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An Evidence-Based Policy Brief

IMPROVING THE HEALTH WORK FORCE IN REMOTE AND RURAL AREAS OF ETHIOPIA

Full Report

Included:
- ***Description of a health system problem***
- ***Viable options for addressing this problem***
- ***Strategies for implementing these options***

Not included: recommendations
This policy brief does not make recommendations regarding which policy option to choose

Who is this policy brief for?

Policymakers, their support staff, and other stakeholders with an interest in the problem addressed by this policy brief

Why was this policy brief prepared?

To **inform deliberations** about health policies and programmes by **summarising the best available evidence** about the problem and viable solutions

What is an evidence-based policy brief?

Evidence-based policy briefs bring together **global research evidence** (from systematic reviews*) and **local evidence** to inform deliberations about health policies and programmes

***Systematic review:** A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from this research

Executive Summary

The evidence presented in this Full Report is summarized in an Executive Summary

Ethiopian Public Health Institute

This evidence brief was prepared by the Technology Transfer and Research Translation Directorate of the Ethiopian Public Health Institute.

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Preface

The purpose of this report

The purpose of this report is to inform deliberations among policymakers and stakeholders. It summarises the best available evidence regarding the design and implementation of policies for improving health care financing.

The report was prepared as a background document to be discussed at meetings attended by those engaged in developing policies on health care financing and people with an interest in such policies (stakeholders). It is not intended to prescribe or proscribe specific options or implementation strategies. Rather, its purpose is to allow policy makers and stakeholders to systematically and transparently consider the available evidence about the likely impacts of different options improving health care financing in Ethiopia**.**

How this report is structured

The executive summary of this report provides key messages and summarises each section of the full report. Although this entails some replication of information, the summary addresses the concern that not everyone for whom the report is intended will have time to read the full report.

How this report was prepared

This policy brief brings together global research evidence (from systematic reviews) and local evidence to inform deliberations about improving the health work force in remote and rural areas of Ethiopia. We searched for relevant evidence describing the problem, the impacts of options for addressing the problem, barriers to implementing those options, and implementation strategies to address these barriers. We searched particularly for relevant systematic reviews of the effects of policy options and implementation strategies. We supplemented information extracted from the included systematic reviews with information from other relevant studies and documents. (The methods used to prepare this report are described in more detail in Appendix 1.)

Limitations of this report

This policy brief is based largely on existing systematic reviews. Summarising evidence requires judgements about what evidence to include, the quality of the evidence, how to interpret it and how to report it. While we have attempted to be transparent about these judgements, this report inevitably includes judgements made by review authors and judgements made by ourselves.

Why we have focused on systematic reviews

Systematic reviews of research evidence constitute a more appropriate source of evidence for decision-making than relying on the most recent or most publicised research study [i, ii]. We define systematic reviews as reviews of the research literature that have an explicit question, an explicit description of the search strategy, an explicit statement about what types of research studies were included and excluded, a critical examination of the quality of the studies included in the review, and a critical and transparent process for interpreting the findings of the studies included in the review.

Systematic reviews have several advantages. [iii] Firstly, they reduce the risk of bias in selecting and interpreting the results of studies. Secondly, they reduce the risk of being misled by the play of chance in identifying studies for inclusion or the risk of focusing on a limited subset of relevant evidence. Thirdly, systematic reviews provide a critical appraisal of the available research and place individual studies or subgroups of studies in the context of all of the relevant evidence. Finally, they allow others to appraise critically the judgements made in selecting studies and the collection, analysis and interpretation of the results.

While practical experience and anecdotal evidence can also help to inform decisions, it is important to bear in mind the limitations of descriptions of success (or failures) in single instances. They may be useful for helping to understand a problem, but they do not provide reliable evidence of the most probable impacts of policy options.

Uncertainty does not imply indecisiveness or inaction

The SUPPORT summaries included in this report did not show the direct impact of non-financial incentives and Continues Professional Development (CPD) to improve the health work force distribution in the remote and rural areas of Ethiopia. Hence their effects on health work distribution cannot be certain. Nonetheless, policymakers must make decisions. Uncertainty about the potential impacts of policy decisions does not mean that decisions and actions can or should not be taken. However, it does suggest the need for carefully planned monitoring and evaluation when policies are implemented. [iv]

"Both politically, in terms of being accountable to those who fund the system, and also ethically, in terms of making sure that you make the best use possible of available resources, evaluation is absolutely critical." (Julio Frenk 2005, former Minister of Health, Mexico)[v]

The problem: Poor health work force distribution in remote and rural areas of Ethiopia

Background

Human resources for health (HRH) constitute the most vital cornerstone of health systems. It is one of the six building blocks of the WHO framework for health systems (WHO 2015). Effective and equitable essential health services provision depends to a large degree on the availability, competence, motivation and distribution of human resources for health. However, worldwide the geographical distribution of health workers is skewed towards urban and wealthier areas (Araújo & Maeda 2013). For example 37% of the world's health work forces work in the WHO Region of the Americas, which accounts for only 10% of the global burden of disease. Whereas, with 24% of the global burden of disease the WHO African Region, is served by only 3% of the world's health workforces(WHO 2006). This is common in nearly every country in the world, regardless of the level of economic development (Araújo & Maeda 2013).

In Africa, the health workforce has been very low and is unable to match the rapidly growing population (Yohannes et al. 2010). In particular, Sub-Saharan Africa (SSA) has the lowest ratios of health workers to population in the world (WHO 2004).

This shortage of health workforce and poor distribution still continues to be problem of health systems and hinder attainments of health related goals including Universal Health Coverage (UHC) in low and middle income countries (LMICs) (Padilha et al. 2013).

According to the 2006 World Health Report, globally 57 countries are in a serious health workforce crisis out of which 36, Ethiopia included, are in the African region (WHO 2006). The HRH picture of Ethiopia has remained critical and has been characterized by geographic mal-distribution, skills imbalance, staff shortages, low retention and low productivity (FMoH 2014). As a result the numbers of health professionals in different parts of the country remains lower than the standard (FMoH 2010).

To tackle this challenge the country udergone rapid expansion of health worker production and staffing along with the expansion of health facilities in the past years. However, despite this rapid increase in production, recruitment and deployment of health workers, geographical imbalances of the available health workforce is still a challenge to achieve health service coverage, as fewer health workers are deployed in underserved communities (FMoH 2014).

The objective of this evidence brief is, therefore, is to summarize the best available evidence describing the problem of poor health work force distribution in remote and rural areas of Ethiopia and potential solutions for addressing the problem.

Size of the problem

Similar to other LMICs, Ethiopia suffers from an acute shortage of health workers at every level, and rural areas, in which majority (85%) of the population live, have been particularly chronically under-served (Serneels et al. 2010). Taking into account population numbers, in Ethiopia the ratio of health workers to the population shows a heavy urban bias particularly of higher level health professionals. Especially the problem is worse in agrarian and pastoralist regions (Feysia et al. 2012; FMoH 2010). For instance the physician to population ratio in Gambella, Oromia and SNNPR regional states was reporterd to be 1: 27,357, 1: 56,645, and 1: 57,059, respectively. These figures are not only far below the international standard (1:10,000) but also very low compared to the 1: 6,062 ratio for Addis Ababa (FMoH 2013a; FMoH 2013b).

In Afar, Somali and Benishangul Gumz regional states which are under served regions, the health workers density (doctors, nurses and midwives) ratio is 0.5 for 1000 population (FMoH 2013a) which is four fold less than the standard set by WHO for developing countries to achieve minimum level of key health interventions (2.3 for 1000).

A national facility based study on pharmacist workforce in Ethiopia also showed that pharmacists were found unevenly distributed between regions. For instance, in Afar regional state, a remote and underserved region, the density of pharmacist per 100,000 population was 0.66 as compared to Addis Ababa which was 29.88 (Gebretekle & Fenta 2013).

Despite the fact that about 96% of Ethiopian population is living outside the capital and 90% of the public hospitals are located in the regional states (Berhan 2008), approximately half (45.9%) of the pharmacists were working in Addis Ababa. This indicates that majority of the health institutions in the country were running their activities without pharmacists (Gebretekle & Fenta 2013).

The available stock of health work force of the country is also not fairly distributed among regions. For instance of the 2923 physicians (general practitioners and specialists) classified as working in the public sector in 2012/13 fiscal year, about 20% of them were working in

the capital, Addis Ababa (FMoH 2013a), home to only less than 4% of the population (CSA 2008). The trend is the same outside the capital, physicians work in major cities of the regions (FMoH 2008).

This imbalanced distribution of health personnel can contribute to great disparities in health outcomes between the rural and urban population. One instance in this regard is skilled providers attended births. According to the 2011 Ethiopian demographic and health survey (EDHS), only 4% of rural births were attended by skilled personnel while it was 51% for urban areas (CSA 2012; Geresu et al. 2013), a situation indicating a considerable difference in the services accessible to rural and urban women.

Another parameter that shows service coverage difference between urban and rural is number of births by caesarean section. According to the 2011 DHS report, in seven out of the 11 regions the rate of caesarean section was below 2%; while it was 20% in Addis Ababa (CSA 2006; Gessessew et al. 2011). There are also significant variations between rural and urban settings with regards to under-five child mortality, 83/1000 and 114/100 respectively (FMoFED 2012).

Factors underlying the problem

There are a number of push and pull factors for the low level of the health workforce in remote and rural parts (Araújo & Maeda 2013). Push factors are those factors that occur within the sector, forcing professionals to leave. These include low salary, poor incentives, poor working condition, inadequate resources to work effectively, high work load, poor human resource management and limited or no training and educational opportunities (Naicker et al. 2009; Getie et al. 2013).

On the other hand pull factors are the deliberate and/or unintended actions that attract health professionals out of the government services. These includes; higher payment, higher incentives, better working condition, better resource for work, good career structure and good education and training opportunities (Naicker et al. 2009; Ture 2008).

Although little research has been done to determine what factors underlie in driving health workforce from rural settings, in Ethiopia the causes of low level of health work force in

remote and rural areas include unattractive local environment, poor motivation and retention schemes, work-related factors, individual factors and organizational environment.

- ***Poor motivation and retention schemes*** studies in the country have shown that insufficient motivation and retention mechanisms are causes for the low level of the health workforce in remote and rural areas (Abraham & Azaje 2013; Getie et al. 2013).
- ***Individual factors*** individual factors such as a person's social background, age, gender, education, values, beliefs, etc have been found to influence individuals decision whether to work in rural areas or not. For instance growing up in a rural community has been associated with higher probability to practice in rural areas (Araújo & Maeda 2013).
- ***Organizational environment*** according to (Serneels et al. 2010) doctors working in an urban public facility receive more training, frequent formal evaluations, daily checks of presence, and monitoring from clients through complaint offices than their rural public counterparts.

  In Ethiopia, inadequate and incomplete communication and feedback between the Federal Ministry of Health (FMoH) and Regional Health Bureaus (RHBs) is found to be one problem related to organizational environment. The same holds true for communications from the RHBs to Woreda and down to health facility level. Within health facilities, there is limited human resources management capacity for performance planning, regular supportive supervision and constructive feedback to improve health workers performance (FMoH 2014; Getie et al. 2013).
- ***Local environment*** like most LMICs, in Ethiopia poor living conditions, including staff accommodation, schools and qualified teachers in remote rural areas frustrates health professionals and forces them to find jobs in urban areas with better infrastructure (Ture 2008).
- ***Work-related factor*** working conditions, including organizational arrangements, management support and availability of equipments, have been identified as factors in deciding whether to leave or stay in remote areas (WHO 2004; Araújo & Maeda 2013). Similarly in Ethiopia, employee satisfaction surveys conducted at FMoH and selected regional health bureaus as well as staff exit interview analysis identified lack of adequate infrastructure, space and facilities, poor management environment,

insufficient budget, equipment and supplies, and high workload as underlying causes for employee dissatisfaction and high attrition rates (FMoH 2014; Yohannes et al. 2010).

Increased and uneven workload is one of the factors that demoralize health professionals. For example, a study conducted on health workers motivation in Ethiopia showed that 55.1% of physicians and 48.2% of nurses are unable to find sufficient time to complete their daily tasks (FMoH 2014; Geresu et al. 2013; Ture 2008).

Policy options:

The FMoH has recently set an ambitious Health Sector Transformation Plan (HSTP) to improve equity, coverage and utilization of essential health services and improve quality of health care in all corners of the country (FMoH 2015). Indeed, the realization of this stretched plan largely depends on the availability of the right number and skill mix of motivated professionals as the health workforce is the key to effective health services. Despite this fact, Ethiopia has currently major HRH challenges including shortage, urban/rural and regional disparities.

Therefore, in improving the health work force distribution in rural parts of the country and there by contribute to the implementation of the transformation plan, the following options are considered: 1) task shifting 2) educational strategies 3) strengthening financial and non-financial incentives and 4) continuous professional development.

Given the nature and variety of factors influencing the decision to work in rural and remote areas, a single intervention is unlikely to be successful. As a result, the options described may need to be implemented in a way they complement one another.

Policy option 1

Task shifting for increasing number of health work force

Task shifting is the rational re-distribution of tasks among health workforce teams in which specific tasks are moved, where appropriate, from highly qualified health workers to health workers who have fewer qualifications in order to make more efficient use of the available HRH (WHO 2008). By reorganizing the workforce in this way, task shifting can ensure more efficient use of the human resources available in underserved areas. For example, when doctors are in short supply, a qualified nurse could replace the role of doctors and so on (Lehmann et al. 2008; WHO 2007).

Task shifting has the potential for improving the retention of health workers in remote areas where the needs for health care services are higher than the available health personnel (Munga et al. 2012).

Current Practice in Ethiopia

Ethiopia has implemented task shifting for the rapid scale-up of HIV prevention and treatment services. The process involved shifting the tasks from physicians to health officers, from health officers to nurses and finally from nurses to community health workers (WHO 2008; Rasschaert et al. 2011). Task shifting in Ethiopia has good support from the government. As a consequence, the task-shifting regulatory framework, ART implementation guideline and mapping of organizations that provide HIV/AIDS services are in place. In addition, current involvement of non-governmental organizations and other bodies, investment in the training of different category of care providers, and clinical mentoring are good practice so far for task shifting implementation in Ethiopia (WHO 2008).

Impacts of Task shifting

Different Systematic reviews have assessed evidence regarding the impact of task shifting. They found that;

- Substitution of doctors with nurse practitioners may result in little or no difference in quality of care or patient outcomes (Laurant et al. 2004).
- Substitution of doctor with nurse in primary care may lead to similar health outcomes for patients (Horrocks et al. 2002).
- Using lay health workers (LHWs), compared to usual healthcare service may increase care seeking behavior for children under five and reduce morbidity in children under five (Table 1) (Lewin et al. 2010).

Table: 1 LHWs compared to usual care for reducing mortality and morbidity in children under five.

LHWs compared to usual care for reducing mortality and morbidity in children <5 years

Patient or population: patients with reducing mortality and morbidity in children <5 years
Settings: Bangladesh (3 studies), Ethiopia, Tanzania, Nepal, Ghana, Thailand, Viet Nam, India, Burkina Faso
Intervention: LHWs
Comparison: usual care

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk usual care	Corresponding risk LHWs				
Mortality among children less than 5 years Verbal autopsy Follow-up: 1-2 years	**Study population**[1]		**RR 0.75** (0.55 to 1.03)	56378 (3 studies[5])	⊕⊕◯◯ **low**[2,3,4]	
	74 per 1000	**56 per 1000** (41 to 76)				
	Medium risk population[1]					
	50 per 1000	**38 per 1000** (28 to 51)				
Morbidity e.g. fever, diarrhoea, ARI Verbal reports obtained during home visits, record reviews Follow-up: 4-33 months	**Study population**[6]		**RR 0.86** (0.75 to 0.99)	17408 (7 studies[9])	⊕⊕◯◯ **low**[7,8]	
	398 per 1000	**342 per 1000** (298 to 394)				
	Low risk population[6]					
	300 per 1000	**258 per 1000** (225 to 297)				
	High risk population[6]					
	540 per 1000	**464 per 1000** (405 to 535)				
Neonatal Mortality verbal autopsy Follow-up: 12 - 24 months	**45 per 1000**	**34 per 1000** (26 to 46)	**RR 0.76** (0.57 to 1.02)	29217 (4 studies[12])	⊕⊕◯◯ **low**[10,11]	
Morbidity - care seeking practice hospital record review Follow-up: 12 - 33 months	**131 per 1000**	**174 per 1000** (113 to 269)	**RR 1.33** (0.86 to 2.05)	11195 (3 studies[11])	⊕⊕◯◯ **low**[13,14]	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

Policy option 2

Educational strategies

The way health care professionals are trained, the skills they acquire and the situations they are exposed to during training are important determinants of their future practice choices, including location (Araújo & Maeda 2013). Considering this, many countries' medical schools are reforming their curriculum with a view to producing graduates better prepared and more willing to work in underserved areas. Hence, in strengthening the medical education system with the objective of producing graduates who are willing to work in rural areas, the following interventions are suggested: targeted recruitment of students into medical school from rural areas and clinical rotations in rural areas during study.

Current Medical Education Practice in Ethiopia

Out of 33 public universities available to date, 27 are providing four or more health science courses. Private training institutions have also expanded and their output of mid-level health care workers has grown steadily. Overall, the expansion of universities and colleges has contributed to a significant increase in the availability of most categories of health care workers with the exception of medical doctors, anaesthesia professionals and some allied health care workers (FMoH 2014).

The New Medical Education Initiative (NMEI) was also initiated by the Federal Ministry of Health (FMoH) and the Federal Ministry of Education (FMoE) in 2008 in order to improve the low rate of physician to population ratio. This initiative envisages designing an alternative and efficient medical education program that could produce competent medical doctors in sufficient numbers by improving the quality of medical education and enrolling graduates from health and natural sciences. The curriculum aims at enrolling candidates with BSc. in Health and Natural Sciences and by using a new educational approach to equip graduates with comprehensive knowledge and skills that would enable them function as care providers, decision makers, team leaders, researchers, social mobilizers and teachers (Abraham & Azaje 2013).

Strategy 1: Targeted recruitment of students into medical school

Practice from different countries has shown that increasing overall enrolment of new trainees in medical schools alone has no impact on rural employment (WHO 2010). Newly graduated professionals either migrate or opt to practice in the urban private sector or even work in other sectors. This shows the need for special selection of students into medical schools, i.e. targeted recruitment policies which may possibly increase retention of health professionals assigned to rural areas. Recruiting students from rural areas seems to be effective as health workers with a rural background are more likely to practice in rural areas after completing their studies (Araújo & Maeda 2013).

Current practice of targeted recruitment of medical students in Ethiopia

We could not come across any evidence regarding targeted recruitment of medical students into medical schools in Ethiopia.

Impacts of targeted recruitment of students into medical schools

A systematic review (Grobler et al. 2015) on interventions for increasing the proportion of health professionals practicing in rural and other underserved area failed to identify any study meeting the inclusion criteria. However, primary studies in the review have found that;

- *Recruiting medical students with rural background might increase number of medical doctors working in rural and underserved areas. The effects on retention of health professionals in rural areas are uncertain.*

Strategy 2: Clinical rotations in rural areas during studies

Clinical rotation in rural areas aims at exposing students to rural community experiences in order to increase interest in rural careers after their graduation (Grobler et al. 2009). Such practice may allow health workers to gain awareness of rural health. This is because of the fact that medical education/ training, particularly for physicians, is typically conducted in tertiary care institutions using the latest available technology and diagnostic tools. Once medical studies finish, students are left without skills to deal with health situations in areas where advanced technology and tools are not available (WHO 2010). Therefore, clinical placements in rural areas during studies is one way to expose students to the health issues and

conditions of service within rural communities, and give them a better understanding of the realities of rural health work.

Current practice of medical students' clinical rotation in rural areas in Ethiopia

Most public and private universities do have a similar clinical rotation called community based training program (CBTP). For instance in Jimma University students are supposed to stay in communities for about four weeks per academic year. Groups of students are assigned to urban or rural communities that is referred here as 'Kebele', the smallest administrative unit in the country. All the 'kebeles' chosen for this purpose are within 50km radius from Jimma town. The same group of students stay in a given 'kebele' during their educational process for the above mentioned duration. The students' learning activities are spiral in nature and problem-solving in approach based on primary health care (PHC). Students undergo through well-defined performance phases consisting of data collection, community diagnosis, planning, implementation, and evaluation (Asefa 2000).

Impact of clinical rotations in rural areas during studies

A systematic review (Grobler et al. 2009) evaluated the impact of medical students' rural exposure to improve the distribution of health professionals in rural areas. The SUPPORT summary based on this systematic review found that (Okwundu 2011):

- *Exposure to clinical rotations in rural settings might influence the subsequent intention of medical students to work in under-served areas.*

Policy option 3

Strengthening financial and nonfinancial incentives

More tightly defined, an incentive is an explicit or implicit financial or non-financial reward for performing a particular act. Incentives can also be viewed as the factors and/or conditions within health professionals' work environments that enable, encourage and motivate them to stay in their jobs and in their profession (Nurses et al. 2008).

Current financial and non-financial incentive for human resource for health practice in Ethiopia

Regional States in Ethiopia have been able to put incentives in place for attracting and retaining health professionals. Some of the existing motivation and retention schemes include:

- Health workers are placed two steps higher on the civil service salary scale compared to other civil servants of equivalent rank. In addition, regions pay varying levels of salary top-ups for hard-to-attract and-retain cadres and especially physicians/specialists and those in management positions.

- There are various financial allowances for health workers in all regions. These include allowance for duty, housing, telephone, risk/hazards, acting and professional allowances.

- Education and training opportunities are available for health workers at all levels with completion of their minimum required service years to enter into postgraduate trainings (FMoH 2014).

Strategy 1: Financial incentives for health workers in remote and rural areas

Financial incentive programs are one of the few health policy interventions intended to improve the distribution of human resources for health (Bärnighausen & Bloom 2009). Financial incentives encompass all additional payments aimed at boosting the morale of the health workers. This include: Car allowance, housing or housing allowance, access to loans at lower negotiated market rates from financing institutions to purchase houses or cars.

Impact of financial incentives

A systematic review (Grobler et al. 2009) evaluated the impact of financial incentives for return to service in under-served area. A SUPPORT summary (Okwundu 2011), based on this systematic review, found that (Table 2):

- *Financial incentive programmes may lead to increases in the number of health workers practising in under-served areas.*

Table: 2 Impact of financial incentive programs

Financial incentives			
Patients or population: Health workers **Settings:** High- and middle-income countries **Intervention:** Financial incentives **Comparison:** Not specified			
Outcomes	**Impact**	**Number of participants (studies)**	**Quality of the evidence (GRADE)**
Recruitment	Recruitment proportion varied between 33% and 100% across programme participants who remained in under-served areas	(14 studies)	⊕⊕◯◯ Low
Retention	The proportion of programme participants who remained in under-served areas after completing their obligation ranged between 12% and 90%	(24 studies)	⊕⊕◯◯ Low
Participant satisfaction	There were too few studies so strong generalised inferences could not be drawn	(9 studies)	⊕⊕◯◯ Low
Family satisfaction	There were too few studies so strong generalised inferences could not be drawn	(3 studies)	⊕⊕◯◯ Low
p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)			

Strategy 2: Non-financial incentives for health workers in remote and rural areas

Non-financial incentives are considered important determinants for the length of stay of health workers in rural and remote areas (Araújo & Maeda 2013). Non-financial incentives include: the provision of rewards, schools for children, promotion, housing, free transportation, health insurance and life insurance policy and so on.

To be effective, these benefits have to be larger than the opportunity costs associated with working in rural areas such as the possible additional income generated from working in the urban private sector (Araújo & Maeda 2013).

Impact of non-financial incentives

We couldn't find a systematic review on the impact of non-monetary incentives in retaining health workers in rural areas. However there are best practices from different countries.

For example a common strategy in Mozambique, Kenya and Chile is to offer government housing to staffs (Frehywot et al. 2010; Lehmann et al. 2008; Peña et al. 2010). In Zambia the health workers retention scheme includes lower car loan rates and scholarships to send children to better schools in other areas. This incentive package appears to have an impact on attracting doctors in Zambia to rural areas who otherwise would not have gone to the rural posts (Lehmann et al. 2008).

Policy option 4

Continuous Professional Development (Support)

Continuing professional development (CPD) for health workers is the process by which individual healthcare professionals maintain and improve standards of healthcare practice, through development of knowledge, skills, attitudes and behaviour (Gray 2006). It may be called refresher training, continuing education, in-service training or Continuing Medical Education (CME).

Professional development strategy includes; provision of adequate equipment and supplies, supportive supervision, better career paths for rural and remote area posts and creating strategies to increase public recognition (Araújo & Maeda 2013).

Professional and personal support interventions address shortages and mal-distribution of staff, by improving responsiveness to staffing needs and addressing their causes of dissatisfaction and stress. This is done through addressing a sense of isolation when working in remote areas through outreach support from specialists, addressing the difficulty of combining professional and personal life through the use of refresher programmes and flexible rosters and motivating staff by providing professional development or career opportunities (EU 2015).

Current CPD practice in Ethiopia

Even though there are guidelines and directives regarding continuing professional development (CPD) and in-service training in the health sector, they have yet to be implemented. Local capacity to develop, offer, enforce, monitor and evaluate relevant and quality CPD activities is under-developed. CPD is not yet linked to re-licensure and career progression. Some in-service trainings are not need-based, well-planned, coordinated, quality assured, monitored and evaluated for their effectiveness. In-service training is mostly face-to-face and group based with limited use of innovative and efficient in-service training modalities like on-the-job training, and blended learning approaches (FMoH 2015).

Impact of CPD

We could not come across a systematic review on the impact of continuous professional support on retention of health professionals in rural areas.

However, questionnaire-based surveys suggest that professional and personal support might also influence health professionals' choice to work in underserved areas (Kotzee 2006).

Implementation considerations

Task shifting, educational strategies, strengthening financial and non-financial incentives, (targeted selection of students in to medical schools and clinical rotation) and continuous professional development are potential solutions to improve the health work force in rural parts of Ethiopia.
The implementation of these potential options includes both opportunities and challenges. It is therefore important to consider possible barriers and enablers, so that benefits arising from enablers can be taken as an opportunity while properly addressing the barriers.

Enablers of improving health work force in rural parts of Ethiopia include:

- Existence of a strong government commitment to improving health workforce to enhance the health status of Ethiopians (FMoH 2014).
- Existence of previous experience on task shifting on HIV services (Gessessew et al. 2011; WHO 2007).
- The launch of heath sector transformation plan, which aims to make health facilities in 'woredas' high-performing facilities – 'woreda' transformation (FMoH 2015).
- Availability of donors and different project initiations in support of health work force (projects like for example MEPI)
- The availability of a national human resource for health strategic plan (FMoH 2014).

Table 3. Barriers and implementation strategies for all options

Barriers	Descriptions	Implementation strategies
Financial constraint	• Implementation of each of the options require a substantial investment of financial resource	• Piloting and costing of incentives, better use of existing resources through coordination of governmental and non-governmental initiatives, and • Resource mobilization • applying for additional funds from donors and reallocating public funds)

Table 4. Barriers and implementation strategies for option 1: Task shifting

Barriers	Descriptions	Implementation strategies
Resistance to change from health workers as well as service users	• Resistance of accepting task shifting from the health workers and service users may be a problem. • Lack of appropriate recognition and status, even if staffs who assume new tasks are performing the tasks of higher-level workers	• Establishing a system that ensure adequate recognition, equitable allocation of resources, training, compensation and monitoring to ensure quality of care, worker morale and staff retention (Wiedenmayer et al. 2015). • Formal recognition of new types of health workers through credentialing (licensure, registration, certification or accreditation) can help to overcome resistance to change (WHO 2007).
Over burdening of the existing staff	• Patient outcomes may be compromised in settings where staffs are already overworked if the current tasks are not shifted to lower levels of workers.	• A system should be arranged so that if higher level workers' tasks are shifted to lower level workers, these latter groups' tasks should, in turn, shift to other non-professional cadres.
Inadequate supportive supervision	• Adequate knowledge and skills are required for supportive supervision, but health workers capable of providing supportive supervision are also experiencing heavy workloads and high staff turnover.	• Introducing new models for supportive supervision, such as those based on mobile technology, may be used to provide support to staffs who assume new task in resource-limited settings (Crowley & Mayers 2015). • Measures to limit staff turnover and increase mentoring and supervision capacity need to be planned from the outset

Table 5. Barriers and implementation strategies for options 2 & 4: clinical rotation and continuous professional development

Barriers	Descriptions	Implementation strategies
Geographic distance	• Lack of safe, reliable, accessible, and affordable methods of transportation (e.g., limited public transportation options) • Staff working in the rural areas are unable to attend CPD activities because of poor transport links and the absence of staff to fill their posts when away	• Organizing an on job site trainings • Rural infrastructure development

Table: 6 Barriers and implementation strategies for option 2: targeted recruitment of students to medical school

Barriers	Descriptions	Implementation strategies
Medical schools do not have a policy or strategy for rural admissions	• Absence of policy that dictates selection of students from rural areas	• Introducing affirmative selection policies that reserve medical school places for rural students

Table 7. Barriers implementation strategies for option 2. Clinical rotation in rural areas during studies

Barriers	Descriptions	Implementation strategies
Shortage of mentors in rural areas	• Rural clinical rotation require preceptors or mentors, which may not be available in many rural areas	• The system has to be in place • Regulations should be put in place to enforce clinical rotation in rural areas • Tele-education as a mentorship mechanism
Inadequate support and supervision	• Isolation from consultants and experienced senior medical officers forces students to take on much more responsibility than they were usually comfortable	• Telephone support, onsite supervision • Establishing call response center

Table 8. Barriers implementation strategies for option 3: Financial and non-financial incentives

Barriers	Descriptions	Implementation strategies
Risks of nepotism	• Incentives might find their way to those individuals with the right connections and the difference in incentives may foster behavior conducive to corruption.	• Strengthening transparency and information-sharing about incentives.
Absence of policy for incentives	• There is no policy for incentives in the country. This could lead to conflicts and might adversely affect other programs	• Develop a national policy for the use of incentives or ensure that incentives that are used do not adversely affect other programs or create undesirable inequities across different cadre of health workers
Corruption	• There is no system in place for managing incentives and there is a risk of misuse of incentives and rewarding people without merit	• Transparent systems for managing and awarding incentives and ensuring accountability
Weak health human resource information systems	• There is limited consistent information available on retention and attrition trends to determine how effective incentives are in improving rural health work force retention.	• Establishing well functioning system for monitoring and evaluation or indicators to track impact and outcomes • Review incentive schemes regularly to ensure that they meet needs and achieve their intended purpose
Lack of infrastructure	• Providing some incentives is a challenge as lack of infrastructures like standard houses and schools in remote and rural areas is difficult	• Comprehensive plan for infrastructure development, including housing for health staffs and schools for their children, which should bear fruit in both the short and long term • Increase investment in non-monetary incentives, such as housing and instructional facilities, that are sustainable and build institutional capacity.

Table: 9 Barriers implementation strategies for opion 4: Ccontinuous Professional Development (CPD)

Barriers	Descriptions	Implementation strategies
Under-staffed health facilities	• Facilities may have difficulty in releasing staff for CPD, especially when courses are offered centrally.	• Localization of training • Support local training, which is accessible to rural staff. Develop regional and district training, as well as supporting on-the-job training.
Time	• There is a conflict between service provision and finding time for learning. That is, health workers find it particularly difficult to take time out of / from practice to undertake CPD as this can have a direct impact and consequences for patient care and it can be difficult to find and/or fund locum GPs to fill in.	• Courses need to be well-designed and flexibly delivered.
Lack of opportunity to put new skills into practice	• Training attended needs to be matched with available jobs and equipment to allow well-trained professionals to practice the techniques they have learned	• Developing capacities of rural facilities

Next steps

The aim of this policy brief is to foster dialogue and judgements that are informed by the best available evidence. The intention is *not* to advocate specific options or close off discussion. Further actions will flow from the deliberations that the policy brief is intended to inform. These might include, for example:

- Careful consideration of the need for task shifting
- Careful consideration of the need for targeted recruitment of students into medical school and clinical rotations in rural areas during study
- Careful consideration of the need for financial and nonfinancial incentives
- Careful consideration of continuous professional development (support)
- Monitoring and evaluation of the suggested policy options and implementation strategies
- Consideration of appropriate implementation strategies for each of the policy options mentioned

References

Abraham, Y. & Azaje, A., 2013. The new innovative medical education system in Ethiopia: Background and development. *Ethiop. J. Health Dev*, 27(Special Issue 1).

Araújo, E. & Maeda, A., 2013. HOW TO RECRUIT AND RETAIN HEALTH WORKERS IN RURAL AND REMOTE AREAS IN DEVELOPING COUNTRIES. A Guidance Note.

Asefa, M., 2000. Community-based education: Concept and practice. *Ethiopian Journal of Health Development*, 14, pp.227–237.

Bärnighausen, T. & Bloom, D.E., 2009. Financial incentives for return of service in underserved areas: a systematic review. *BMC Health Services Research*, 9(86).

Berhan, Y., 2008. Medical doctors' profile in Ethiopia: Production, attrition and retention: In the memory of 100-years Ethiopian modern medicine & the new Ethiopian Millennium. *Ethiop Med J.*, 46(Sup1). Available at: http://www.ncbi.nlm.nih.gov/pubmed/18709707.

Crowley, T. & Mayers, P., 2015. Trends in task shifting in HIV treatment in Africa: Effectiveness, challenges and acceptability to the health professions. *African Journal of Primary Health Care & Family Medicine*, 7(1). Available at: http://www.phcfm.org/.

CSA, 2006. *Ethiopia Demographic and Health Survey*, Addis Ababa, Ethiopia.

CSA, 2012. *Ethiopia Demographic and Health Survey 2011 Central Statistical Agency*, Available at: http://www.measuredhs.com.

CSA, 2008. *Summary and Statistics Report of the 2007 Population and Housing Census. Addis Ababa, Population Census Commission (Ethiopia)*, Addis Ababa, Ethiopia. Available at: http://www.csa.gov.et/index.php/2013-02-20-14-51-51/census-tables.

EU, 2015. *Recruitment and Retention of the Health Workforce in Europe*,

Feysia, B. et al., 2012. *The health workforce in Ethiopia: Addressing the remaining challenges* B. Feysia et al., eds., Washington, DC: The World Bank. Available at: www.worldbank.org.

FMoFED, 2012. *ETHIOPIA MDGs REPORT 2012*,

FMoH, 2008. *and Health related indicators (2007/8).*, Addis Ababa, Ethiopia.

FMoH, 2013a. *Health and Health Related Indicators Version 2*, Addis Ababa, Ethiopia.

FMoH, 2010. *Health Sector Development Program IV 2010/11 – 2014/15*, Addis Ababa.

FMoH, 2013b. *Health Sector Development Programme IV Annual Performance Report EFY 2006 (2013/14)*, Addis Ababa, Ethiopia.

FMoH, 2014. *Human Resource for Health Strategic Plan (2009-2025). Federal Democratic Republic of Ethiopia Ministry of Health*, Addis Ababa, Ethiopia.

FMoH, 2015. *The Federal Democratic Republic of Ethiopia Ministry of Health Health Sector Transformation Plan (HSTP)*, Addis Ababa, Ethiopia.

Frehywot, S., Mullan, F. & Ross, P.W.P.& H., 2010. Compulsory service programmes for recruiting health workers in remote and rural areas: do they work? *Bull World Health Organ*, 88, pp.364–370.

Gebretekle, G.B. & Fenta, T.G., 2013. Assessment of Pharmacists Workforce in Ethiopia. *Ethiop. J. Health Dev.*, 27(0).

Geresu, T. et al., 2013. A brief review of the draft human resources for health strategic plan, Ethiopia; 2009-2020. *Ethiop. J. Health Dev*, 27(Special Issue 1).

Gessessew, A. et al., 2011. Task shifting and sharing in Tigray, Ethiopia, to achieve comprehensive emergency obstetric care. *International Journal of Gynecology and Obstetrics*, 113, pp.28–31.

Getie, G.A., Betre, E.T. & Hareri, H.A., 2013. Assessment of Factors Affecting Turnover Intention Among Nurses Working at Governmental Health Care Institutions in East Gojjam, Amhara Region, Ethiopia, 2013. *American Journal of Nursing Science*, 4(3), pp.107–112. Available at: http://www.sciencepublishinggroup.com/j/ajns.

Gray, L.G. and I., 2006. Continuing Professional Development – a Brief Guide. *The Psychologist Vol 19 No 9*, 19(9). Available at: https://thepsychologist.bps.org.uk/volume-19/edition-9/continuing-professional-development-brief-guide.

Grobler, L. et al., 2009. Interventions for increasing the proportion of health professionals practising in rural and other underserved areas (Review). *Cochrane Database of Systematic Reviews Art*, (2). Available at: http://www.thecochranelibrary.com.

Grobler, L., Bj, M. & Mabunda, S., 2015. Interventions for increasing the proportion of health professionals practising in rural and other underserved areas (Review) SUMMARY OF FINDINGS FOR THE MAIN COMPARISON. , (6).

Horrocks, S., Anderson, E. & Salisbury, C., 2002. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *BMJ*, 324.

Kotzee TJ, C.I., 2006. What interventions do South African qualified doctors thinkwill retain them in rural hospitals of Limpopoprovince of Soouth Africa? *Rural and Remot Health*, 6(3).

Laurant, M. et al., 2004. Substitution of doctors by nurses in primary care (Review) Substitution of doctors by nurses in primary care. Available at: http://www.thecochranelibrary.com.

Lehmann, U., Dieleman, M. & Martineau, T., 2008. Staffing remote rural areas in middle-and low-income countries: A literature review of attraction and retention. *BMC Health Services Research*, 8(19). Available at: http://www.biomedcentral.com/1472-6963/8/19.

Lewin, S. et al., 2010. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases (Review). Available at: http://www.thecochranelibrary.com.

Munga, M. a et al., 2012. Experiences, opportunities and challenges of implementing task shifting in underserved remote settings: the case of Kongwa district, central Tanzania. *BMC International Health and Human Rights*, 12, p.27.

Naicker, S. et al., 2009. SHORTAGE OF HEALTHCARE WORKERS IN DEVELOPING COUNTRIES—AFRICA. *Ethnicity & Disease*, 19.

Nurses, I.C. of et al., 2008. *GUIDELINES : INCENTIVES FOR HEALTH*,

Okwundu CI., 2011. Which interventions increase the recruitment and retention of health workers practising in under-served and rural areas? A SUPPORT Summary of a systematic review. , 9. Available at: www.support-collaboration.org.

Padilha, A. et al., 2013. Human resources for universal health coverage : leadership needed. *Bull World Health Organ*, 91. Available at: http://www.who.int/bulletin/volumes/91/11/13-118661.pdf.

Peña, S. et al., 2010. The Chilean Rural Practitioner Programme: a multidimensional strategy to attract and retain doctors in rural areas. *Bull World Health Organization*, 88.

Rasschaert, F. et al., 2011. Tackling Health Workforce Shortages During Antiretroviral Treatment Scale-up—Experiences From Ethiopia and Malawi. *J Acquir Immune Defic Syndr*, 57, pp.109–112.

Serneels, P. et al., 2010. Who wants to work in a rural health post? The role of intrinsic motivation, rural background and faith-based institutions in Ethiopia and Rwanda. *Bull World Health Organ*, 88, pp.342–349.

Ture, J. a., 2008. *ASSESSMENT OF THE MAGNITUDE, PATTERNS AND DETERMINANT FACTORS OF HEALTH WORKER MIGRATION FROM THE PUBLIC HEALTH SECTORS: A descriptive case study in East Hararghe zone of Oromiya, Eastern Ethiopia.* ADDIS ABABA UNIVERSITY.

WHO, 2010. *Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations*, Geneva, Switzerland.

WHO, 2008. *Task Shifting Global Recommendations and Guidelines*, Geneva, Switzerland: WHO Document Production Services.

WHO, 2007. *Task shifting to tackle health worker shortages. Strengthening health services to fight HIV/AIDS*,

WHO, The WHO Health Systems Framework. Available at: http://www.wpro.who.int/health_services/health_systems_framework/en/ [Accessed December 17, 2015].

WHO, 2000. *The world health report 2000 – health systems: improving performance*, Geneva, Switzerland.

WHO, 2004. *WHO Estimates of Health Personnel: Physicians, Nurses, Mid-wives, Dentists, Pharmacists*, Geneva, Switzerland.

WHO, 2006. *World health report 2006: Working together for health*, Geneva: WHO Press.

Wiedenmayer, K.A. et al., 2015. The reality of task shifting in medicines management-a case study from Tanzania. *Journal of Pharmaceutical Policy and Practice*, 8(13).

Yohannes, H.J.C., Girma, B. & Tushune, K., 2010. Health workforce deployment, attrition and density in east wollega zone, western ethiopia. *Ethiop J Health Sci.*, 20(1).

Appendices

Appendix 1. How this policy brief was prepared

The methods used to prepare this policy brief are described in detail elsewhere.[vi, vii, viii]

The problem that the policy brief addresses was clarified iteratively through discussion among the authors, review of relevant documents and research. Research describing the size and causes of the problem was identified by reviewing government documents, routinely collected data, searching PubMed and Google Scholar, through contact with key informants, and by reviewing the reference lists of relevant documents that were retrieved.

Strategies used to identify potential options to address the problem included considering interventions described in systematic reviews and other relevant documents, considering ways in which other jurisdictions have addressed the problem, consulting key informants and brainstorming.

We searched electronic databases of systematic reviews, including: the Cochrane Library (CENTRAL, Cochrane Database of Systematic Reviews), Support Summaries, PDQ Evidence, Health Systems Evidence and supplemented these searches by checking the reference lists of relevant policy documents and with focused searches using PubMed, Google Scholar, and personal contacts to identify systematic reviews for specific topics. The final selection of reviews for inclusion was based on a consensus of the authors

Potential barriers to implementing the policy options were identified by brainstorming using a detailed checklist of potential barriers (SURE guide for Identifying and addressing barriers) to implementing health policies. Implementation strategies that address identified barriers were identified by brainstorming and reviewing relevant documents.

[i]Mulrow CD. Rationale for systematic reviews. BMJ 1994; 309:597-9.

[ii] Bero LA, Jadad AR. How consumers and policymakers can use systematic reviews for decision making. Ann Intern Med 1997; 127:37-42.

[iii] Lavis JN, Posada FB, Haines A, Osei E: Use of research to inform public policymaking. Lancet 2004; 364:1615-21.

[iv] Oxman AD, Bjørndal A, Becerra-Posada F, Gibson M, Gonzalez Block MA, Haines A, et al. A framework for mandatory impact evaluation to ensure well informed public policy decisions. Lancet. 2010; 375:427–31.

[v] Moynihan R, Oxman AD, Lavis JN, Paulsen E. Evidence-Informed Health Policy: Using Research to Make Health Systems Healthier. Rapport Nr 1-2008. Oslo: Nasjonalt kunnskapssenter for helsetjenesten, 2008.

[vi] Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 4. Clarifying the problem. www.evipnet.org/sure

[vii] Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 5. Deciding on and describing options to address the problem. www.evipnet.org/sure

[viii] Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 6. Identifying and addressing barriers to implementing the options. www.evipnet.org/sure

Glossary, acronyms and abbreviations

ART - Antiretroviral Treatment

CPD- Continuing professional development

CSA- Central Statistical Agency

EDHS - Ethiopia Demographic and Health Survey

EPHI- Ethiopian Public Health Institute

FMoH- Federal Democratic Republic of Ethiopia Ministry of Health

GP- General Practitioner

HIV/AIDS - Human immunodeficiency virus/ acquired immune deficiency syndrome

HRH- Human resources for health

LHW- Lay health workers

LMIC- Low and middle income countries

MEPI- Medical education partnership initiative

NMEI- New Medical Education Initiative

PHC- Primary health care

RHB- Regional health bureau

SSA- Sub-Saharan Africa

WHO- World Health Organanization