



May 2011 – SUPPORT Summary of a systematic review

Do changes in the pre-licensure education of health workers impact on the supply of health workers?

In many countries there is a shortage of health workers. The high financial and resource investments needed to train health workers make it important to find ways to increase the number of students entering health professional training and reduce the number of pre-graduation drop-outs. Minority academic advisory programmes that include academic, personal, financial and vocational advising, skills building, mentorships, supplementary training, and annual evaluations are some of the ways to achieve this amongst minority students.

Key messages

- **There is little evidence of the effects of interventions to increase the capacity of health professional training institutions, reduce student drop out rates or increase the number of students recruited from other countries**
- **Two studies conducted in the United States of America (USA) provide low-quality evidence that Minority Academic Advising Programs (MAAP) may increase the number of minority students enrolled in health sciences; may slightly increase retention through to graduation; and may decrease differences in retention levels through to graduation between minority and non-minority students in the health sciences**
- **There is a lack of evidence of the effects of other types of changes in the pre-licensure education of health workers on health worker supply**



Who is this summary for?

People making decisions concerning changes in the pre-licensure education of health workers.

! This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low- and middle-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Pariyo GW, Kiwanuka SN, Rutebemberwa E, Okui O, Ssengooba F. Effects of changes in the pre-licensure education of health workers on health-worker supply. *Cochrane Database of Systematic Reviews* 2009, Issue 2. Art. No.: CD007018. DOI:10.1002/14651858.CD007018.pub2.

What is a 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 the included studies.

SUPPORT – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries. www.support-collaboration.org

Glossary of terms used in this report: www.support-collaboration.org/summaries/explanations.htm

Background references on this topic: See back page.

Background

There is a considerable shortage of health workers globally and this shortfall is greatest in sub-Saharan Africa. Health worker education is costly in terms of the financial, temporal and other resources required, but vital in terms of providing universal good-quality health care services and attaining health-related objectives such as the millennium development goals. Strategies to increase the number of students in relevant courses and promote their retention to graduation are therefore essential.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here:

www.support-collaboration.org/summaries/methods.htm

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

About the systematic review underlying this summary

Review objective: To assess the effect of changes in the pre-licensure education of health professionals on health-worker supply.

	What the review authors searched for	What the review authors found
Interventions	Interventions that could: <ul style="list-style-type: none">- Increase the capacity of schools- Reduce the loss of students (and increase the likelihood that students will graduate)- Increase school recruitment of students from other countries	2 controlled before-and-after studies of minority academic advising [advisory?] programmes. These programmes consisted of academic, personal, financial and vocational advice, skills building, mentorships, supplementary training and annual evaluations.
Participants	Health professional students prior to licensure	2 studies among black and general health professional students
Settings	No restrictions	2 studies from the USA
Outcomes	Increased numbers of health workers ultimately available for recruitment into the health workforce Improved population-to-health professional ratios	2 studies of the numbers of health workers ultimately available for recruitment into the health workforce

Date of most recent search: October 2007/February 2008

Limitations: This is a good quality systematic review with only minor limitations

Pariyo GW, Kiwanuka SN, Rutebemberwa E, Okui O, Sengooba F. Effects of changes in the pre-licensure education of health workers on health-worker supply. *Cochrane Database of Systematic Reviews* 2009, Issue 2. Art. No.: CD007018. DOI:10.1002/14651858.CD007018.pub2.

Summary of findings

Two controlled before-and-after studies conducted among students at health professional training institutions in the USA were identified. A Minority Academic Advising Program (MAAP) was implemented in two institutions, and changes in the levels of black student enrolment and retention to graduation rates were measured.

Minority academic advising programmes may:

- Increase the number of black health sciences students enrolled
- Slightly increase retention to graduation
- Decrease the difference in retention levels to graduation between blacks and those in other population groups in the USA
- There is a lack of evidence of the effects of other pre-licensure measures to increase health worker supply in low- and middle-income countries

About the quality of evidence (GRADE)

⊕⊕⊕⊕

High: Further research is very unlikely to change our confidence in the estimate of effect.

⊕⊕⊕○

Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

⊕⊕○○

Low: 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: We are very uncertain about the estimate.

For more information, see last page

<p>Patients or population: Students (black, general) in health professional training institutions Settings: Health professional training institutions, USA Intervention: Minority Academic Advising Program (MAAP) academic, personal, financial and vocational advice; skills building; mentorships; supplementary training; and annual evaluations Comparison: Pre-MAAP (non-MAAP, non-black to account for secular changes)</p>			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Increased numbers of health workers ultimately available for recruitment into the health workforce	<p>Hesser 1993: 45% (Male: 48%, Female: 43%) relative increase in the total number of black allied health sciences students enrolled. Retention to graduation of black students increased from 72% to 83% (p=0.051) Relative difference in retention to graduation between blacks and non-blacks reduced from 14% to 2.5% (p<0.0002)</p>	<p>MAAP: 129 Pre-MAAP: 89 Non-black comparison group: 1884</p>	<p>⊕⊕○○ Low</p>
	<p>Hesser 1996: Percentage of minority students retained to graduation increased by 5.2% (p>0.05). Fraction of black students increased by 11%.</p>	<p>MAAP: 76 Pre-MAAP: 38 Non-MAAP comparison group: 608</p>	
<p>p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)</p>			

Relevance of the review for low- and middle-income countries

→ Findings

▷ Interpretation*

APPLICABILITY

→ All included studies were conducted in high-income countries. No relevant evidence from low- or middle-income countries was identified

▷ *The challenges faced in health care worker education in high- and low-income countries are qualitatively and quantitatively different (e.g. the availability of funds, laws regarding equity and awareness of these, job prospects including remuneration, and curricula)*
▷ *Appropriate interventions could be expected to have a comparatively higher impact in low-income countries where alternatives and opportunities are generally more limited than in high-income countries. However, there is no evidence regarding the effects of such interventions.*

EQUITY

→ The included studies focus on equity between racial groups in a high-income country

▷ *Similar interventions (such as the promotion of minorities, marginalised populations or other sub-groups within the society) are likely to have positive effects on equity, irrespective of the context*
▷ *Interventions focusing solely on increasing absolute numbers of health workers will probably not have a notable effect on equity irrespective of the context*

ECONOMIC CONSIDERATIONS

→ The review did not provide information on absolute costs and cost-effectiveness

▷ *Direct costs of interventions, however small, will be difficult to meet or justify in low-income countries where education in general, and the health sector in particular, are cash-strapped*
▷ *Increasing the overall quantity and quality of health workers incurs substantial costs (such as investments in facilities, teaching staff, and materials. Low-income countries may not be able to afford the burden of additional education and training expenses.*
▷ *Health worker education could be conducted as a business if high numbers of health workers are trained to a standard that enables them to work abroad and their home countries are able to rely on remittances (for example, the Philippines)*

MONITORING & EVALUATION

→ The currently available evidence is very limited and restricted to one high-income country

▷ *All changes in the pre-licensure education of health workers that are intended to improve the supply of health workers in low- and middle-income countries should be rigorously monitored and evaluated since evidence of their effects is lacking*

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low- and middle-income countries. For additional details about how these judgements were made see:

<http://www.support-collaboration.org/summaries/methods.htm>

Additional information

Related literature

Grobler LA, Marais BJ, Mabunda S, Marindi P, Reuter H, Volmink J. Interventions for increasing the proportion of health professionals practising in rural and other underserved areas. *Cochrane Database Syst Rev.* 2009;1:CD005314.

Kessel RA. The A.M.A and the supply of physicians. *Law and Contemporary Problems* 1970;35:267–83.

World Health Organization. *World Health Report.* World Health Organization 2006.

Wilson NW, Couper I, de Vries E, Reid S, Fish T, Marais BJ. A critical review of interventions to redress the inequitable distribution of medical professionals to rural and remote areas. *Rural Remote Health* 2009;9:1060.

Wyss K. An approach to classifying human resources constraints to attaining health-related Millenium Development Goals. *Human Resources for Health* 2004;2:1–11.

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Conflict of interest

None declared. For details, see: www.support-collaboration.org/summaries/coi.htm

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This summary should be cited as

Steinmann P. Do changes in the pre-licensure education of health workers have an effect on health worker supply? A SUPPORT Summary of a systematic review. October 2010. www.support-collaboration.org/summaries.htm

Keywords

All Summaries: evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low- and middle-income countries, developing countries, primary health care, education, retention, enrolment, health worker, minority, mentoring.

About quality of evidence (GRADE)

The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall estimate across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE:

www.support-collaboration.org/summaries/grade.htm

SUPPORT collaborators:

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions.

www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIP-Net promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

For more information:

www.support-collaboration.org

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<http://www.support-collaboration.org/contact.htm>