Organization (WHO) report *A Universal Truth: No Health Without a Workforce* was prepared for the Third Global Forum on Human Resources for Health held in November 2013 in Recife, Brazil. This report confirmed that there is a deficit in health care professionals all over the world, which is especially pronounced in rural areas of developing or low-income countries (21). Compared to their urban counterparts, rural and remote inhabitants experience lower life expectancy and poorer health status (6, 79). Socioeconomic differences, poverty, and lower levels of employment together with service-, resource-, and transportation-related imbalances result in the social exclusion of rural dwellers (1, 2, 10, 13, 39, 46, 52, 60, 65). Although the deficit in health professionals exists worldwide, nowhere is this deficit, number-wise and skill-wise, more significant than in rural areas (70, 71).

When developing a rural health policy, countries face major challenges in service delivery, human resources, governance, transportation, financing, communication, and in some regions corruption. In every country, the health status of rural dwellers is worse than that of their urban counterparts (6, 9, 15, 76, 79). Limitation in access to health care is a major contributor to this situation, particularly in low-income or developing countries (15, 46, 61, 71, 76, 95). Even in countries where the majority of the population lives in rural areas, the resources are concentrated in the cities (2, 9, 30, 51, 61, 76, 79, 88, 91, 95, 100, 101). All countries experience difficulties with transport and communication between rural areas and large population centers, and they all face the challenge of shortages of doctors and other health professionals in rural and remote areas (9, 13, 15, 22, 30, 31, 39, 46, 51, 61, 67, 74, 95).

Rural community health and health workforce planning, supply, and distribution have been widely discussed, and a growing body of literature defines and analyzes the key issues affecting access to and improvement of health services for diverse populations in rural underserved areas. Predominantly absent from these discussions is an exploration of the need to prioritize health workforce training programs throughout the educational pipeline (from undergraduate to continuing education and professional development) and to ensure the successful production of health workers within systems built on comprehensive primary health care, which includes public health (88).

The sub-Saharan Africa (SSA) region includes a disproportionately large number of developing countries compared to other global regions, and it shows a growing gap between health workforce demand and supply. Consequently, this article explores the situation in SSA in depth as an example of the limitations of rural health care access and policy in developing countries. The framework that guides this exploration consists of the following concepts: access to primary health care services, sustainable rural health service models, rural health workforce supply, and policy implications as exemplified by the success or failure of the initiatives designed to address these issues.

The next four sections present a review of the published academic and gray literature on rural health care, access, and policy in SSA. The second section, Methods, defines the keywords that are pertinent to this discussion and outlines the approach used to select search terms and the relevant literature. The third section presents the findings from the review of the literature, and the fourth section, Discussion and Recommendations, discusses the implications of the literature findings and offers recommendations for further policy development. The final section summarizes the discussion and concludes with specific recommendations.

METHODS

Three important keywords are used throughout this article: health workforce, rural, and developing countries, and we discuss each below.

Health Workforce

Consistent with the definition given by the World Health Organization (WHO), the notion of health workforce encompasses and extends beyond health professionals and human resources for health. The health workforce includes individuals tasked with delivering health services, such as physicians, nurses, midwives, therapists, medical assistants, and traditional healers; it also includes individuals that provide administrative support, such as health facility staff and managers (96), and those who contribute to primary health care and public and population health, such as epidemiologists, public health educators, sanitation and water supply managers, vaccination teams, and nutritionists.

Rural

There is no universally accepted definition for the term rural (69). However, it is an established practice among institutions such as the Organization for Economic Cooperation and Development (OECD) to classify member countries and conduct regional analyses according to geographical differences, among other considerations (73). In the discussion that follows, rural will be defined according to the predominantly rural region classification within OECD's regional typology: Predominantly rural regions have population densities of fewer than 150 people per square kilometer and more than 50% of the population lives in areas classified as rural communities (72).

Developing Countries

Often based on economic criteria, the status of countries on the developed/developing and the high/middle/low income continuum potentially fluctuates and changes from one year to the next. In this article, developing countries are identified according to the International Statistical Institute definition, consistent with the World Bank and United Nations specifications, which categorizes countries "according to their Gross National Income (GNI) per capita per year"; developing countries have a GNI of \$11,905 or less at the time of classification (44).

These broad, widely used definitions were deliberately selected to avoid country-specific or academic/governmental imperatives for precision or resource allocation. Because this discussion has a regional focus, we are not concerned with this level of detail.

Literature Search

We searched the scholarly literature via the Ovid Medline database using selected Medical Subject Headings (MeSH). These subject headings include health policy, policy making, and rural health. Sources of gray literature, such as the institutional repositories of the WHO, the World Bank, and the African Development Bank Group were searched using the repositories' subjects/topics. These subjects/topics include health economics and finance, health manpower, and health. A full list of repository subjects/topics as well as the Ovid Medline search strategy and the MeSH terms used to conduct the search are available from the authors.

Year of publication limits were set to 2004–2014, and the results were restricted to the English language. Furthermore, results from both the academic and the gray literature were limited geographically to SSA developing countries in which English is an official language. To determine which SSA countries we should consider as developing we adopted the International Statistical Institute's 2014 list of developing countries. The Central Intelligence Agency's The World Factbook was used to establish the SSA countries in which English is an official language. Additionally, we drew on our expertise and knowledge of the topic to select further scholarly and gray literature for inclusion in this article.

The review seeks to identify key issues in rural health care and to highlight examples of successful initiatives worldwide that have begun to address these issues. Key considerations that are often given insufficient attention in the literature are sustainable models of rural health care and the supply of the health workforce, specifically its education and training.

LITERATURE REVIEW AND FINDINGS

The health workforce is a critically important health sector input (42), because the shortages and the skill and distribution imbalances of the workforce constitute a serious problem that developing countries need to address (25) to achieve Universal Health Coverage (UHC) and the United Nation's Sustainable Development Goals (SDGs) (92). The vision of the Global Health Workforce Alliance (GHWA) for the SDG health agenda emphasizes health workforce and education investments that will create sustainable health systems and service models that will deliver universal health coverage, comprehensive primary health care, and skilled health care providers. The greatest challenge is to ensure the provision of resources and services responsive to community needs in rural and remote areas. Consequently, this review of the literature focuses on (a) access to comprehensive primary health care services, (b) sustainable models of rural health care, (c) provision of a skilled rural health workforce, and (d) the implications of policy successes and failures in these areas.

Comprehensive Primary Health Care

The geography and the population distribution of SSA present many challenges for health care delivery and access: The population of developing countries in SSA exceeded 936 million in 2013, and just 37% of it lived in urban areas (100). For most countries in Africa, it is not possible to know how many qualified or skilled health workers provide services in each country (81, 91). It is known, however, that the majority of health workers provide services in urban areas (71).

The Alma-Ata Declaration of 1978 stressed the importance of creating health care systems that provide primary health care within a community setting (62). More recently, the message that community involvement is crucial to health service delivery (11) has been renewed in a special edition of the *Lancet* that commemorates the thirtieth anniversary of the Declaration (58) as well as in a WHO report on the social determinants of health and health equity (26), both published in 2008. Health systems that adopt primary health care approaches experience better overall population health (86, 87), fewer health inequalities (24, 87), lower health care expenditures (36, 59, 84), and enhanced quality of care (12). The 2008 World Health Report *Primary Health Care: Now More Than Ever* (94) called for four sets of reforms: universal health coverage reforms, service delivery reforms, public policy reforms, and leadership reforms with an emphasis on participatory models. Although there has been some progress since 2008, these reforms continue to be of critical importance in SSA.

Primary health care combines accessibility to the health care system; accountability to offer care that meets comprehensive health needs; coordinated and integrated care that involves illness prevention, focused care, and the treatment of chronic illness and mental health issues; and the creation of enduring relationships among providers, patients, and the broader community (83). Since the Alma-Ata Declaration, community-oriented primary care has increasingly encompassed the following four actions: establishing community characteristics, assessing the community, designing and executing the intervention, and auditing the results of the intervention with the engagement and assistance of the community (83). The goal of enhanced population health is attainable by instituting universal health care coverage, enacting needs-based health service delivery

reforms, and increasing the involvement of stakeholders in deliberative and collaborative public policy efforts that will unify health with other policy portfolios (83).

A defining characteristic of primary health care that distinguishes it from health care in general is community engagement. Community participation and engagement are increasingly viewed as essential for health service development and utilization (11). The potential benefits and outcomes of community engagement include community empowerment in relation to health and health care, promotion of locally relevant services to reflect community needs (11), enhanced health service access and health outcomes, and promotion of health-improving behaviors (50). However, there are many potential impediments to effective community engagement. These include competing interests and goals of different community factions, lack of continuous commitment to engagement (5), lack of recognition that local knowledge can constitute expert knowledge that should contribute to health policy decisions (11), and top-down hierarchical community management structures (5, 11). In the interests of health equity, it is imperative that the most vulnerable community members are part of the decision-making process.

The patterns of utilization of health services are dependent on many factors, one of which is the availability of local health care options. For example, poor infrastructure, such as poor roads and limited transportation options, make health facilities, personnel, and services hard to reach (10). If individuals cannot access a vehicle, such as a car or bicycle, they must walk (sometimes for hours each way) and subsequently delay their access to care. This process can consume an entire day (52), which may not be feasible for individuals who are ill or in poor health. Travel and transportation challenges due to the distance from health facilities pose significant access barriers and adversely impact their use (60). Reliable transportation for patients and providers is crucial for health care access, particularly for the delivery of outreach services. Available and functional health service vehicles might not always be accessible to all members of the health care team. As a result, health workers who do not have or are unwilling to use their own vehicle are unable to provide necessary services to their clientele (13).

Furthermore, unanticipated monetary costs can adversely influence whether health care is sought. For example, the hesitation to leave one's home or business unattended, the need to borrow money, the need for child or animal care, the inability to receive hospital exemptions, and the use of private services may require individuals to seek social or financial support (1, 39). This support might not be available.

Individuals may choose to travel further distances if services of a perceived acceptable standard (2, 46) are not available locally. In their investigation of caregiver choices for child health care in rural Tanzania, Kahabuka and colleagues (46) found that caregivers frequently bypass locally available services, despite the additional time, money, and other costs associated with this decision. Studies examining community perceptions of health care in South Africa and service utilization in rural Nigeria cite poor staff attitude and conduct toward patients (e.g., discrimination) as additional reasons that discourage the use of local services (2, 65). Experiences with health care services that are perceived to be inadequate or insensitive to the local customs generate a lack of trust in primary health care facilities. They can also result in delays in obtaining health care services, which cause an underutilization of those services (46).

The cultural context is important to consider in order to understand whether, by whom, and to what extent primary health care services are accessible. Social and cultural norms and values, including gender roles and power dynamics within the home or broader community—or burial practices, as in the case of Ebola—have the potential to create and remove barriers to access at the community level. A single community or village might possess multiple leadership structures based on the languages spoken by different groups (10). Health access decision processes are determined by local chieftains and often exclude females and youth (10, 11).

Maternal health in SSA exemplifies this situation. The ability of females to access and receive reproductive or maternal health care services is influenced by their dependence on their spouses for financial help, transportation, and other support (2); spousal preferences about location and place of delivery (2); and male attitudes and knowledge regarding “modern” health care and the benefits of skilled health worker presence during labor and delivery (37). In their investigation on male perceptions of delivery care in rural Malawi, Aarnio and colleagues (1) found that husbands are involved in pregnancy planning; predominantly make decisions pertaining to health care during pregnancy; believe in this care; and prefer institutional deliveries and the presence of skilled health professionals during birth, particularly in the event that emergency care is needed.

Sustainable Rural Health Care Services

Enhancing the sustainability of health care services in rural areas requires a multifaceted and multi-sectoral approach. Cooperation between ministries of health, education, and labor, among others, and enduring community engagement are required for a renewed commitment to a comprehensive primary health care system, investment in horizontal programming consistent with primary health care, and the implementation of innovative interventions and partnerships in health education, training, and research to enhance rural practice.

Since 2000, there have been tremendous increases in investments by governments and private groups to improve the health of developing countries, including the US President’s Emergency Plan for AIDS Relief (PEPFAR), the World Bank, the Gates Foundation, and the GAVI Alliance (14, 77). Health aid currently contributes 25–30% of all health care spending (14, 77). This aid and domestic investments have primarily focused on vertical programming that entails targeting specific diseases, such as HIV/AIDS, malaria, and tuberculosis; eradicating their spread; or providing and allocating services to diminish their effects (75). Alternatively, horizontal programming entails a more comprehensive and integrated systems approach aimed at achieving general improvements in population health. This includes directing investments toward primary health care and the broader system in which care is delivered—specifically, the development of health workforce, infrastructure, health facilities, and access to medicine (62, 75). Thus, there exist fundamental philosophical and practical differences between vertical and horizontal programming and health care investments.

The selective vertical approach is characterized by a short-term outlook. It aims to remedy a particular health problem (e.g., malaria) through the use of specific measures (e.g., development of new malaria tests to identify individuals who are asymptomatic) (62, 98). This approach can swiftly address unexpected circumstances that adversely impact population health. For example, family planning in the 1960s, smallpox eradication in the 1970s, the AIDS epidemic in the late 1970s and early 1980s, and the recent Ebola outbreak in 2014 each generated a push to adopt vertical approaches as the preferred policy response for communicable disease and virus containment (62, 75). However, the ability of vertical programs to be integrated into health care systems is limited. For instance, the requirement for disease control programs to possess their own bureaucratic structures may result in gaps in the health care dispensed to patients with multiple comorbidities (62). Moreover, vertical programming may redirect human, infrastructural, technological, financial, or transportation resources from health systems whose resources are limited (62, 75). Vertical programs appear attractive to governments, private groups, and other donors because the results and the systems generated are easier to manage (75); moreover, control over government budgets, aid funds, and personnel accrues visibility to donors and central authorities.

The comprehensive and integrated horizontal approach, also known as comprehensive primary care (75), is characterized by a long-term outlook. It aims to address health issues by establishing

publicly funded, sustainable infrastructure for a country's health services (62, 75). Horizontal programming focuses on prevention and treatment via community-directed strategies (e.g., control programs for Robles disease) (75). This approach is attractive to policy makers because of its potential for public sector integration, long-term cost effectiveness, stability, and ability to deliver preventative health care to those who are unable to afford privately dispensed services. Horizontal systems of care are most effective in stable environments with strong infrastructure and adequate resources, which can result in a comprehensive, integrated, and universal health care system (75). One way in which horizontal programs can help build comprehensive primary care systems at the local level in rural areas of SSA and other developing countries is to invest in creating a sustainable rural health workforce supply.

Rural Health Workforce Supply

Impediments to rural health workforce recruitment and retention. A major hindrance to instituting primary health care services within a universal health care system in developing countries is the number and rate at which the health workforce is being produced. At present, SSA does not produce a sufficient number of health workers and of training opportunities to maintain the present ratio of health workers to population (7, 91). Under the current education and training conditions, health workforce graduation rates in some countries are exceptionally low (91). Africa has among the highest ratios of population to medical schools (9.09 million to 1), with many medical school graduating classes of fewer than 20 students per year. This produces approximately 5,100 new medical graduates per year throughout the continent (33, 91). A proportion of these graduates leave the continent for postgraduate training and some of those do not return. The number of medical schools in Africa has increased due to the establishment of privately funded institutions. Yet, medical schools are unevenly distributed and are most abundant in wealthier countries that have encouraged the creation of private medical schools (91). Generating a health workforce that is both “fit for purpose and fit to practice” in rural and remote areas is crucial to instituting and maintaining universal health coverage with primary health care access (21).

The health workforce maldistribution is exacerbated by “skill mix imbalances” (70). Some countries seemingly have adequate ratios of health providers to population, but still they are unable to meet basic health care needs. For example, a country or a region therein may have a sufficient number of some types of health providers (i.e., physicians, nurses, midwives) but an insufficient number of other health providers (i.e., pharmacists, lab technicians); this hinders the ability of health workers with varying scopes of practice to provide effective care (32). As a general statement, rural health practitioners are extended generalists, whereas much of the training, especially that which is obtained abroad, is specialization oriented. When compared to their metropolitan counterparts, rural practitioners provide a wider range of services and carry a higher level of clinical responsibility in relative professional isolation.

There are numerous reasons for the insufficient supply of rural health workers in developing countries. These include lack of students with a rural background/upbringing (19, 29, 41, 57, 61, 80, 82, 89); lack of exposure to rural training (23, 41, 47, 57, 61, 82, 89); lack of social support within rural communities (19); quality of life considerations, including spartan living conditions, limited education facilities for the health workers' children, and poor work-life balance (9, 22, 51); barriers to participation in continuing education and professional development (22, 40, 99); lack of supportive work environments (22, 40, 99); staff burnout due to excessive workloads (9); economic/financial considerations, including insufficient remuneration/benefit packages (4, 15, 20, 45, 57); and lack of job satisfaction, including professional support and advancement (22).

Context-specific health education and training. An effective and important horizontal approach to enhancing infrastructure and health resources in a way that encourages universal access to comprehensive primary health care is to invest in context-specific education and training of the health workforce (91). Rural education systems produce health workers with the requisite skills for rural practice, enhance transportation infrastructure, decrease health system inefficiencies, reduce costs, and increase equity of access to health care (43, 79). For example, nurses in developing countries traditionally have not been trained to perform tasks and procedures that are typically reserved for physicians. Yet, there is value in training a cadre of nonphysician health professionals so that they possess these skills. If a nurse is the only health worker or the most responsible practitioner on a health team in a rural community, he or she needs both these additional skills and the authorization to use them in lieu of a physician (79).

Education is the cornerstone to producing a competent rural and remote health workforce in developing countries (95). Currently, most undergraduate health professional training is conducted in hospitals and settings that do not reflect the reality of rural practice and service conditions. This leaves health workers ill prepared to deal with situations they have not encountered during their training. To prepare students for rural practice, it is important to match curricula with the health needs of rural communities. Rural health topics and an emphasis on primary care and generalist practice should be included and continuously reviewed in undergraduate and postgraduate curricula. Generalist primary care providers comprise the majority of the rural health workforce and often lack the support of specialists. Given their broad scopes of practice, providing advanced procedural skills training in areas such as emergency medicine, surgery, anesthesia, and obstetrics and gynecology can equip health professional students with the efficacy and skills needed for rural practice (95).

There is potential for telemedicine to help deliver health services and training in SSA regions in which rural practice skills, transportation, facilities, and providers are limited or in isolation (64, 66). In recognition of this potential, various stakeholders have implemented initiatives to enhance technological infrastructure to provide educational and clinical services in SSA. These include the creation of a Telemedicine Task Force for sub-Saharan Africa in 2006 comprised of the WHO, the European Commission, the European Space Agency, and organizations within Africa (34); a satellite eMedicine infrastructure project funded by an EU–Africa Infrastructure Trust Fund (ITF) grant (€4 million in 2010) (3); tele-education (RAFT) and telemedicine (iPath) initiatives and projects funded by the Swinfen Charitable Trust based in Switzerland; pilot projects at public sector hospitals in partnership with educational institutions (University of KwaZulu-Natal) that offer telemedicine and medical informatics postgraduate qualifications; and the Pan African eHealth network, sponsored by the Indian government and supported by the African Union, aiming to provide VSAT-based tele-education and medicine facilities to every country in Africa (64).

Despite the promise of these efforts, there are major obstacles to fully implementing telemedicine in SSA. First, although it helps in compensating for health workforce shortages, telemedicine potentially overburdens health workers who are already overworked. Second, Africa is dependent on the international community for tele-education and telemedicine support. Continued collaborations will require legislation in partnering nations that does not hinder eHealth and protects patients and providers. Third, greater leadership and champions for eHealth must emerge among policy and decision makers in Africa (i.e., African Union, New Partnership for Africa’s Development). eHealth strategies have been scarce throughout Africa’s health policy landscape, where mentions of telehealth and telemedicine are infrequent (64). The reliance on international partners for tele-education and telemedicine assistance exposes health students,

trainees, and professionals to medical practices and teaching philosophies that might not be appropriate for patient interactions and health service delivery in SSA.

In addition, it is important that health students learn to engage with the communities in which they practice in a meaningful way. Thus, health education should be both community-based and community-engaged to account for the community dimensions of health and health care. Community engagement places student learning at the center of partnerships between the communities in which students learn and the institutions at which they learn (90). This is consistent with the recommendation by the Lancet Commission on Education of Health Professionals in the 21st Century that partnerships be formed between academic institutions and communities such that health education programs focus on achieving greater health equity (35). This is also consistent with the WHO's model of social accountability in medical education (18). There are resources that schools may draw upon to assist with this transition (90), such as the Training for Health Equity network's Framework for Socially Accountable Health Professional Education (56).

It has been necessary to adopt innovative approaches to address the above challenges pertaining to the education and training of doctors and nurses in SSA. The Medical and the Nursing Education Partnership Initiatives (MEPI, NEPI) were established by PEPFAR in 2010 and 2011, respectively (68). Investments by the US National Institutes of Health support improvements to curricula and clinical mentoring and enhance opportunities for research and access to technological and technical supports. MEPI and NEPI complement these investments by structuring and funding health professional education to produce urgently needed physicians and nurses (38). MEPI and NEPI primarily work toward bolstering the quality of health professional schools and programs therein to fully address a country's health care needs. MEPI's grants support 13 medical schools that collaborate with institutions in the United States, Europe, and other regions/countries (38). NEPI supports nursing and midwifery education in five countries (38, 68) to train highly skilled professionals to deliver care where and how it is needed in their communities (38, 68).

Although these consortia have the potential to generate a sustainable rural health workforce [e.g., MESEAU in Uganda (63) and PRIME-Kenya (49)], there are challenges to their widespread implementation in Africa (63) and to the application of skills learned abroad to the needs of rural SSA. These challenges include inadequate instructional and infrastructural capacity and the difficulty in reconciling contextual differences among participating institutions, organizations, and other stakeholders in different geographic and cultural settings (63). Additionally, the intent of these partnerships to positively impact health workforce supply and distribution has unintended consequences for SSA's rural health workforce supply. These include the potential loss of health workers and health service delivery in places where they are needed the most (48). Health providers in SSA are highly mobile. Their potential to relocate to foreign countries and training institutions is increased by the higher pay and broader career prospects abroad (pull factors) and by undesirable social, political, and economic environments at home (push factors) (48). Those who return to, or remain in, SSA upon completion of their training are often ill equipped to practice in rural and remote settings due to a lack of exposure to the rural practice contexts and training environments, the available professional support and equipment (or lack thereof), and the local customs, cultural norms, and languages.

Rural primary health care is also supported by humanitarian organizations such as Médecins Sans Frontières/Doctors Without Borders and Dignitas International. These organizations provide medically necessary health services to vulnerable populations in developing countries, advocate for increased access to affordable quality medicine and health services (<http://www.doctorswithoutborders.org/our-work/medical-issues>), and partner with stakeholders to enhance health systems and shape policy and practice (<http://dignitasinternational.org/>).

Partnerships with these organizations are useful to provide primary care to patients with multiple comorbidities or to focus on numerous individual diseases. However, such approaches to providing care have limitations. There is the potential to incentivize health workers to order excessive tests when a holistic approach focusing on quality of life concerns and social determinants of health may be more effective. Whereas the former emphasizes treating the disease, the latter emphasizes treating people in their homes, families, and community contexts. Focusing on broad social and health issues should be encouraged to improve health status and health equity.

Policy Implications: Successes and Failures

Health policy analysts and decision makers in SSA typically have chosen centralized health workforce management and planning strategies that rely on frameworks modeled after countries with different social, political, economic, institutional, cultural, and geographic contexts than Africa (81). SSA consists of a diverse set of countries across which the health policy climate, resource availability, and workforce reality vary greatly (81). The need to address jurisdictionally specific health workforce issues cannot be met with one-size-fits-all policies (13). To achieve greater health equity, developing countries within and outside SSA must address directly the deficits rural populations face that impinge on their right to health and social protection (79). These deficits center on the need for available, accessible, acceptable, affordable, and quality health services (21, 79).

Investments in primary health care are associated with decreased health care costs and population health inequities, improved access to appropriate health services, and ultimately, improved health. Starfield and colleagues (87) identify six ways in which primary health care is beneficial. First, it eliminates the obstacles to regular health service provision encountered by socially excluded populations. Second, it makes important contributions to the quality of clinical care. For example, primary care physicians perform as well as, if not better than, medical specialists when diagnosing and treating common diseases. Third, it is effective in promoting positive health behaviors and preventative measures for general health and well-being. Fourth, it is effective in containing health issues before emergency or hospital services are needed. Fifth, it aims to produce improved overall health outcomes rather than concentrating on specific procedural outcomes for specific conditions. Sixth, it diminishes instances of needless and/or unsuitable specialty care. Starfield and colleagues (87) generalize from international comparisons based primarily on OECD countries, with some developing countries included; however, SSA is somewhat underrepresented. Nevertheless, the above discussions about the need for comprehensive primary health care, integrated horizontal health system approaches, and context-specific health education and training are also relevant for SSA and other developing countries (85).

Due to the limited evidence on the benefits of using vertical health system approaches, it is difficult to decide when this approach should be used (8). Some evidence suggests that vertical programs implemented to address tuberculosis have failed to meet their primary objective to extend coverage to those who most need it (62). For example, despite a 1,000% increase in foreign aid for tuberculosis treatment, treatment has only been accessible to 27% of active pulmonary tuberculosis patients (54). Also, vertical programming has been identified as a major reason for the failure to eliminate malaria in SSA (75). Vertical programming does not help the most medically vulnerable populations because comprehensive primary health care services are largely unavailable to them (93). It is common practice for most health services to incorporate an integrated approach that includes elements of both vertical and horizontal programming to varying degrees (8). The balance of vertical and horizontal service approaches and whether short- or long-term solutions are needed (8) are important considerations for countries, such as Liberia, whose weak postconflict economies make long-term investments for sustainable health care all the more important (75).

This echoes the WHO's call for health decision makers and system planners to ensure that vertical and horizontal programming work together to enhance current health systems for the long term and to establish effective responses to communicable diseases (75).

Producing a skilled and sustainable health workforce for rural and remote practice is crucial to expand universal health coverage and access, ensure contextually specific and appropriate health system approaches to finance this care, and decrease health status inequities in developing countries within and outside SSA (21). This workforce objective should have prominence when devising policies that affect the health workforce's ability to provide care and the health system users' ability to access care. According to the WHO, the effectiveness of health services is directly correlated with the number and quality of those charged with supplying these services; as such, health decision makers should strive to produce a workforce that is available, accessible, acceptable, and affordable so that quality health care is delivered (21).

DISCUSSION AND RECOMMENDATIONS

International Standard for Health Professional Education

No developing country wishes to be seen as having substandard health professional education. However, the current international standard is that graduates of medical and nursing programs acquire the skills and the potential to be employed in the teaching hospitals of North America or Europe. In fact, a medical or nursing degree is a passport out of the country. This situation exacerbates the disadvantage of developing countries and highlights the need for an alternative international standard for health professional education. This alternative standard should be premised on the social accountability of medical schools and health professional education (16, 17, 53, 55, 56, 78) to achieve greater health equity. The importance of student selection and admission strategies for the equitable representation of underserved populations in the health workforce and their impact on future practice cannot be overstated. Recruiting students from, and training them in, underserved areas fosters a desire to practice and provide long-term, sustainable services in these communities (55). Community perspectives within and outside the student body can help health professional schools to anticipate societal health needs in local contexts, to emphasize responsible governance, to adopt outcome-based education, and to recognize society as an important partner when making health policy and education decisions (17). Specifically, community perspectives help to ensure that the WHO's health care principles of quality, equity, relevance, and effectiveness are met, and that health determinants are central to the strategic development of health professional schools and curricula (16).

There is a growing body of evidence indicating that this model is effective. The Training for Health Equity network (THEnet) is an international community of practice led by 12 medical schools with social accountability mandates to address health inequities and local health priorities (55, 56, 78). For example, the Walter Sisulu Faculty of Health Sciences (WSUFHS) was established to address severe health professional shortages and meet care needs in rural, predominantly black communities in apartheid South Africa. Since its inception 30 years ago, WSUFHS has become a leader in developing innovative, contextually relevant approaches to health education and in adopting a people-first philosophy to delivering socially responsible health care (53).

Another member of THEnet is the Ateneo de Zamboanga University School of Medicine (ADZU SOM) in the Philippines. Zamboanga is an extremely low resourced, politically unstable region with many historically doctorless communities. ADZU SOM began in 1994 as a community movement with a working capital of \$550, and it has been successful in producing a rural workforce with volunteer local clinician instructors. Since the first graduating class in 1999, more than

80% of ADZU SOM graduates continue to practice locally in underserved communities, and the number of municipalities with a physician has increased by 55% (27, 28). Additionally, the region's infant mortality rate has decreased by close to 90% (28), down from nearly 80/10,000 live births to approximately 8/10,000 live births (27). The success of medical education in Zamboanga supports the notion that socially accountable application processes privileging local students as well as community-based and community-engaged medical education lead to positive returns on government and community investments (27).

Recommendations for Policy Development

To achieve health equity, policy interventions in developing countries should invest in the establishment of sustainable health systems with locally developed models of care and services in rural and remote areas. Although both vertical and horizontal programs can be used to varying degrees to provide health services, the right balance is required to achieve this goal. Expanding universal health coverage and implementing comprehensive primary health care systems and service models is more consistent with an emphasis on integrated horizontal approaches. Such approaches are also more conducive to a sustainable rural and remote health workforce. Active community participation to identify community-specific health priorities and needs, and local recruitment, training, and retention of students from underserved areas are effective strategies to provide quality health care.

Primary health care systems premised on universal health coverage and horizontal program approaches create an effective service model to achieve health equity. Policy development should target governments and health workers by creating incentives for compliance and disincentives for noncompliance with this goal. An example of incentives that may be counterproductive are the rewards offered by pharmaceutical companies to physicians who prescribe their medications, which create the risk that health personnel might overprescribe a particular drug. This creates a no-win, either/or predicament for the spending decisions of the rural poor: pay for food/electricity or for the treatments made available by the practitioners. This increases the direct cost of health care for rural households in SSA and other developing countries (39).

The overall cost-effectiveness for patients and governments of incentives, which encourage primary health care systems with universal health coverage, can be seen by the extent to which health workers provide services in the public rather than the private health sectors. For community health workers to provide effective health services, a policy climate must exist that ensures they have the infrastructure, technology, and regulations they need. Equally important to primary health care practitioners is their livelihood. Government-employed physicians are modestly compensated and often work in private practice to supplement their incomes. To achieve the quality of life and standard of living they desire, physicians are likely to concentrate on building their private practices. The disproportionate availability of health services in the private sector potentially increases the direct cost of health for rural households (39). Thus, there is a need for economic incentives for public sector rural primary health care practice and disincentives for private practice. The solutions to address health system and service delivery deficiencies must be developed locally.

Thailand is one developing country that is making great strides toward strengthening rural practice within primary health care systems to achieve greater health equity. Over the past three decades, Thailand has increased the proportion of rural physicians within its physician workforce; the number of generalists has increased from 5% to nearly 15%, or approximately 5,000 physicians (97). Thailand has achieved these goals in part by offering extensive and complete universal health coverage to ensure no copayments at the point of services. Also, it has reallocated resources to support extensive primary health care systems and to increase access to these services. Additionally,

Thailand compensates physicians who do not have private practices and offer their services in the public sector. Thai rural physicians receive between two to seven times their basic civil servant salary from various allowances (i.e., hardship, on call, nonprivate practice and board certification) (97). There is little evidence about the role of such incentives for other rural health workers, but the issues are likely to be similar (95).

CONCLUSION

Regardless of a region's or a country's level of economic development, an important goal for the health care system is to address the health needs of the population it serves. These needs include the ability of people to access and receive quality health care services across the continuum of care delivered by skilled practitioners in a timely and cost-effective manner. These needs are exacerbated for vulnerable and disadvantaged populations, in particular for individuals living in rural and remote areas in developing countries.

The case of SSA reflects this dire situation and the persistent challenges faced by the global health workforce. Crucially, it demonstrates that one-size-fits-all policies are insufficient and that contextually specific, local solutions are required. Health workforce management and planning strategies should be based on distributed models compatible with the local social, political, economic, institutional, cultural, and geographic contexts to account for diverse health policy climates, resources, and workforce. Of equal importance, the case of SSA also reveals that when addressing health service delivery as well as human resource, governance, and financing challenges, decision makers should focus on the health workforce to strike the right balance between vertical and horizontal programs for health service delivery; they should also simultaneously address primary and secondary nonclinical prevention and health protection.

Governments and policy makers should work toward expanding universal health coverage and renew their commitments to comprehensive primary health care by emphasizing horizontal programs and systems approaches. The importance of community participation and sustained partnerships to achieve these ends cannot be overstated. Community members are important stakeholders, and their perspectives about their health needs and utilization patterns, the health care they (can afford to) access, and the quality of care they receive should be viewed as expert evidence when devising rural health care policies. These policies should reflect that quality health care is available, accessible, acceptable, and affordable.

A multisectorial commitment involving the ministries of health, education, finance, labor, and transportation (as well as other relevant ministries) is needed to explore underutilized interventions that can better connect patients and providers and enhance the quality of health care provided in rural and remote areas. At the center of these efforts should be commitments to invest in rural schools of health, training programs, and locally relevant research with mandates of social accountability. Producing a rural health workforce begins prior to the school admission process. Health professional programs should be structured so that students are locally trained and receive extended exposure to rural communities from the outset of their education. Admission processes should privilege students who are more likely to live and work in rural and remote areas. Rural recruitment and retention initiatives should be instituted to attract qualified clinicians and educators to provide clinical instruction and important health services to the community. Capacity building must occur to make rural health care and lifestyle attractive and to encourage students and health workers to practice in rural settings. Just as we must better understand health care users and their needs to create services that work for them, so too we must understand the supply side of the equation to address the challenges of rural health care. Only when the education, practice, and quality of life needs of the rural health workforce are better understood and addressed by policy

will it be possible to recruit, educate, train, and retain a skilled rural health workforce. Only with an assured and sustainable rural health workforce can there be sustained progress in achieving health equity for rural people living in developing countries.

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