Literature review: Strategies for recruitment and retention of skilled healthcare workers in remote rural areas

Rambelani Nancy Malema
and
Livhuwani Muthelo

University of Limpopo

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Executive summary

In many countries globally, distribution of healthcare workers is unequal between urban and rural areas, with urban areas well-staffed compared to remote rural areas. Although an estimated half of the world population lives in rural and remote areas, these areas are serviced by only a quarter of the world's nursing and less than a quarter of the doctors. The World Health Organization (WHO) recommends one doctor for every 1,000 people. In sub-Saharan Africa, a population of 100,000 people in remote rural areas is served by 16.4 doctors, below this WHO level. According to WHO (2010a), a global shortage of 4 million health workers are needed to achieve quality healthcare outcomes. By 2014, a global shortage of health workers estimated to be 7.2 million was further predicted to reach 18 million by 2030 (WHO and GHWA, 2014).

Various measures have been raised in response:

- A resolution by the World Health Assembly in 2004 for member states to implement a mechanism to address the retention of health workers;
- The Kampala Declaration and Agenda for Global Action in 2008 requested governments to provide adequate incentives and to ensure safe working environments;
- The Global Heath Workforce Alliance (GHWA), tasked to review the progress following the 2008 Kampala Declaration, reported the need to increase efforts to cost, fund and implement strategies to improve human resources for health (HRH);
- The 2008 Commission on Social Determinants of Health urged governments and international partners to address rural-urban imbalances in the distribution of health workers;
- The 2009 Taskforce on Innovative International Financing for Health Systems urged governments to ensure that people, including those in rural and remote areas, access safe, high quality healthcare.
- The High-level Commission on Health Employment and Economic Growth (2016), which projected a health workforce shortfall of 18 million by 2030, made recommendations to prepare for and prevent the shortages by: ensuring gender equity and empowerment of women, transforming education for health workforces to be person centred, skills based and needs oriented, investing in rural education, creating decent jobs in the health sector, recognising the contributions of nurses and midwives to improved health and using technology in health.

Notwithstanding these calls, rural and remote areas continue to fail to attract and retain healthcare professionals. This literature review, implemented within an EQUINET programme of theme work on health workers at the University of Limpopo, presents published evidence on the recruitment and retention of skilled healthcare workers in rural areas of east and southern Africa. It reviewed published documents in English with a focus on east and southern Africa from 2000-2017 from the following databases: PubMed, BioMed Central, various online journals, Google Scholar, EQUINET, IDRC, WHO HRH database, USAID and government ministries.

From the literature reviewed the following strategies emerged as key for health worker retention:

- Education and training of healthcare workers;
- Review of regulations and policies regarding provision of healthcare services in rural areas;
- Provision of financial incentives; and
- Personnel and professional support of healthcare workers.

In relation to education and training, many countries offer programmes to educate and train healthcare workers, but they also need to review their admission policies to enrol students from rural backgrounds and to locate health professional schools, campuses and family medicine residency programmes to better expose undergraduate healthcare students to rural community experiences. Further important strategies included transforming and revising undergraduate and postgraduate curricula to include rural health topics, providing education that meets the needs of the communities, basing its programmes on person centred and competence, and designing continuing education and professional development programmes to meet the needs of rural health workers.

To improve and increase recruitment and retention of healthcare workers in remote and rural areas, the literature indicates that governments and institutions responsible for training students and regulatory bodies need to review their policies and regulations on compulsory service requirements, provide scholarships, bursaries or other education subsidies, introduce and enhance the scope of practice for healthcare workers and introduce different types of healthcare workers. They need to create decent and well-paying jobs and reduce work-related stress to attract and retain healthcare workers, including by improving infrastructures such as roads, working conditions, including dignity and respect, job satisfaction and housing allowances.

The literature indicates a common agreement that provision of financial incentives plays an important role in the recruitment and retention of health workers and can be given in various ways depending on the context. They include bursaries for further education, study loans for those who have completed their studies, rural allowances and occupation-specific dispensations, with evidence that these measures have motivated health workers to remain in rural areas.

Personnel support issues affect healthcare workers and their families such as living conditions, availability of electricity, proper sanitation, access to schools and telecommunication. The review highlights that these need to be addressed to enhance retention, together with professional support in the form of career development and creation of senior positions in rural institutions.

The High-level Commission on Health Employment and Economic Growth set recommendations in the context of achieving the sustainable development goals (SDGs), including:

- Providing high quality education based on competencies needed to address health needs;
- Using communication technology to enhance people-centred health services;
- Stimulating and investing in the creation of decent jobs in the health sector;
- Prioritising women's leadership and gender equality in education and employment;
- Shifting from hospital-based approaches to preventive, affordable, integrated community-based, people-centred primary and ambulatory care focusing on underserved areas;
- Building health workforce capacities for public health, emergencies and conflict situations;
- Financing skills, decent working conditions and improved numbers of health workers;
- Promoting inter-sectoral co-operation and partnerships at national, regional, and international levels, involving civil society, unions, health workers' organisations and the private sector;
- Recognising health worker qualifications and skills and migrant rights internationally; and
- Undertaking robust research and analysis of health labour markets.

From the literature, the report identified strategies relating to:

- Reviewing admission policies and criteria for health worker education;
- Including rural practice issues and skills in health worker training and exposing students to rural areas during training;
- Improving access to continuing professional development (CPD) in rural areas;
- Ensuring that compulsory measures are accompanied by relevant support and incentives;
- Ensuring that mitigatory strategies such as task shifting are not 'task dumping', do not replace more substantive solutions and that they are accompanied by suitable regulatory systems, training and management support;
- Using financial and non-financial incentives to address issues prioritised by health workers, in a way that does not motivate some while demotivating others, and not as a substitute for a more substantive review of working conditions of healthcare workers and strategies to reduce the disparities in salaries between different health professionals; and
- Improving health worker management and support, and the skills of HRH managers.

Countries need to choose strategies relevant for their context and issues. The report highlights that strategies for the recruitment and retention of health workers is an inherent part of national health plans and financing strategies. This calls for management and communication skills and processes, with monitoring, evaluation and research evidence to ensure that the chosen strategies are relevant and continually updated.

1. Background

This paper reviews published evidence on the factors affecting the recruitment and retention of skilled healthcare workers in rural areas in east and southern Africa. It was implemented by the University of Limpopo under the umbrella of the Regional Network for Equity in Health in East and Southern Africa (EQUINET).

The shortage of healthcare professionals in rural and remote communities continues to be a stubborn problem that poses serious challenges to equitable healthcare delivery (WHO, WHR, 2003; Wilson et al., 2009). Globally, the geographical distribution of healthcare workers is unequal between urban and remote rural areas (Araújo and Maeda, 2011). Low-, medium- and high-income countries all report a geographically skewed distribution of healthcare workers that favours urban and wealthy populations and areas despite rural communities experiencing more health-related problems as compared to urban communities (Wilson et al., 2009; Lehman et al., 2008; Vanasse et al., 2007; Dussault and Franceschini, 2006). Urban areas are thus well-staffed compared to remote rural areas across countries at diverse income levels (WHO, 2006). These shortages and this maldistribution are attributed to insufficient production of skilled healthcare workers, migration of healthcare workers from lower to higher income countries and the inability to retain healthcare workers in places where they are most needed. Although an estimated half of the global population lives in such rural and remote areas, they are serviced by only a quarter of the world's nursing workforce and less than a quarter of the doctors (Buchan et al., 2013; WHO, 2010a; UN DESA 2010). This maldistribution of healthcare workers is thus a concern in all countries, and particularly in east and southern Africa where health needs of poor populations and policy commitments to equitable and universal health coverage cannot be met without adequate health workers.

Management of health workers is regarded as an important aspect of the healthcare system of any country. According to a 2010 World Health Organization (WHO) report, for quality healthcare outcomes to be achieved in all countries a global shortage of 4 million health workers would need to be addressed (WHO, 2010a). By 2014 this estimated global shortage of health workers rose to 7.2 million (WHO and GHWA, 2014) and was further predicted to reach 18 million by 2030 (High-level Commission on Health Employment and Economic Growth 2016) and 12.9 million by 2035 (Miseda et al., 2017). The latter projection shows a decline by 2035, perhaps in the hope of countries implementing recommendations tabled by the High-level Commission on Health Employment and Economic Growth (2016).

Policy makers in almost all countries struggle to achieve health equity and meet the health needs of their populations, especially those in remote rural areas (Rawal et al., 2015). Healthcare delivery in most countries faces shortages and/or maldistribution of skilled healthcare workers in the rural areas. This undermines the efforts of governments to strengthen provision of healthcare (Chen, 2010; Mangham and Hanson 2010; Willis-Shattuck, et al., 2008; Fritzen, 2007; Bertone et al., 2013; Chen et al., 2004; Troy et. Al., 2007; WHO, 2010a). A shortage of health workers poses a threat to achievement of Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs) (WHO, World Bank, 2017). WHO and World Bank (2017) estimate that about 400 million of the world's population do not have access to essential quality healthcare services, affordable medicines or vaccines, while the International Labour Organisation (2017) found that about 80% of the population across 44 countries are without any health protection and are, therefore, deprived of the right to health.

Sub-Saharan African countries have not been spared in this global shortage and maldistribution of key healthcare workers. According to Padarath et al. (2003), the shortage and maldistribution of skilled healthcare workers in sub-Saharan African countries is characterised by poor investment in the production and retention of health professionals, disparities between private and public sectors, inappropriate skills mix, and low productivity and morale of the existing healthcare workers. This shortage and maldistribution of skilled healthcare workers compromise the quality of healthcare provided and are one of the major reasons for the poor progress made in the region towards the achievement of the selected Millennium Development Goals (Anand

and Bärninghausen, 2004; Travis et al., 2004; Hongoro and Mcpake, 2004). This maldistribution also denies people their fundamental human right to healthcare (Dussault and Franceschini, 2006).

2. Methods

This literature review aimed to identify what is already known and what measures have been implemented to improve the recruitment and retention of skilled healthcare workers in rural areas. The review included relevant English language literature from 2000 to 2017 from mainly east and southern African countries. Relevant articles from other countries such Australia, Canada, Malaysia, Bangladesh, United States, Great Britain and New Zealand were also included. A narrative literature review critiques and summarises the literature in order to draw conclusions about the selected topic, drawing on relevant studies and knowledge. This type of literature review is useful in gathering together publications on a specific subject area by summarising and synthesising it, to capture and provide rich information on the subject (Cronin et al., 2008).

The literature review was organised and is presented using the traditional/narrative steps as outlined by Cronin et al. (2008)**:**

The first step involves identifying the subject of the literature review. In this case, this was: "Strategies for the recruitment and retention of skilled healthcare workers in the rural and remote areas".

As the second step, after selecting the subject to be reviewed, a structured search was implemented for relevant information from the literature in online databases. These databases included: PubMed, BioMed Central, 'Human Resources for Health' online journals, Google Scholar, EQUINET, IDRC, WHO HRH database, USAID, government ministries and peer reviewed journal articles.

The search terms included: Remote AND rural practice OR primary healthcare; Recruitment AND healthcare workers AND deployment OR retention OR incentives OR education OR policy; Retention AND health worker AND task-shifting OR working conditions OR job satisfaction OR motivation OR training OR personal support OR motivation; and health workforce OR human resources AND shortage OR universal health coverage OR health crisis.

As a third step, the selected papers were analysed. Relevant abstracts were identified and the full papers read. Five hundred papers were reviewed and 170 selected and included, with 163 cited in this paper. When identifying articles for inclusion, it is important to identify the types of sources for review. According to Cronin et al. (2008), there are different types of sources for review:

- A primary source is usually a report by the original people or person who conducted the research study. The title, author and year, name of journal, purpose of the study, type of study, setting, data collection method, major findings, recommendations and strengths and weaknesses are written (Burns and Grove, 2007; Polit and Beck, 2004).
- Secondary sources are descriptions or summaries by somebody other than the original researcher. The title, author and year, name of journal (full reference), review questions/purpose, key definitions, review boundaries, appraisal criteria, synthesis of studies, summary/conclusions, and key thoughts/comments are included (Burns and Grove, 2007; Polit and Beck, 2004).
- Conceptual/theoretical are papers concerned with the description or analysis of theories or concepts associated with the topic (Burns and Grove, 2007; Polit and Beck, 2004).
- Anecdotal/opinion/clinical papers include views or opinions about the subject that are not research. For example: clinical may be a case study or a report from the clinical setting (Burns and Grove, 2007; Polit and Beck, 2004).

Evaluating and choosing non-research and non-reviewed publications was challenging and complex, however, the content was judged for its accuracy and coherence with what is already known about the subject and the sources of information provided.

Writing the review was the **fourth step** in the process. The WHO global recommendations on increasing access to health workers in rural and remote areas through improved recruitment and retention report were used to identify the themes for content analysis of literature, as further described in the paper (WHO, 2010a). In line with Carnwell and Daly (2001) recommendations and a framework of what will be discussed were worked out. The literature reviewed was divided into themes and sub-themes related to the topic, theoretical literature was discussed followed by an exploration of the research methods applied. The presentation of the findings for the literature review in this study have been structured as follows:

a. The policy motivation for conducting the literature review;
b. The strategies applied by different countries, including whether they worked or not;
c. The discussion of the findings.

3. Policy motivations for conducting the review

In 2010 the World Health Assembly (WHA) adopted the WHO Global Code of Practice on the International Recruitment of Health Personnel. At that time, the main problem was the movement of skilled healthcare workers from lower income to higher income countries. Combined with unethical recruitment practices and lack of formal agreements between the different countries regarding recruitment policies this led source countries to experience shortages and violation of the rights of recruited personnel (WHO, 2010b). The WHO Global Code of Practice on International Recruitment of Health Personnel (WHO 2010b) thus sought to:

a. ensure that there is ethical recruitment that considers the rights of personnel and the obligations of the source and destination countries;
b. furnish a reference for member states in establishing or improving legal and institutional framework required for the international recruitment of health personnel;
c. provide guidance that may be used when developing and implementing bilateral agreements on the recruitment of health personnel;
d. promote dialogue and co-operation on matters related to ethical international recruitment of health personnel with particular consideration of the situation in developing countries and; and to
e. curb the migration of health workers from developing countries to developed countries.

Based on research studies conducted in Malawi, South Africa and Kenya on the implementation of the WHO Global Code in 2013, external migration of skilled health professionals was no longer regarded as top priority to policy makers as it was ten years ago (Dambisya et al., 2014). Of concern presently is the poor recruitment and retention of health professionals in remote and rural healthcare facilities, internal movement of healthcare professionals from poorer rural to wealthier urban areas, movement from government healthcare institutions to the private sector and movement from primary healthcare clinics to tertiary hospitals (Dambisya et al., 2014). Dambisya et al. (2014) reported that the rate of migration of skilled healthcare workers from low- to high-income countries had declined but more importantly that it was the scale and impact of this migration that was seen to be important. Although African countries played an important role in the development and the facilitation of adoption of the code, two years after its adoption in 2010, only four countries had designated national authorities to implement it. In addition, only one country had submitted a report by 2013 to the WHO secretariat regarding the progress made (Dambisya et al., 2014). However, the shortage of healthcare professionals remains a challenge in these counties and the interpretation of the results should also be taken with consideration that data on external migration of health professionals are not readily available, as admitted by the stakeholders who participated in the research study (Dambisya et al., 2014).

To address the issue of recruitment and retention of healthcare workers in rural areas, the shortage of healthcare workers, the migration of health workers from developing to developed countries and to ensure equity in healthcare provision, the WHO and other international bodies

hosted a number of international events and made various declarations to highlight the importance of improving health worker recruitment, retention and policy interventions and actions as outlined below:

a. The *World Health Assembly 2004* passed a resolution requesting all member states to implement a mechanism to address the retention of health workers.
b. In March 2008, *the Kampala Declaration for Global Action,* represented by a diverse group of governments, multilateral, bilateral and academic institutions, civic society, the private sector and health workers' professional associations and unions, requested governments to provide adequate incentives and to ensure safe working environments for effective retention and equitable distribution of health workers (GHWA, 2008).
c. The *Global Health Workforce Alliance (GHWA*) was tasked to review progress following the 2008 Kampala Declaration. It established a team of international experts in HRH (Witter et al., 2013). This team reported on the need to increase efforts towards costing, funding and implementing HRH; for stakeholders in source and receiving countries to work together to strengthen the capacity to collect and analyse health workforce status data to inform managers and policy decisions and for enrolment in education and training programmes to improve the skill mix to include community-based health workers. It also proposed work on strategies to retrain health workers in underserved areas; improve working conditions and ensure additional investments in health worker development (Witter et al., 2013).
d. The 2008 *G8 July Communiqué* was issued to reiterate the need to ensure effective retention of health workers because rural healthcare services continued to experience shortages of skilled health workers (GHWA, 2008).
e. The *2008 Report from the Commission on Social Determinants of Health* urged governments and international partners to be aware of the geographic imbalances in the distribution of health workers between urban and rural areas and to take action as this imbalance was identified as leading to poor and inequitable provision of quality healthcare (GHWA, 2008).
f. The *High-level Commission on Health Employment and Economic Growth* was set up by the United Nations in 2016 in response to the projected shortage of health workers in low and lower-middle income countries by 2030, as reported earlier. It was tasked to make recommendations to stimulate and provide guidance in the creation of 40 million jobs in the health and social sectors to address the shortage. The recommendations were to be implemented in the context of achieving the sustainable development goals (SDGs), particularly SDG 1 on the elimination of poverty; SDG 3 on provision of good health and well-being; SDG 4 on quality education; SDG 5 on gender equity and SDG 8 on decent work and economic growth.

To achieve these SDGs, the following recommendations were made:

- Providing high quality education based on competencies needed to address health needs;
- Using communication technology to enhance people-centred health services;
- Stimulating and investing in the creation of decent jobs in the health sector;
- Prioritising women's leadership and addressing gender inequalities in education and the labour market;
- Replacing hospital-based approaches with preventive care, efficient, affordable and integrated community-based, people-centred primary and ambulatory care focusing on underserved areas;
- Investing in building health workforce capacities in response to public health risks, emergencies and conflict situations;
- Financing healthcare, development of the right skills, decent working conditions and improvement in the number of health workers;
- Promotion of inter-sectoral co-operation and partnerships at national, regional, and international levels, involving civil society, unions, health workers' organisations and the private sector;
- Recognising health worker qualifications and skills and migrant rights internationally; and
- Undertaking robust research and analysis of health labour markets.

Despite the policy recognition reflected in the previous section, remote rural areas continued to fail to attract and retain healthcare professionals when compared to urban areas (Wilson et al., 2009). Recruitment and retention of healthcare workers in rural areas was affected by opportunities for career development and professional advancement, availability of professional support networks and financial incentives (Boad-Kusi et al., 2018; Mbemba et al., 2016; Viscomi et al., 2013; Henry et al., 2009; McAuliffe and Barnett, 2009; Lehmann et al., 2008; Phillip, Wright, 2005) as well as working conditions, lack of career development, living conditions in rural areas (Wurie et al., 2016).

From the research articles and reports reviewed in this paper the following themes emerged and are discussed in this review:

a. Strategies to recruit and retain skilled healthcare workers for remote rural areas.
b. Strategies reported to have had a positive impact on recruitment and retention of healthcare workers in remote rural areas.
c. Challenges faced by institutions and stakeholders in implementing and sustaining the strategies in (a) and (b).
d. Policies that could be developed for the successful implementation of these strategies.

Lehman et al. (2008) found that no single strategy could be used to improve sustained recruitment and retention. This is supported by Awases et al. (2004) and Zurn et al. (2004) who found that the 'pull' factors to improve recruitment and retention of health workers included improved employment opportunities, career prospects, higher income, better living conditions and improved stimulating environment. In addition, Lehmann et al. (2008) found that the strategies applied in country x may not be suitable for country y. Therefore, they recommended reviewing how the strategies were developed and co-ordinated and who was involved.

A systematic review of literature conducted by Willis-Shatuck et al. (2008) identified the following seven themes regarding strategies to improve recruitment and retention of healthcare workers:

- Financial incentives in terms of salary allowance;
- Career developments with the possibilities of specialising or being promoted to a higher position;
- Continuing education that entails availability of opportunities to take classes and attend seminars;
- Hospital infrastructure that is described as the work environment;
- Availability of resources such as equipment and medical supplies needed to perform their duties;
- Having good working relationship between workers and management; and
- Receiving personal recognition and appreciation from management and colleagues.

Another systematic review of literature conducted by Dolea et al. (2010) found the following additional factors to be responsible for improving recruitment and retention of health professionals to rural and remote areas:

- Health professionals with rural backgrounds are more likely to practice in rural areas;
- Clinical rotation of medical students in rural settings may influence their subsequent decision to work in underserved areas;
- Adaptation of the curricula to include rural health does influence workers to develop interest in those areas; and
- Education programmes that are rurally oriented do influence the graduates to practice in rural areas.

Grobler et al. (2015) elaborated further on the above factors with a finding of intervention strategies that improve recruitment and retention of healthcare workers commonly included:

- Financial incentives offered in the form of education loan repayments, grants for furthering studies and higher salaries for those working in remote rural areas;
- Compulsory requirements for all graduates to work in underserved areas; and
- Provision of support for those who chose to work in underserved rural communities.

Sempowski (2004) found evidence that some companies resorted to buying health workers whose contracts had not yet expired as a way of improving recruitment and preventing staff shortages.

In 2009 the WHO secretariat assembled a group of nine researchers, policy makers, funders, representatives of professional associations and programme implementers from all regions. They were asked to examine existing knowledge and evidence to provide up-to-date, practical guidance to policy makers, on how to design, implement and evaluate strategies to recruit and retain all types of health workers in remote rural areas. The group met six times from February 2009 to February 2010 and recommended four key themes, sub-themes discussed later in the paper:

- Education;
- Regulatory intervention;
- Personal and professional support; and
- Financial incentives.

Based on the literature cited above, four key strategic or thematic areas are identified with sub-themes, as indicated in *Table 1* below. These recommended strategies apply to all types of healthcare workers in the formal and informal sectors, government and non-governmental sectors, and regulated and non-regulated health sectors.

Table 1: Summary of themes and sub-themes on health worker recruitment and retention

Theme	Sub-theme
Education and training of healthcare workers	a. Admission policies to enrol students with rural backgrounds; b. Location of health professional schools, campuses and family medicine residency programmes; c. Exposure of undergraduate healthcare students to rural community experiences; d. Revision of undergraduate and postgraduate curricula to include rural health topics; and e. Design of continuing education and professional development programmes to meet the needs of rural healthcare workers
Review of regulations and policies regarding provision of healthcare services in rural areas	a. Compulsory service requirements; b. Provision of scholarships, bursaries or other education subsidies; c. Introduction and enhancement of scope of practice for healthcare workers; and d. Introduction of different types of healthcare workers
Provision of financial incentives	No sub-themes a. Other income-generating activities b. Occupation Specific Dispensation c. Discrimination in provision of incentives c. Non-financial incentives
Personnel and professional support	a. Leaving conditions of healthcare workers b. Improvement in management

Source: Authors from evidence cited in this section.

Each of these areas are discussed based on evidence found in the literature in the subsections below.

4. Education and training of healthcare workers

From this theme, five sub-themes emerged from the literature reviewed, namely:

a. Admission policies to enrol students with rural backgrounds;
b. Location of health professional schools, campuses and family medicine residency programmes;
c. Exposure of undergraduate healthcare students to rural community experiences;

d. Revision of undergraduate and postgraduate curricula to include rural health topics; and
e. Designing continuing education and professional development programmes to meet the needs of rural health workers.

Admission policies to enrol students with rural backgrounds
WHO recommends that governments consider revising their admission policies regarding admission criteria of students for the health workforce. They recommended that student admission be based on geographic origin, ethnicity, gender, career and in-service orientation, to improve recruitment and retention of health workers in rural and remote areas (WHO, 2010a). Others agree that recruiting students who are born and bred in rural areas may improve retention of healthcare workers in rural and remote areas as they posit that most of these students will go and work in those areas on completion of their training (Viscomi et al., 2013; Henry et al., 2009; Lehmann et al., 2008; McAuliffe, Barnett, 2009; Philipp and Wright, 2009; Mbemba et al., 2016; Matumoto et al., 2008). In a research study conducted in South Africa to investigate the career choices of medical graduates of rural origin and to determine what proportion of those graduates were practicing in rural areas, 38.4% of medical students of rural origin were found to be practicing in rural areas as compared to 12.4% of students of urban origin (de Vries and Reid, 2003). De Vries and Reid (2003) thus recommended that the selection criteria of medical faculties be reviewed with regard to both rural origin and career path aspirations of students. They suggest that students be offered bursaries on condition that they serve in the rural areas on completion of their studies. Daniels et al. (2007) report that having a rural background, participating in a rural training programme and having the desire to serve the community were important characteristics for health professionals to stay in remote rural areas. Students who participated in a rural training programme and stayed in rural practice locations preferred subsequently to serve in a smaller community, often located in rural and remote areas.

The challenge of implementing this policy is that it could be viewed as being discriminatory. Each country should thus work out a strategy that is non-discriminatory. For example, institutions could be given information regarding the percentages of shortages of different healthcare workers in the area and work out the ratios of admission based on those numbers.

Location of health professional schools and family medicine residency programmes
Observational studies conducted in rural areas of the United States by Wilson (2009), in China by Wang (2002) and in the Democratic Republic of Congo by Longombe (2009) showed that medical schools located in rural areas are more likely to produce physicians who will work in rural areas. According to reports by WHO (2010) and Dolea et al. (2010) the relocation of medical schools to rural and remote areas was effective in supporting retention of medical doctors in rural areas of China, Democratic Republic of Congo, Japan and USA. However, implementing this strategy may be a daunting task for low-income countries as it may be costly to relocate or build a new educational institution**,** may be difficult to recruit lecturers, and address other challenges such as poor roads, lack of transport and accommodation. It would be advisable for countries to plan ahead for this or to have a campus attached to the main institution in the rural and remote area.

Exposure of undergraduate healthcare students to rural community experiences
Exposure of healthcare students to rural experiences during their training is reported to influence them to value working in such areas on completion of their training (Playford et al., 2006). According to Araújo and Maeda (2013), exposing students to rural practice could be by compulsory rotations in rural settings or by including courses or topics in the curricula dealing with rural health so that they feel comfortable working in rural areas on completion of their studies. In Lusaka, Zambia, Morris et al. (2008) found that family physicians trained in community health centres were more likely to work in the underserved rural settings as compared to their counterparts trained in hospitals.

Revision of undergraduate and postgraduate curricula to include rural health topics
Various authors reported that exposing healthcare students to rural education and training may influence these graduates to return to remote rural areas (Brooks et al., 2002; Laven et al., 2003;

Simmons et al., 2002; Wilkinson et al., 2003). This finding was a factor in the Australian Commonwealth government establishing a Rural Health Module (Liaw et al., 2005). This module was made compulsory for all senior medical students, with an elective module for other health professionals. It aimed to equip health professionals with knowledge, understanding and skills for future participation in rural healthcare services.

Halaas et al. (2008) Rabinowitz et al. (2005) and WHO (2010) all proposed reviewing the medical student curriculum so that it includes rural health issues to promote an interest in working in the rural areas on completion of their studies. According to Rabinowitz et al. (2005), an eight-fold increase in recruitment and the period spent by family physicians in remote rural areas was observed after such training. The High-level Commission on Health Employment and Economic Growth (2016) has further recommended reform of health education so that it is competency-based as well as based on the needs of the communities, while Frenk et al. (2010) have recommended instructional reforms that are competency-driven and also use inter-professional and IT-empowered educational resources. Furthermore, they have called for institutional reforms to implement these changes. In addition, countries could consider the social origin, age distribution and gender composition of students, ensure that governmental and academic leadership is available, facilitate substantial investment in education and strengthen global learning.

Designing continuing education and professional development programmes
Continuous Professional Development (CPD) programmes in rural and remote areas can help to meet the needs of and thus retain rural health workers. CPD is given a different term depending on the settings, viz.: Continuing Professional Education (Beatty, 2001); In-service Education (McAvoy et al., 2007; Kaul, 2003); Continuing Education (Campbell, 2010; Charles and Mamary 2002); Lifelong Learning (McLaren et al., 2008; Ryan, 2003) and Professional Development (Price, (2007). They all, however, refer to professional education acquired after qualifying as a professional, noting its role in maintaining competency in a particular field (Ross et al., 2013) and contributing to development of new professional skills (McLaren et al., 2008). Offering such programmes in remote rural areas dispels the myth that development programmes are only offered in urban settings, as they are a professional imperative for all health professionals to maintain competency and broaden knowledge and expertise (Davids, 2006; NMBA, 2010). If effective, these programmes can improve patient care, professional job satisfaction and may support rural recruitment and retention of doctors and other health professionals (Marais et al., 2007; Fahey and Monaghan, 2005; Humphreys et al., 2007).

Nevertheless, countries vary in how far they are addressing this input (Cote, 2007; Doyle, 2006; Evans et al., 2007, Young et al., 2010). Several studies on barriers to nurse participation in CPD found a lack of employer support or funding and limited access to childcare to enable their participation (Penz et al., 2007; Richards and Potgieter, 2010). Penz et al. (2007) found that providing funding for nurses and allowing them to schedule their shifts to accommodate their courses would encourage them to remain in rural areas. Curran et al. (2006) proposed further paying for their travelling expenses. Creating opportunities to attend continuing education has been found to increase job satisfaction (Best and Thurton, 2004; Penz et al., 2007) and to decrease staff turnover (Bjørk et al., 2007). Health workers value the CPD because it contributes to their personal and professional growth, career opportunities and to improved patient care. Further research is thus needed to determine what content and organisation of CPD programmes enable their effectiveness and sustained contribution to improved competencies, knowledge and skills in practice issues (Ross et al., 2013).

5. Laws and policies for provision of services in rural areas

A number of the earlier strategies raised may require a review of policies and regulations. Governments can establish rules and laws that compel health workers to move to rural areas and WHO (2010) recommends options such as:

a. Compulsory service requirements;
b. Provision of scholarships, bursaries or other education subsidies;

c. Introduction and enhancement of scope of practice for healthcare workers; and
d. Introduction of different types of health workers.

Compulsory service requirements
According to Freywot et al. (2010), compulsory service for new graduates to work in remote rural areas for a given period of time is applied in more than 70 countries. As a way of improving the retention of health workers, the Bangladesh Medical and Dental Council stipulated, for example, that all medical students spend two weeks in rural facilities as part of their clinical rotation (Rawal et al., 2015). Furthermore, all newly recruited medical students in the public sector are expected to serve at least two years in a rural area. This practice exposes students to these areas during their study and gives them an idea of what to expect in such practices on completion of their training.

However, the practice is also viewed by some graduates as being unfair and encroaching on their rights to be employed anywhere (Freywot et al., 2010). In addition, it reduces the motivation of graduates and their productivity and thus poor provision of quality healthcare. It has been found to be unpopular amongst students and healthcare professionals (Freywot et al., 2010). Compulsory deployment of new graduates to remote rural areas can be difficult to co-ordinate, especially for rural or remote settings (Freywot et al., 2010). Some have objected to the compulsory service based on the costs involved in rolling it out (Myanmar Ministry of Health, 2008; Homedes and Ugalde, 2005; Liaw et al. 2005). Humphreys et al. (2009) reported that even if the programmes were rolled out there were other challenges such as: poor facilities, lack of transportation, inadequate clean water and electricity, and lack of medication and equipment. Furthermore, medical students, in particular, reported that some of the challenges of working in the remote and rural areas made it impossible for them to perform some of the skills learnt at medical school because there was no equipment. They also complained about lack of supervisors (Kotzee and Couper (2006).

Some authors have advised that compulsory services be supplemented by support systems and incentives, such as the awarding of scholarships and other educational subsidies (Omoke and Marincowitz, 2005; Koot and Martineau, 2005; Liaw et al., 2005; Ferrinho and Van Lergerghe 2000; Blaau et al., 2010). In South Africa, Halfer and Graf (2006) have noted that experience of job satisfaction by new graduates during the transition year is a positive factor for improved retention and is combined with the compulsory service measures. South Africa, Indonesia, Thailand and Zambia offer combined compulsory service and educational incentives, but their effectiveness have not been assessed (Reid, 2006). South Africa reported an improvement in staffing levels, frequent visits of health workers to rural hospitals and remote clinics and a reduction in patient waiting time (Reid, 2006). Hatcher et al. (2014) reported that doctors and dentists in South Africa were satisfied with the strategy, as were clinical psychologists and newly qualified nurses (Govender et al., 2015; Pillay and Harvey 2006). Another study conducted by Du Plessis and Seekoei (2013) in South Africa found that newly qualified midwives who were doing community service experienced job satisfaction when they were consulted by colleagues. Araújo and Maeda (2013) suggest that any coercive approach should be combined with incentives.

Many governments do offer medical students bursaries, scholarships, stipends or other forms of funding incentives that assist them to cover their study costs at universities or colleges. In return, they sign a contract stipulating that they will work a certain number of years in rural and remote areas after completion of their studies (WHO, 2010a; Bärninghausen and Bloom, 2009). A systematic review of literature about these programmes in the USA, Canada, Japan, New Zealand and South Africa reported that the number of participants who remained in the rural areas on completion of the obligatory period of service ranged from 12% to 90%, although the authors indicate that methodological flaws may weaken the validity of the findings (Bärninghausen and Bloom, 2009). They recommend further research on why some graduates choose to 'buy out' of compulsory service, rather than completing the stipulated years.

Introduction, enhancement of scope of practice of different types of health worker
While the shortage of well-trained health workers is a global problem WHO (2008), many low- and middle-income countries are more heavily affected because of the demands of HIV and AIDS (UNAIDS, 2012). For example, to provide antiretroviral therapy to 1,000 people, one or two doctors, up to seven nurses, approximately three pharmacy staff and a wide range of community workers are required (WHO, 2006). The high number of people living with HIV and AIDS has further exacerbated the shortage of skilled health workers, especially in rural and remote areas (UNAIDS, 2012).

In response, a Nurse-Initiated-Managed Antiretroviral Treatment (NIMART) has been successfully initiated in South Africa, where antiretroviral therapy (ART) is prescribed by trained professional nurses (Georgeu et al., 2012). A survey of senior nursing leadership teams from fifteen African countries indicated that NIMART is now more widely practiced and authorised in policy in all fifteen, although it is not reinforced by regulations or incorporated into preservice education for nurses and midwives (Zuber et al., 2014).

Tsolekile et al. (2015) also note that many low- and middle-income countries are experiencing a health transition from infectious diseases to chronic non-infectious diseases, with mortality and morbidity rate of non-communicable diseases rising. This rise of the rate of non-communicable diseases is adding a burden to the existing communicable diseases. It is also posing an additional strain on the already overburdened health services infrastructure and inadequate healthcare workers (Tsolekile et al., 2015).

One strategy that has been used is 'task-shifting' involving the rational redistribution of tasks from more specialised to less specialised health workers and often the shortening of training (WHO, 2006). Ochieng et al. (2014) escalated this to include the delegation of tasks from health professionals to lay trained volunteers. In some cases task-shifting is delegated without written guidelines or procedures (Dambisya and Matinhure, 2012). In our review we identified examples of tasks shifted from doctors and specialists to non-physician clinicians such as nurses, clinical officers, lay people, patients and patients' relatives in relation to:

- Ophthalmic clinical officers doing cataract surgery previously done by ophthalmologists;
- Psychiatric clinical officers who covered the work performed by psychiatrists;
- Manual vacuum extraction and manual removal of the placenta carried out by trained midwives and are covered by changing their scope of their practice;
- Home-based community health workers managing fever;
- Patients' relatives trained to assist in the ongoing care of patients with burns in the Burns Unit;
- People living with HIV and AIDS and lay counsellors involved in the care and support of HIV and AIDS patients; and
- Delivery of large-scale and effective ART programme NIMART by nurses in under-resourced countries (Dambisya and Matinhure, 2012; Zuber et al. 2014).

Community health workers are generally allocated simple tasks but in instances where the shortage of healthcare workers has reached crisis level, their scope of practice is increased to include health promotion, disease prevention, basic curative care and referrals, monitoring health indicators and creation of vital linkages between community and formal health systems (Lehman, at al., 2008; Perez et al., 2009; Zacharia et al., 2009).

The education and training of health workers takes a minimum of three years and up to six or seven years for medical doctors. This means that vacant positions of healthcare workers with skills could potentially take three to seven years to fill. With the recommendations of countries experiencing the challenges mentioned above, task shifting was adopted and implemented by many countries, especially African countries such as Kenya, Cameroon, Zambia, Rwanda, Uganda, Malawi, South Africa, and Nigeria (Babigumira et al., 2009; Bemelmans et al., 2010, Dohrn et al., 2009; Jaffar et al., 2009, Morris et al., 2009; Samb et al., 2007; Sherr et al., 2010; Vasan et al., 2009; Zachariah et al., 2009)

Delegation of tasks, whether from doctors to non-physician clinicians, including nurses, or from nurses to nursing assistants or aides to non-professionals or lay health workers and patients can lead to improvements in access to health, coverage and improvement in quality health services, helping to mitigate shortages (Huicho et al. 2008; Morris et al. 2009; Kruk et al. 2007; Chilopora et al., 2016; Libamba et al., 2007; Cumbi et al., 2007; Tache and Chapman, 2006; Morris et al., 2009; Lehman and Saunders, 2007, Haines et al., 2007; Iwu and Holzemer, 2013; Lewin et al., 2005) These studies provide no direct report of the role of task shifting in rural retention. They point to some strategies that have been used to mitigate shortfalls, when retention strategies have not worked, but cannot be seen to be long-term solutions.

There may be one way task shifting affects the causes of poor retention. Georgeu et al. (2012) and Assefa et al. (2012) report that nurses experienced job satisfaction, improved morale, confidence and prestige in performing some of the activities previously reserved for medical doctors, as well as improved support by peers and trust between nurses and doctors. Task shifting was associated with a reduction in congestion at larger hospitals because nurses in rural health centres and clinics were able to initiate and maintain patients on ART, nearer to the patients, potentially reducing stress for health workers.

While task shifting is occurring in many countries, it is often not legislated, as for example, in Swaziland (Deller et al., 2015). In most countries, ministries of health and/or professional and licensing councils regulate practice, delineate the roles of different health professionals, educate healthcare professionals and protect clients seeking healthcare. For example, in South Africa, the practice of healthcare professionals is regulated by bodies such as The Health Professions Council of South Africa (2008) and The South African Nursing Council (Nursing Act No. 50, 1978). These structures prescribe pre-service curricula, job descriptions and procedure manuals for healthcare workers or the government passes legislation authorising their practice (Deller et al., 2015). Yet their role in task shifting has not been well documented. Given its role in many countries, it appears to be important for organisations to change organisational structures, establish regulatory systems, and provide training of the people to whom tasks will be allocated. The management capacity of the process is thus critical (Tache and Chapman, 2006). For example, this was noted in relation to the training, supervision and emotional support of community mental health workers for them to succeed in their new roles (Saraceno et al., 2007) and to be supported and supervised (Zacharia et al., 2009).

6. Provision of financial incentives

Many researchers have identified financial incentives as an important strategy to recruit and retain health workers in remote and rural areas (Garnet et al., 2008; Gillham and Ristevski, 2007; Hall et al., 2007; King and McInerney, 2006; Chopra et al. 2008; Penn-Kekana et al., 2005; Chikanda, 200; Dolea Adams 2005; Kotzee and Couper, 2006; Ssengooba et al., 2007; Manongi et al., 2006; Dieleman et al., 2006). Most of these studies were conducted in African countries. These findings are also supported by a systematic review of literature conducted by Liu et al. (2015) which found that in 22 out of 40 studies reviewed, financial incentives were used to attract health workers to remote rural areas.

Income-generating activities
When health workers' salaries are low, they may moonlight (take up double jobs) in other healthcare institutions (McCoy et al., 2008). One of the major problems with moonlighting is that the healthcare workers become overworked and tired and may be less accessible to patients by reducing the amount of time they spend in public services (Dieleman et al., 2003; King and McInerney, 2006; Laven et al., 2003; Lerberghe et al., 2002).

Occupation-specific dispensation
According to the WHO (2006) health report, direct financial incentives to practice in rural areas may encourage health professionals to move to rural areas. The occupation-specific dispensation (OSD), a financial incentive strategy, was introduced in South Africa in 2007 to attract, motivate and retain nurses in the public sector. This financial incentive strategy attracted

nurses who were working abroad to return, those who were working in the private health sector were also attracted back to the public health sector. This strategy also encouraged nurses to improve their qualifications or to specialise in critical skills that were lacking, such as Critical Care and Theatre Technique (PHSD SBC, 2007; Department of Public Service and Administration, 2007).

Discrimination in provision of incentives
Retention of healthcare workers can also be affected by the size of pay differences between different types of health professionals (McCoy et al., 2008). Those who earn less feel that their skills are not valued and they may move to other institutions or health facilities, usually in urban areas (McCoy et al., 2008). The above findings raises a concern that some incentives were not given to all the professionals. For example: in Zambia and Botswana only doctors received the incentive and in Malawi only nurse tutors (Schwabe et al., 2004). Initially, in Lesotho only doctors received overtime/night shift allowances. This practice demotivates other workers (Schwabe et al., 2004).

Non-financial incentives
Financial incentives can be given in various ways or in combination with other forms of incentives depending on the context. A systematic review of 43 studies on financial incentive programmes (34 in the US, five in Japan, two in Canada, one each in New Zealand and South Africa), identified five different types of programmes, namely: service requiring scholarships, educational loans with service requirements, service-option educational loans, loan repayment programmes and direct financial incentives (Bärnighausen and Bloom, 2009). In Thailand, for example, loan repayments for medical students were viewed as an option that could attract and retain health workers. In Australia, financial incentives such as scholarships and loan repayments were based on geographic location and the length of time the health professionals had been practicing in remote rural area (Humphreys et al., 2009). Bärnighausen and Bloom (2008; 2009) reported that improvements in salaries and other benefits do contribute towards health worker retention in rural and remote areas.

7. Personnel and professional support

Living conditions of health workers
According to literature review conducted by Grobler et al. (2009), personnel support issues affecting healthcare workers and their families include living conditions, availability of electricity, proper sanitation, access to schools and telecommunication. In addition, providing accommodation for the family and meeting the educational needs of the children of health workers were found in Mali, Thailand and Zambia to be significant in influencing the health worker's decision to relocate or to remain in the rural areas (Grobler et al. 2009). Recommendations also were made in these settings to improve working conditions and provide professional support by offering supervision, support and guidance to newly qualified health workers and by ensuring the availability of equipment and supplies (Grobler et al., 2009). In support, poor working conditions, separation from family were reported to be responsible for poor retention of health workers in Sierra Leone (Wurie et al., 2016). Systematic literature review by Lehmann et al. (2008) reported that poor living conditions discouraged health workers to remain in rural areas whereas issues such as availability of schools for health workers' children motivated them to remain in the rural areas.

Support of students enrolled for health professions
Introducing rural components into health science courses and programmes, establishing pre-med clubs and mentoring systems for rural students does increase the enrolment of students from rural areas (Rourke, 2005). In addition, these students should also be provided with counselling, be assisted with filling in medical school enrolment forms, all in a well-structured support system developed for these students (Rourke, 2005).

Improvement in management
Versteeg et al. (2013) in South Africa found that employing managers with appropriate skills, who are friendly, committed to their work, accountable and skilled in administration and management of healthcare workers motivates other healthcare workers to remain in remote rural areas. Furthermore, managers who are concerned with creating a positive and an appealing organisational climate in the work area were observed to influence health workers to remain in these areas (Versteeg et al., 2013).

8. Discussion

The themes and sub-themes identified in the prior sections point to key factors and strategies that may be relevant for retention of health workers in remote rural areas in east and southern African countries.

Reviewing admission policies to enrol students based on geographic origin, ethnicity, gender, career and in-service orientation and using selection criteria in regard to both rural origin and career path aspirations of students were noted to improve recruitment and retention of health workers in rural and remote areas, although they may face challenges in implementation.

Exposing healthcare students to rural experiences during their training, revising curricula to include courses or topics dealing with rural health to build relevant skills for rural practice and ensuring competency-based training were reported to potentially increase student confidence, interest and capacity for rural practice. This may be reinforced by ensuring the funding of and provision for CPD programmes in rural areas, given that health workers value their contribution toward their personal and professional growth, career opportunities and to improved patient care. However, CPD programmes were found to face barriers such as lack of employer support, lack of funding to travel to training venues and limited access to childcare facilities. Further research is needed to determine what content and organisation of CPD programmes enable their effectiveness and sustained contribution to improved competencies, knowledge and skills in practice issues.

There is some debate on the role of compulsory service provisions in law or practice. Although it is being applied in many countries, it is also viewed by some graduates as being unfair and encroaching on their rights, can be difficult to co-ordinate and faces a context of poor living and working environments. It is thus suggested that compulsory service be supplemented by support systems and incentives, such as awarding scholarships and other educational subsidies.

The shortage of healthcare professionals in African countries, aggravated by an HIV epidemic that demands more healthcare workers, has led to a range of mitigatory options. One strategy used in response to shortages is shifting roles, such as in the South Africa Nurse-Initiated-Managed Antiretroviral Treatment (NIMART). Task shifting involving the redistribution of tasks from more specialised to less specialised health workers and often the shortening of training are being applied as a mitigatory strategy in many African countries and across a range of areas of practice, albeit with no clear impact on retention. Where it is associated with improved morale and prestige in performing activities previously reserved for more highly skilled workers, and where it is supported by peers and trust between cadres, it may improve job satisfaction and reduce work stress. However, it is rarely legislated in the roles and scope of practice of different healthcare professionals. It appears to be important for regulatory systems, training and management support of any such process to be applied, while recognising it as a mitigatory strategy and not a solution.

Financial incentives have been identified as an important strategy to recruit and retain health workers in remote and rural areas, whether as income-generating options or direct allowances and incentives. For example, introduction of Occupation-Specific Dispensation in South Africa noted earlier saw the return of many nurses who were working outside the country or from private to public sector work. Some countries may, however, lack adequate funds to sustain it so the incentives may lose value over time. If applied only to some workers, those who are excluded

may be demotivated. Such incentives cannot replace more substantive review of working conditions of healthcare workers and strategies to reduce the disparities in salaries between different health professionals.

Financial incentives may be accompanied by non-financial incentives, such as scholarships, educational loans with service requirements, service-option educational loans and loan repayment programmes. Support for adequate living conditions, availability of electricity, sanitation, telecommunication and meeting the educational needs of health workers' children were also found to be significant in influencing health workers' decision to relocate or to remain in rural areas.

Improving health worker management and support and the skills of HRH managers appear to impact positively on healthcare worker retention in a range of these areas.

9. Conclusions and recommendations

The High-Level Commission on Health Employment and Economic Growth (2016) argued against a business-as-usual approach to health worker recruitment and retention, given projected shortages of 18 million by 2030. The Commission recommended:

- Improving gender equality in education and employment;
- Transforming health professional education to be competency based, providing skills to respond to population needs and emergencies;
- Training health professionals in rural areas to reach underserved rural communities;
- Recognising the contributions of midwives, nurses and community health workers;
- Creating decent and well-paying jobs in the health sector; and
- Ensuring that this is done within a framework of processes for achieving universal health coverage, equity in healthcare and achievement of the SDGs.

A number of approaches have been raised in this paper, as summarised in the previous sections. To improve recruitment and retention of health workers, each country needs to choose strategies relevant for their context, that are feasible and affordable and after consultation with all relevant stakeholders. Countries need to ensure that the rights of both health workers and clients are not violated in respect of a deficit of strategies and in the strategies chosen.

The previous sections refer to strategies relating to

- Reviewing admission policies and criteria;
- Including rural practice issues and skills in health worker training and exposing students to rural areas during training;
- Improving access to CPD in rural areas;
- Ensuring that compulsory measures, where used, are accompanied by relevant support and incentives;
- Ensuring that mitigatory strategies such as task shifting are not 'task dumping' (Cameron et al., 2012; Dambisya and Matinhure 2012; Georgeu et al., 2012), do not replace more substantive solutions and that they are accompanied by suitable regulatory systems, training and management support;
- Using financial and non-financial incentives that address issues prioritised by health workers, in a way that does not motivate some while demotivating others, and not as a substitute for a more substantive review of working conditions of healthcare workers and strategies to reduce the disparities in salaries between different health professionals; and
- Improving health worker management and support, and the skills of HRH managers.

Funding is a key issue to ensure adequate resources for any of these strategies. A maldistribution of health workers calls in part for an equitable funding formula based on health needs (poverty, the burden of disease and staffing workloads and needs) to overcome the maldistribution of resources that often affect rural and remote areas (Buchan et al., 2013).

Management is equally important. It calls for career development programmes in this area and opportunities for staff promotion to senior positions in rural and remote areas. In this way, healthcare workers can be promoted based on education and training and experience without necessarily leaving the rural areas, given the value health workers place on such career pathways (Buchan et al., 2013).

This calls for governments to ensure that the recruitment and retention of health workers is part of their national health plan. Such planning can be informed by the WHO Global Code of Practice on International Recruitment of Health Personnel adopted in May 2010 at the 63rd World Health Assembly.

All the strategies cited call for planning, co-ordination and collaboration between the different sectors of government involved, the different health providers and training institutions in private and public sectors, as well as the health workers themselves and the representatives of rural communities. This calls for communication and leadership and for monitoring and evaluating strategies and research to provide evidence for the management of change to ensure relevance and updating of chosen strategies in a constantly changing context.

References

1. Agyepong IA, Anafi P, Asiamah E, Ansah E, Ashon D et al. (2004) 'Health worker (internal customer) satisfaction and motivation in the public sector in Ghana', *International Journal of Health Planning and Management* 19:319-336.
2. Anand S and Bärninghausen T (2004) 'Human resources and health outcomes: Cross-country econometric study', *Lancet* 364:1603-09.
3. Araújo EC and Maeda A (2013) 'How to recruit and retain health workers in rural and remote areas in developing countries', A guidance note. Health, nutrition and population (HNP) discussion paper.
4. Assefa Y, Kiflie A, Tekle B, Mariam DH, Laga M et al. (2014) 'Effectiveness and acceptability of delivery of antiretroviral treatment in health centres by health officers and nurses in Ethiopia', *Journal of Health Services Research & Policy* 17(1):24-29.
5. Awases M, Gbary A, Nyoni J, Chatora R (2004) 'Migration of health professionals in six countries: A synthesis report', Brazzaville: WHO Regional Office for Africa.
6. Babigumura JB, Sethi AK, Smyth K A, Singer ME (2009) 'Cost effectiveness of facility-based care, home-based care and mobile clinics for provision of antiretroviral therapy in Uganda', *Pharmaco Economics* 27(11):963-973.
7. Bärnighausen T and Bloom DE (2009) 'Financial incentives for return of service in underserved areas: A systematic review*', BMC Health Service Research* 8:86.
8. Bärnighausen T and Bloom D (2008) 'Designing financial-incentive programmes for return of medical service in underserved areas of sub-Saharan Africa', Program on the Global Demography of Aging (PGDA). *Harvard School of Public Health, Working Paper No.* 3708.
9. Beatty RM (2001) 'Continuing professional education, organisational support, and professional competency: Dilemmas of rural nurses', *Journal of Continuing Education Nursing* 32(5):203-09.
10. Bemelmans M, Van Den Akker T, Ford N, Philips M, Zachariah R, Harries A et al. (2010) 'Providing universal access to antiretroviral therapy in Thyolo, Malawi, through task shifting and decentralization of HIV/AIDS care', *Tropical Medicine and International Health* 15(12):1413-20.
11. Bertone M, Edem-Hotah J, Samai M, Witter S (2013) 'The development of HRH policy in Sierra Leone, 2002-2012 – a document review', ReBUILD online report available.
12. Best MF and Thurston NE (2004) 'Measuring nurse job satisfaction', *Journal of Nursing Administration* 34(6):283-90.
13. Bjørk IT, Samdal GB, Hensen BS, Tørstad S, Hamilton GA (2007) 'Job satisfaction in a Norwegian population of nurses: A questionnaire', *Journal of Nursing Studies,* 44:747-57.
14. Blaau D, Erasmus E, Pagaiya N, Tangecharoensathein V, Mullei S et al. (2010) 'Policy interventions that attract nurses to rural areas: A multidisciplinary discreet choice experiment', *Bulletin of the WHO 88:350-56.*
15. Boad-Kusi SB, Kyel S, Okeye VB, Abu SL (2018) 'Factors influencing the decision of Ghanain optometry students to practice in rural areas after graduation', *BMC Medical Education* 18:188. Available at: http//doi.org/10.1186/s1209-018-1302-3 (accessed 29 August 2018).
16. Brooks R, Walsh M, Mardon R, Lewis M, Clawson A (2002) 'Meeting the challenge of primary care in rural areas: A review of the role of nature and nurture in recruiting and retaining primary care doctors', *Academic Medicine* 77(8):790–98.
17. Buchan J, Couper ID, Tangcharoensathien V, Thepannya K, Jaskiewicz W et al. (2013) 'Early implementation of WHO recommendations for the retention of health workers in remote and rural areas', *Bulletin of the WHO* 91(11):834-40.
18. Burns N and Grove SK (2007) *Understanding nursing research--building an evidence-based practice.* Saunders: St. Louis.
19. Cameron D, Gerber A, Mbatha M, Mutyabule J, Swart H (2012) 'Nurse initiation and maintenance of patients on antiretroviral therapy: Are nurses in primary care clinics initiating ART after attending NIMART training?' *South African Medical Journal* 102(2): 98-100.

20. Campbell B (2010) 'Applying knowledge to generate action: A community-based knowledge translation framework', *Journal of Continuing Education in the Health Professions* 30(1):65-71.
21. Carnwell R and Daly W (2001) 'Strategies for the construction of a critical review of literature', *Nurse Education Practice* 1:57-63.
22. Charles PA and Mamary EM (2002) 'New choices for continuing education: A state wide survey of the practices and preferences of nurse practitioners', *Journal of Continuing Education in Nursing* 33(2):88-91.
23. Chen LC (2010) Striking the right balance: health workforce retention in remote and rural areas. *Bulletin WHO* 88:323.
24. Chen L, Evans T, Anand S, Boufford JI, Brown H et al. (2004) 'Human resources for health: Overcoming the crisis', *Lancet* 364:1984–90.
25. Chikanda A (2005) 'Nurse migration from Zimbabwe: Analysis of recent trends and impacts', *Nursing Inquiry* 12(3):162-74.
26. Chilopora G, Pereira C, Kamwendo F, Chimbiri A, Malunga E et al. (2016) 'Postoperative outcomes of caesarean sections and other major emergency obstetric surgery by clinical officers and medical officers in Malawi', *Malawi Medical Journal* 28(3):94-98.
27. Chopra M, Munro S, Lavis JL, Vist G, Bennet S (2008) 'Effects of policy options for human resources for health: An analysis of systematic reviews', *Lancet* 371:668-74.
28. Cote C (2007) *A survey of British Colombia family physicians' and nurses' experiences with continuous professional development and technology.* British Columbia University: Simon Fraser University.
29. Cronin P, Ryan F, Coughlan M (2008) 'Undertaking a literature review: A step-by-step approach', *British Journal of Nursing* 17(1):38-43.
30. Cumbi A, Pereira C, Malalane R, Vaz F, McCord C et al. (2007) 'Major surgery delegation to mid-level health practitioners in Mozambique: Health professionals' perceptions', *Human Resources for Health* 5:27.
31. Curran VR, Fleet L, Kirby F (2006). 'Factors influencing rural healthcare professional's education', *Australian Journal Rural Health* 14(2):51-55.
32. Dambisya YM and Matinhure S (2012) 'Policy and programmatic implications of task shifting in Uganda: A case study', *BMC Health Services Research* 12:61.
33. Dambisya YM, Malema N, Dulo C, Matinhure S, Kadama P (2014) 'The engagement of East and Southern African countries on the WHO Code of Practice on the International Recruitment of Health Personnel and its implementation', EQUINET discussion paper 103, June.
34. Daniels ZM, Van Leit BJ, Skipper BJ, Sanders ML, Rhyne RL (2007) 'Factors in recruiting and retaining health professionals for rural practice', *Journal of Rural Health* 23(1): 62-71.
35. Davids JM (2006) *Continuing professional development in nursing*. University of Stellenbosch: Stellenbosch.
36. Deller B, Tripathi V, Stender S, Otolorin E, Johnson P et al. (2015) 'Task shifting in maternal and newborn healthcare: Key components from policy to implementation', *International Journal of Gynaecology and Obstetrics* 130:S25-S31.
37. Department of Health (2010) 'HRH strategy for health sector: 2012/13-2016/17', Department of Health: Pretoria.
38. Department of Public Service and Administration (2007) 'Implementation of the occupational specific dispensation (OSD) for the occupations professional nurse, staff nurse and nursing assistant in the public service', Pretoria. Available at: http://www.dpsa.gov.za/dpsa2g/documents/rp/2007/0SD/18_2_p_24_10_2007.pdf (accessed 19 July 2018).
39. De Vries E, Reid S (2003) 'Do South African medical students of rural origin return to rural practice?' *South African Medical Journal* 93(10):789-93.
40. Dieleman M, Toonen J, Tourè H, Martineau T (2006) 'The match between motivation and performance management of health sector workers in Mali', *Human Resources for Health* 4(2). Open access.Dohrn J, Nzama B, Murrman M (2009) 'The impact of HIV scale-up on the role of the nurses in South Africa: Time for a new approach', *Journal of Acquire Immune Deficiency Virus* 52 (Suppl.1) S27-S29).

41. Dolea C, Adams O (2005) Motivation of healthcare workers – Review of the theories and empirical evidence', *Cahiers de Sociologie et de Démographie Médicales* 45(1):135-61.
42. Dolea C, Stormont L, Braichet JM (2010) 'Evaluated strategies to increase attraction and retention of health workers in remote and rural areas', *Bulletin of the World Health Organization* 88:379-85.
43. Doyle C (2006) 'Methods of continuing education preferred by Irish pediatric nurses', *Journal of Specialists in Pediatric Nursing* 11(2):90-99.
44. Du Plessis D, Seekoei E (2013) 'Newly qualified midwives working experiences and challenges in community service', *African Journal for Physical, Health Education, Recreation and Dance* Supplement 1:128-41.
45. Dussault G, Franceschini MC (2006) 'Not enough there, too many here: Understanding geographical imbalances in the distribution of health workforce', *Human Resources and Health* 4:12.
46. Evans W, Timmins F, Nicholl H, Brown G (2007) 'The impact of ongoing professional development for nurses in the republic of Ireland', *Journal of Nursing Management* 15(6):614-25.
47. Fahey CM and Monaghan JS (2005)' Australian rural midwives' perspective on continuing professional development', *Remote Rural Health* 5:468.
48. Ferrinho P and Van Lergerghe W (2000) 'Providing healthcare under adverse conditions: Health personnel performance and individual coping strategies', *Studies in Health Services Organisation & Policy, Issue 16.*
49. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N et al. (2010) 'Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world', *Lancet* 376(9756):1923-57
50. Freywot SF, Mullan PW, Payne H, Ross H (2010) 'Compulsory service of programmes for recruiting health workers in remote and rural areas: Do they work?' *Bulletin of the WHO* 88:364-70.
51. Fritzen S (2007) 'Strategic management of the health workforce in developing countries: What have we learned?' *Human Resources for Health* 5(1):4.
52. Garnet S, Coe K, Golebiowska K, Walsh H, Zander KK et al. (2008) *Attracting and keeping nursing professionals in an environment of chronic labour strategies: A study of mobility among nurses and midwives in the Northern Territory of Australia.* NT University Press: Darwin.
53. Georgeu D, Colvin CJ, Lewin S, Fairall L, Bachmann MD et al.(2012) 'Implementing nurse-initiated and managed antiretroviral treatment (NIMART) in South Africa: A qualitative process evaluation of the STRETCH trial'. *Implementation Science* 7(66).
54. Gillham S and Ristevski E (2007) 'Where do I go from here: We've got enough seniors?' Australian *Journal of Rural Health* 15(5):313-20.
55. Global Health Workforce Alliance (2008) *Health workers for all and all for health workers and agenda for global action.* First Global Human Resources for Health 2-7: Kampala, Uganda.
56. Govender S, Brysiewicz P, Bhengu B (2015) 'Perceptions of newly-qualified nurses performing compulsory community service in KwaZulu-Natal', *Curationis,* 38(1). Available at: http://dx.doi.org/10.4102.
57. Grobler L, Marindi PN, Mabunda S, Reuter H, Volmini J (2015) 'Intervention for increasing the proportion of health professionals practicing in underserved communities', *Cochrane Database of Systematic Reviews,* Issue 1, Article Number CD005314.
58. Haines A, Sanders D, Lehmann U et al. (2007) 'Achieving child survival goals: Potential contribution of community health workers', *Lancet* 368(9579):2121-31.
59. Halaas GW, Zink T, Finstad, Bolin, Center B (2008) 'Recruitment and retention of rural physicians: Outcomes from the rural physician associate program of Minnesota', *Journal of Rural Health* 24:345-52.
60. Hall DJ, Garnett ST, Barnes T, Stevens M (2007) 'Drivers of professional mobility in the Northern Territory: Dental professionals', *Rural and Remote Health* 7(655): Online.
61. Halfer D, Graf E (2006) 'Graduates perceptions of work experience', *Nursing Economics,* 24(3)*:*150-55.

62. Hatcher AM, Onah M, Korink S, Peacocke J, Reid S (2014) 'Placement, support and retention of health professional: National cross-sectional findings from medical and dental community service officers in South Africa', *Human Resources for Health* 12(14). Available at: http://dx.doi.org/10.1186/1478-4491-12-14.
63. Henry JA, Edwards BJ, Crotty B (2009) 'Why do medical graduates choose rural careers?' *Remote Rural Health* 9(1):1083.
64. High-level Commission on Health Employment and Economic Growth (2016) 'Working for health and growth: Investing in the health workforce'. Available at: http://apps.who.int/iris/bitstream/handle/10665/250047/9789241511308-eng.pdf;jssion.d (accessed 25 July 2018).
65. Homedes N and Ugalde A (2005) 'Human resources: The Cinderella of health sector reform in Latin America', *Human Resources for Health* 3:1.
66. Hongoro C and McPake B (2004) 'How to bridge the gap in human resources for health', *Lancet* 364(9443):1451-56.
67. Huicho L, Scherpbier RW, Nkowane AM, Victora CG (2008) 'How much does quality of child care vary between health workers with differing durations of training? An observation', Multicountry study. *Lancet* 372(9642):910-16.
68. Humphreys J, Wakerman J, Pashen D, Buykx P (2009) *Retention strategies and incentives for health workers in rural and remote areas: What works?'* Australian National University: Canberra, ACT.
69. Humphreys J, Wakerman J, Wells R, Kuipers P, Jones J et al. (2007) *Improving primary healthcare workforce retention in small rural and remote communities: How important is ongoing education and training?* Australian National University: Canberra, ACT.
70. International Labour Organisation (2014) 'Global health protection crisis leaves almost 40% of the world's population without any coverage' Available at: http://www.ilo.org/global/about.the.ilo/news/wcms_326227/lang-eng/index.htm (accessed 27 July 2018).
71. Iwu, EN, Holzemer, WL (2013) 'Task shifting of HIV management from doctors to nurses in Africa: Clinical outcomes and evidence on nurse self-efficacy and job satisfaction', *AIDS care* 26(1):42-52.
72. Jaffar S, Amuron B, Foster S (2009) 'Rates of virological failure in patients treated in a home-based versus a facility-based HIV-care model in Jinja, southeast Uganda: A cluster-randomized equivalence trial', *Lancet* 374:2080-89.
73. Kaul P (2003) 'In-service training of health workers through distance mode', *Nursing Journal India* 94(9):201-03.
74. King LA and McInerney PA (2006) 'Hospital workplace experiences of registered nurses that have contributed to their resignation in the Durban metropolitan area', *Curationis* 29 (4):70-81.
75. Koot J and Martineau T (2005) *Mid-term review: Zambian health workers retention scheme (ZHWRS) 2003-2004.* HRH, Global Resource Centre: Chapel Hill.
76. Kotzee T, Couper ID (2006) 'What interventions do South African qualified doctors think will retain them in rural hospitals of the Limpopo Province of South Africa', *Remote Rural Health* 6 (3):581.
77. Kruk ME, Pereira C, Vas F, Bergströ S, Falea S (2007) 'Economic evaluation of surgically trained assistant medical officers in performing major obstetric surgery in Mozambique', *BJOG an International Journal of Obstetrics and Gynaecology* 114:1256-60.
78. Lalonde M, McGills Hall L, Price S, Andrews G, Harries A et al. (2013) 'Support and access for nursing continuing education in Canadian working environment', *Nursing Leadership* 26 (special edition):51-60.
79. Laven G, Beilby J, Wilkinson D, McElroy H (2003). 'Factors associated with rural practice among Australian-trained general practitioners', *Medical Journal of Australia* 179:75-79.
80. Lerberghe WV, Concecão C, Damme V, Ferrinho P (2002) 'When staff is underpaid: Dealing with the individual coping strategies of health personnel', *Bulletin of the WHO* 80:582-554.
81. Lehmann U and Sanders D (2007) 'Community health workers: What do we know about them? The state of the evidence on the programmes, activities, costs and impact on health

outcomes of using community health workers' in *Evidence and Information for Policy (Health DoHRf, ed.*) WHO: Geneva.
82. Lehmann, U, Dieleman M, Martineau T (2008) 'Staffing remote rural areas in middle-and low-income countries: A literature review of attractive and retention', *BMC Health Services Research* 8(19).
83. Lewin SA, Dick J, Pond P, Zwarenstein M, Aja GA et al. (2005) 'Lay health workers in primary and community healthcare', *Cochrane Database System Reviews* CD004015.
84. Liaw S, McGareth B, Jones G, Russel U, Bourke L et al. (2005) 'A compulsory experiential and inter-professional rural health subject for undergraduate students', *Rural and Remote Health* 5:460. Available online.
85. Libamba E, Makombe SD, Harries AD et al. (2007) 'Malawi's contribution to "3 by 5": achievements and challenges', *Bulletin of the WHO* 85(2):156-60.
86. Liu X, Dou L, Zhang H, Sun Y, Yuan B (2015) 'Analysis of context factors in compulsory and incentive strategies for improving attraction and retention of health workers in rural and remote areas: A systematic review', *Human Resources for Health* 13:61.
87. Longombe AO (2009) 'Medical schools in rural areas –necessity or aberration?' *Rural and Remote Health* 9:13.
88. Mangham LJ, Hanson K (2010) 'Scaling up in international health: What are the key issues?' *Health Policy Plan* 25(2):85–96.
89. Manongi R, Marchant T, Bygbjerg IC (2006) 'Improving motivation among primary healthcare workers in Tanzania: A health worker perspective', *Human Resources for Health* 4(1):6-10.
90. Marais BJ, De Viliers M, Kruger J, Conradie H, Jenkins L et al. (2007) 'The role of educational strategies to reverse the inverse performance spiral in academically isolated rural hospitals', *South African Family Practice* 49(7):15a-15c.
91. Matumoto M, Inoue K, Kajii E (2008) 'Long-term effect of the home prefecture recruiting scheme of Jichi Medical University, Japan', *Remote Rural Health*, 8:930.
92. Mbemba GIC, Gragnon M, Hamelin-Brabant L (2016) 'Factors influencing recruitment and retention of healthcare workers in rural and remote areas in developed and developing countries: An overview', *Journal of Public Health Africa* 7(2):565.
93. McAuliffe T and Barnett F (2009) 'Factors influencing occupational therapy students' perceptions of rural and remote practice', *Remote Rural Health* 9:1078.
94. McAvoy BR, Fletcher JM, Elwood M (2007) 'Cancer education and training in primary healthcare -- a national audit of training providers', *Australian Family Physician* 36(11):973-76.
95. McCoy D, Bennett S, Witter S, Pond B, Baker O (2008) 'Salaries and incomes of health workers in sub-Saharan Africa', *Lancet* 371:675-781.
96. McLaren S, Woods L, Boudioni M, Lemma F, Tavabie A (2008) 'Implementing a strategy to promote lifelong learning in primary care workforce: An evaluation of leadership roles, change management approaches, interim challenges and achievements', *Quality Primary Care* 16(3):147-55.
97. Ministry of Health (2008) 'Human resources for health activities in Vietnam', in 3rd AAAH Conference, Colombo, Sri Lanka 12-15 October.
98. Miseda MH, Were SO, Murianki CA, Mutuku MP, Mutwiwa SN (2017) 'Implications of the shortage of health workforce specialist on universal health coverage in Kenya', *Human Resources for Health*15:80. At doi: 10.1186/s12960-017-0252-9.
99. Morris CG, Johnson B, Kim S, Chen F (2008) 'Training of physicians in community health centers: A health workforce solution', *Health Services Research* 4(4):271-76.
100. Morris MB, Chapula BT, Chi BH, Mwango A, Chi H et al. (2009). 'Use of task-shifting to rapid scale-up HIV treatment services: Experience from Lusaka, Zambia', *Health Services Research* 9(9):5.
101. Myanmar Ministry of Health (2008) 'Brief country report on HRH development activities' in: 3rd AAAH Conference, Colombo, Sri Lanka, 12-15 October.
102. Nursing and Midwifery Board of Australia (NMBA) (2010) *Continuing professional development registration Standard.* Nursing and Midwifery Board: Canberra.
103. Ochieng BM, Akunja E, Edwards N, Mombo D, Marende L et al. (2014) 'Perceptions of health stakeholders on task shifting and motivation of community health workers in

different socio-demographic context in Kenya (nomadic, peri-urban and rural agrarian)', *BMC Health Services Research* 14(Suppl 1):S4.
104. Omoke O and Marincowitz G (2005) 'Perceptions of hospital managers regarding the impact of doctors' community service', *South African Family Practice* 47:55-59.
105. Padarath A, Chamberlain C, McCoy D, Ntuli A, Rowson M, Lowenson R (2003) 'Health personnel in Southern Africa: Confronting maldistribution and brain drain', EQUINET discussion paper no 4.
106. Penn-Kekana L, Blaauw D, Tint KS, Monareng D, Chege J (2005) 'Nursing staff dynamics and implications for maternal health provision in public health facilities in the context of HIV/AIDS', *FRONTIERS Population Council* 1-45.
107. Penz K, D'Arcy C, Stewart N, Kostenuik J, Morgan D et al. (2007) 'Barriers to participation in continuing education activities among rural and remote nurses', *Journal of Continuing Education in Nursing* 38(2):41-50.
108. Philipp D and Wright D (2005) 'Recruiting healthcare professionals to rural areas', *Radiology Management* 27(6):44-50.
109. Public Health and Social Development Sectoral Bargaining Council (PHSD SBC) (2007) 'Agreement on implementation of an occupational specific dispensation for nurses', Resolution 3 of 2007 [Google Scholar].
110. Pillay AL and Harvey BM (2006) 'The experiences of the first South African Community Service Clinical psychologists', *South African Journal of Psychology* 36(2):259-80.
120. Playford D, Wheatland B, Larson A (2006) 'Exposure to rural areas of healthcare students does influence them to value working in such areas even after completion of studies Going Country: Rural student placement factors associated with future rural employment in nursing and allied health', *Australian Journal of Rural Health* 14(1):14-19.
121. Polit DF and Beck CT (2004) *Nursing research: principles and methods.* 7th ed. Lippincott, Williams and Wilkins: Philadelphia.
122. Price B (2007) 'Professional development opportunities in changing times', *Nursing Standard* 21(25):29-33.
123. Rawal LalB, Joarder T, Shariful IS, Uddin A, Ahmed SM (2015) 'Developing effective policy strategies to retain health workers in rural Bangladesh: A policy analysis', *Human Resources for Health* 13:36.
124. Reid SJ (2006) 'Rural health and transformation in South Africa', *South African Medical Journal* 96:676-77.
125. Richards L and Potgieter E (2010) 'Perceptions of registered nurses in four state health institutions on continuing formal education', *Curationis* 33(2):41-45.
126. Ross K, Barr J, Stevens J (2013) 'Mandatory continuing professional development requirements: What does this mean for Australian nurses', *BMC Nursing* 12:9.
127. Rourke J (2005) **'**Strategies to increase the enrolment of students of rural origin in medical school: Recommendations from the Society of Rural Physicians of Canada. *CMJ* 172(1): 62-65.
128. Ryan J (2003) 'Continuous professional development along the continuum of lifelong learning', *Nursing Education Today* 23(7):498-508.
129. Samb B, Celletti F, Holloway J, Van Damme W, De Dock KM et al. (2007) 'Rapid expansion of health workforce in response to the HIV epidemic', *New England Journal of Medicine* 357(24):2010-14.
130. Saraceno S, Van Ommerren M, Batniji R, Cohen A, Gureje O et al. (2007) 'Barriers to improvement of mental health services in low- and middle-income countries', *Lancet* 37: 1164-74.
131. Schwabe C, McGrath E, Lerothodi K (2004) 'Needs', Lesotho Human Resources Consultancy: Health Sector Resources.
132. Sempowski IP (2004) 'Effectiveness of financial incentives in exchange for rural and underserviced area return-of-service commitments systematic review of literature', Canadian *Journal of Rural Medicine* 9(2):82-88.
133. Simmons D, Bolitho, LE, Phelps GJ, Ziffer R, Disher GJ (2002) 'Dispelling the myths about rural consultant physician practice: The Victorian Physicians Survey', *Medical Journal of Australia* 176:477-81.

134. Sherr KH, Micek MA, Gimbel S, Gloyd SS, Hughes JP et al. (2010) 'Quality of HIV care provided by non-physician clinicians and physician in Mozambique: A retrospective cohort study', *AIDS* 24 (Suppl 1):S59-66.
135. Ssengooba F, Rahman S, Hongoro C, Rutebemberwa E, Mustafa A et al. (2007) 'Health sector reforms and human resources for health in Uganda and Bangladesh: Mechanisms of effect', *Human Resources for Health* 5(1):3-10.
136. Tache S and Chapman S (2006) 'The expanding roles and occupational characteristics of medical assistants: Overview of emergency field in allied health', *Journal of Allied Health* 35(4):233-37.
137. Travis PS, Bennet S, Haines A, Pang T, Bhutta Z et al. (2004) 'Overcoming health-systems constraints to achieve the Millennium Development Goals', *Lancet* 364:900-06.
138. Troy P, Wyness L, McAuliffe E (2007) 'Nurses' experiences of recruitment and migration from developing countries: A phenomenological approach', *Human Resources for Health* 5(1):15.
139. Tsolekile LP, Abrahams-Gessel S, Pouane T (2015) 'Healthcare professional shortage and task-shifting to prevent cardiovascular disease: Implications for low- and middle-income countries', *Current Cardiology Reports* 17:115.
140. UNAIDS (2012) 'Regional fact sheets'. Available at: http://unaids.org/en/media/unaids/contents/documents/epidemiology/2012/201207_Region a (accessed 30 October 2015).
141. United Nations Department of Economic and social Affairs (UN DESA) (2010) 'Population Division report', No.2010/2E/Ref, UN DESA: New York.
142. Vanasse R, Ricketts TC, Courteau J, Orzanco MG, Randdolph R et al. (2007) 'Long-term regional migration patterns of physicians over the course of their active practice careers', *Remote Rural Health* 7:812.
143. Vasan A, Kenya-Mugisha N, Seung KJ, Achieng M, Banura P et al. (2009) 'Agreement between physician and non-physician clinicians in starting antiretroviral therapy in rural Uganda', *Human Resources for Health* 7(75).
144. Versteeg, du Toit L, Couper I (2013) 'Building consensus on key priorities for rural healthcare in South Africa using the Delphi technique', *Global Health Action* 6(1): Supplement.
145. Viscomi M, Larkins S, Gupta TS (2013) 'Recruitment and retention of general practitioners in rural Canada and Australia: A review of the literature', *Canadian Journal of Rural Medicine* 18:13-23.
146. Wang L (2002) 'A comparison of metropolitan and rural medical schools in China. Which schools provide rural physicians?', *Australian Journal of Rural Health* 10:94-98.
147. WHO/World Bank (2017) 'New report shows that 400 million do not have access to essential health services' Available at: http://www.who.int/mediacentre/news/release/2015uhc.report/eng (accessed 27 July 2018).
148. WHO (2008) 'Task shifting: Rational distribution of tasks among health workforce teams: global recommendations and guidelines', WHO: Geneva.
149. WHO (2006) *The world health report: Working together for health*, WHO: Geneva.
150. WHO (2010a) 'Increasing access to health workers in remote and rural areas, through improved retention: Global recommendations', WHO: Geneva.
151. WHO (2010b) 'WHO global code of practice on the international recruitment of health personnel'. Available at: http://apps.who.int/gb/ebwha/pdf_fi les/WHA63/A63_R16-en.pdf.
152. WHO and GHWA (2014) 'A universal truth: No Health without a workforce'. Available at: www.who.int/workforcealliance/knowledge/resource/GHWA-a_universal_health_report.pdf
153. WHO, WHR (2003) 'The Word Health Report) (2003)--shaping the future'. Available at: http://www.who.int/whr/previous/en/index.html (accessed 25 July 2018).
154. Wilkinson D, Laven G, Pratt N, Beilbu J (2003) 'Impact of undergraduate and postgraduate rural training, and medical school entry criteria on rural practice among Australian general practitioners: National study of 2414GPs', *Medical Education* 37:809-814.
155. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D et al. (2008) 'Motivation and retention of health workers in developing countries: A systematic review', *BMC Health Service Research* 8:247.

156. Wilson, NW, Couper ID, De Vries E, Red S, Fish T et al. (2009) 'A critical review of intervention to redress the inequitable distribution of healthcare professional to rural and remote areas', *Remote Rural Health,* 9(1060). Available at: http://www.rrh.org.au.
157. Witter S, Cometto G, Uz Zaman R, Sheikh M, Wibulpolprasert S (2013) 'Implementing agenda for gobal action human resources for health: Analysis from an international tracking survey', *Journal of Hospital Administration* 2(1). Available at: https/DOI:10.5430?jha.v2n1pp77.
158. Wurie HR, Samai M, Witter S (2016) 'Retention of health workers in rural Sierra Leone: findings', *Human Resources for Health* 14(3).
159. Young P (2004) 'Using the internet to conduct a literature search', *Nursing Standard* 19(6): 45-51.
160. Young P, Glogowska, K, Lockyer L, Moule P (2010) '*An evaluation of the introduction of blended learning to Continuing Professional Development (CDP)',* University of West England: NHS Southwest: Bristol.
161. Zacharia R, Ford N, Phillips M, Lynch S, Massaquoi M et al. (2009) 'Task shifting in HIV/AIDS. Opportunities challenges and proposed actions for sub-Saharan Africa', Transaction of Royal Society of *Tropical Medicine and Hygiene* 103(6):549-58.
162. Zuber E, Carey MPP, McCarthy F, Verani AR, Msidi E et al. (2014) 'A survey of nurse-initiated-managed antiretroviral therapy NIMART in practice, education policy and regulation', *JANAC,* 25(6):520-31.
163. Zurn P, Dal Poz MR, Sitwell B, Adams O (2004) 'Imbalance in the health workforce', *Human Resources for Health* 2(1):13. Doi 1186/1478-4491-2-13.

Acronyms

ARV	Antretroviral Therapy
CPD	Continuous Professional Development
ECSA HC	East Central and Southern Africa Health Community
ESA	East and Southern Africa
EQUINET	Regional Network for Equity in Health in East and Southern Africa
GHWA	Global Health Workforce Alliance
HRH	Human Resources for Health
PHSD SBC	Public Health and Social Development Sectoral Bargaining Council
SADC	Southern African Development Community
SDGs	Sustainable Development Goals
UHC	Universal Health Coverage
WHO	World Health Organization

Equity in health implies addressing differences in health status that are unnecessary, avoidable and unfair. In southern Africa, these typically relate to disparities across racial groups, rural/urban status, socio-economic status, gender, age and geographical region. EQUINET is primarily concerned with equity motivated interventions that seek to allocate resources preferentially to those with the worst health status (vertical equity). EQUINET seeks to understand and influence the redistribution of social and economic resources for equity-oriented interventions. EQUINET also seeks to understand and inform the power and ability people (and social groups) have to make choices over health inputs and their capacity to use these choices towards health.

EQUINET implements work in a number of areas identified as central to health equity in east and southern Africa

- Protecting health in economic and trade policy
- Building universal, primary health care oriented health systems
- Equitable, health systems strengthening responses to HIV and AIDS
- Fair Financing of health systems
- Valuing and retaining health workers
- Organising participatory, people centred health systems
- Promoting public health law and health rights
- Social empowerment and action for health
- Monitoring progress through country and regional equity watches

EQUINET is governed by a steering committee involving institutions and individuals co-ordinating theme, country or process work in EQUINET from the following institutions: TARSC, Zimbabwe; CWGH, Zimbabwe; University of Cape Town (UCT), South Africa; CEHURD Uganda; University of Limpopo, South Africa; SEATINI, Zimbabwe; REACH Trust Malawi; Ministry of Health Mozambique; Ifakara Health Institute, Tanzania; Kenya Health Equity Network; Malawi Health Equity Network, SATUCC and NEAPACOH

For further information on EQUINET please contact the secretariat:
Training and Research Support Centre (TARSC)
Box CY651, Causeway, Harare, Zimbabwe Tel + 263 4 705108/708835
Email: admin@equinetafrica.org
Website: www.equinetafrica.org

Series Editor: Rene Loewenson
Issue editor: V Knight