



Recruitment and Retention of the Health Workforce in Europe

Report on evidence of effective measures to recruit and retain health professionals in three non-EU countries (Australia, Brazil, South-Africa)

Annex 4

EUROPEAN COMMISSION

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Unit D.2. — Healthcare system

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Recruitment and Retention of the Health Workforce in Europe

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Annex 4

Report on evidence of effective measures to recruit and retain health professionals in three non-EU countries (Australia, Brazil, South-Africa)

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Executive summary

This report is a complementary contribution to a literature review on recruitment and retention of health professionals (R&R) practices and policies in the European Union (EU) 28 member states and in the four countries of the European Free Trade Association (EFTA), Iceland, Liechtenstein, Norway and Switzerland. It reviews the literature on R&R in three other countries, Australia, Brazil, and South Africa, selected on the basis that they are known to have developed R&R initiatives from which lessons can possibly be learned.

The literature review and analysis involved 5 steps: (1) planning of the review, including identification of search terms and of sources; (2) search of documents meeting selection criteria in reference bases and relevant websites; (3) first screening for inclusion in the list of documents for review, based on titles and abstracts; (3) second screening for final decision on inclusion, based on reading documents; (4) data extraction and contents analysis; (5) reporting. The content analysis was structured around an adapted version of the WHO framework for measuring efforts to increase access to health workers in underserved areas. Informants contributed additional information not available in the reference bases.

Similar to EU/EFTA countries, interventions are mostly triggered by factors such as observed or forecasted shortages of personnel, high attrition rates due to career reorientation, early retirement, emigration, and difficulties in recruiting and retaining personnel in certain specialties, fields of practice, and – mainly – geographical locations. However, responses to these problems vary. Interventions have been categorised in changes in the education of health professionals, the provision of financial incentives, and of professional and personal support, and regulatory measures. The report distinguishes between interventions at policy and at organisation (provider, education institution) levels.

Australia is the country where most interventions have been identified. Most aim at attracting candidates to some fields of study, like family medicine or mental health, and at attracting graduates to rural and remote areas and to support them. Interventions included a range of measures such as clinical rotations and

placements to expose students to a rural environment, mentoring, decentralization of education programmes, reduction of length of studies, support to transition between studies and professional practice, creation of networks of practitioners and of peer support mechanisms, access to continuing education, and scholarships and allowances. New education institutions were created closer to rural areas and with a stronger community-orientation. National and state government and professional organisations played a leadership role in designing and implementing these interventions. Studies which described them generally reported positive results in terms of having achieved their objective. These conclusions are not always quantified, and not based on a robust evaluation design.

In Brazil, interventions to improve R&R have tended to be government led. They include a mix of measures to increase the production of health professionals in underserved regions, to adapt curricula, to make work in rural and remote areas financially more attractive, and to provide professional support through access to distance continuing education. However little documentation is available to assess the effects of these measures. New schools have been created, more professionals have been trained and recruited in underserved regions, but there are still some gaps to fill as illustrated by the recent (2013) Ministry of Health campaign to recruit 6,000 physicians abroad. In Brazil, interventions at provider organisation level, such as hospitals, exist but are not documented.

In South Africa, the main challenges are containing to flows of nurses and physicians who emigrate and attract health professionals to rural areas. In addition to measures similar to those used in other countries, South Africa introduced compulsory community service in 1998. The literature reports mixed results: young graduates report satisfaction regarding the experience gained, but complain about the management of the programme. The impact on retention of professionals in rural areas appears to be limited.

The experience of the three countries mainly supports the evidence identified in the literature on EU/EFTA countries. One finding is particularly strong: political continuing commitment and mobilization of stakeholders is a prerequisite for interventions to be successful.

1. Background and objective of the literature review

This report is a complementary contribution to a literature review on recruitment and retention of health professionals (R&R) practices and policies in the European Union (EU) member states and in countries of the European Free Trade Association (EFTA). It reviews the literature on R&R in three other countries, Australia, Brazil, and South Africa, which are known to have developed initiatives from which lessons can possibly be learned. The focus is on R&R of physicians and nurses. These two reviews are part of a set of a broader research responding to questions formulated in a tender launched by the European Commission (Box1).

Box 1: Research Questions R&R study

1. What are the roles and responsibilities of the various policy actors and stakeholders in the design and development of interventions to recruit and retain health professionals? How do they cooperate to shape strategies? How is the role of recruitment agencies governed?
2. What is the interaction and coherence of various policy measures in health, education, employment and labour market to recruit and retain health professionals? Are there legal barriers to certain types of policy measures to recruit and retain health workers?
3. How are strategies developed within healthcare organisations and how do national and regional policies frame those strategies?
4. Is the "effectiveness" of interventions to retain health professionals defined, monitored and measured? If yes, what methods and indicators are used, for example, to monitor staff turnover and to measure the benefits of staff retention in terms of reduced costs, improved organisational performance and quality of care?
5. What are the principles and processes which characterise successful as well as not successful initiatives? What can policy-makers and health managers learn from what works, what does not work and why?

The objective of this work is to identify "effective" interventions to improve the R&R of health workers which can provide lessons which can inform policy decisions in EU/EFTA countries.

This report first describes the sources of material collected and the methods used to extract the relevant data and information on R&R interventions. The findings are then presented in accordance to the various categories of interventions which had been identified, e.g. education, financial incentives, professional and personal support and regulation interventions. The *Findings* section presents brief descriptions of interventions documented in primary studies and in other literature. Information received from country informants is presented separately. A *Discussion*

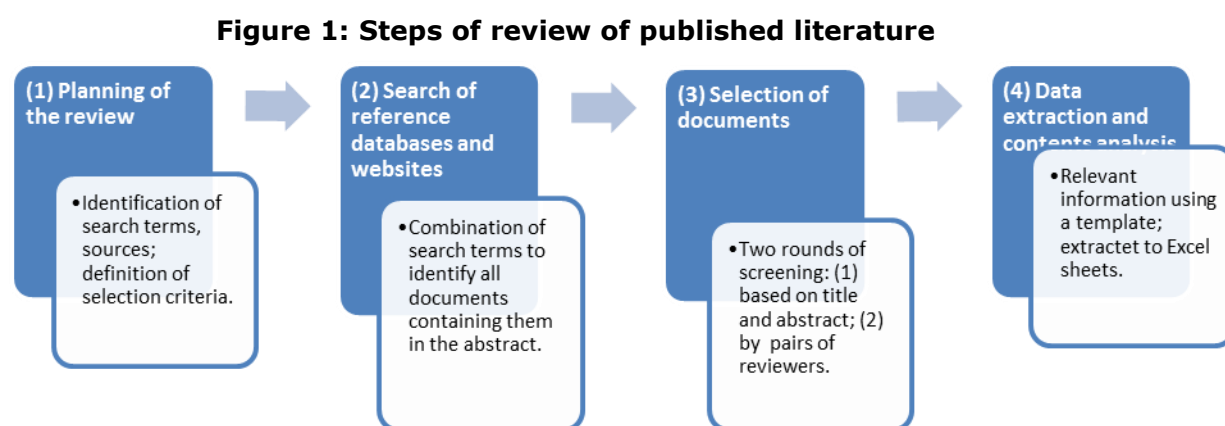
section follows; it includes the identification of facilitators or barriers to the effectiveness of interventions¹ , and lessons that policy-makers can derive from these.

¹ This notion is discussed in further detail in the *Discussion* section.

2. Methods and framework for analysis

2.1. Methodology

A **review of published literature** on the three selected countries was conducted in parallel to the review on EU/EFTA countries. This was done according to the following steps (Figure 1).



(1) Planning of the review: identification of search terms, identification of sources and definition of selection criteria of documents for analysis.

- An initial list of search terms was drafted using MESH (Medical Subject Headings) terms, the National Library of Medicine's controlled vocabulary used for indexing articles; this is a standard practice for literature search on health related topics. A final list was selected by consensus among members of the consortium (Annex 1).
- Selected sources of references were of two types: (1) the two most comprehensive databases of references in the field of health services research, e.g. Pubmed and BVS (Biblioteca Virtual em Saúde) which includes literature in Portuguese and Spanish; and (2) a selection of websites, of governments, of international organizations and of documentary repositories covering health services related topics (Annex 2).
- Inclusion criteria were: articles and other documents published from 1993² to date, in English, French, Portuguese, and Spanish, covering the EU-28 and EFTA countries, plus Australia, Brazil and South Africa, and

² Year of publication of the *World Development Report 1993- Investing in Health* which was influential in raising the issue of the efficiency of health systems, including that of the utilization of human resources.

discussing R&R of physicians and nurses, including educators and managers, interventions and issues.

(2) Search of reference databases and websites; this consisted of using combinations of search terms to identify all documents which contained them in the abstract or in the text itself.

(3) Selection of documents for analysis by conducting two rounds of screening by pairs of reviewers. The first round consisted in identifying documents which met the inclusion criteria. The second screening, consisted in the reading of the full document to eliminate non relevant documents. In case of doubt or of disagreement between reviewers on relevance, the decision was always to include the document.

(4) Data extraction and contents analysis; relevant information according to a template and transferred to Excel sheets.

The **consultation of country informants** started with the identification of a respondent in each of the target countries³. They were asked to identify the following: documents on R&R problems in the country (principally for physicians and nurses), and on interventions to improve them, if any; relevant policy documents such as national or organizational strategies, laws, decrees, administrative decisions, etc.; other relevant documents, such as research or administrative and evaluation reports, statements by professional associations and the like; and the best sources of data on the health workforce (stock, geographical distribution, etc.) as well as information on how to access them. The information received from country-informants is analysed and reported separately.

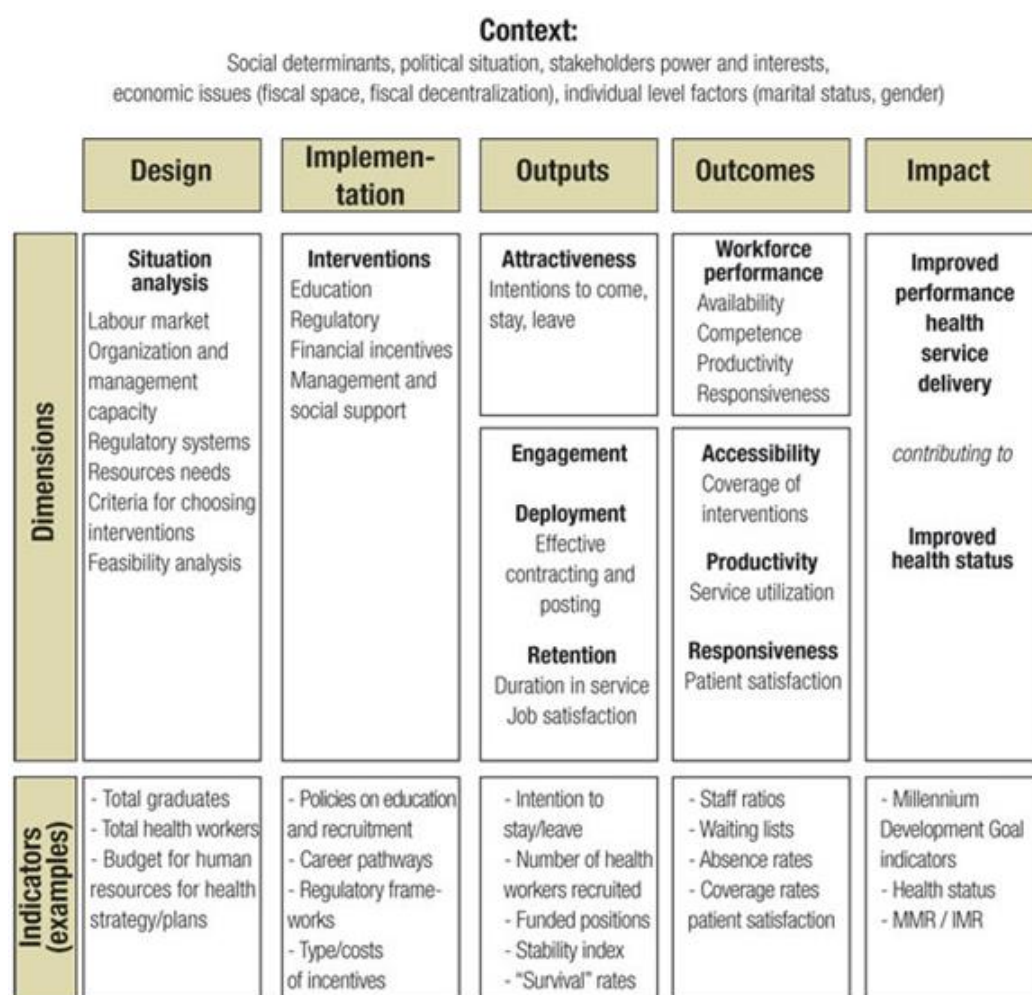
Our methodology implied limitations, which we took into account in discussing the findings. Findings are based on desk work, not on direct observation of the interventions. Many reviewed studies provided no or little information on the implementation process, on the period of the intervention (when it started and ended), on the actors involved (who commissioned, who implemented, who evaluated), or on costs. It was not possible to fill in those gaps. Finally, though the informants are all experts in the area of health workforce and are able to share the knowledge and information the study seeks to include, the selection of informants was one of convenience as the consortium used its network of contacts. No validation of the contents or of the completeness of the information received was made.

³ Australia, James Buchan, Queen Margaret University and Health Workforce Australia; South-Africa, Thuba Mathole, School of Public Health, University of the Western Cape; Brazil, Ana Paula Calvacante Oliveira, Ministry of Health and Institute of Hygiene and Tropical Medicine (Lisbon).

2.2. Framework for analysis

The analysis was then based on a framework, adapted from the one designed to evaluate the impact of the WHO (2010) *Global policy recommendations on increasing access to health workers in remote and rural areas through improved retention* (Figure 2). These Recommendations were based on an extensive consultation and on a broad review of literature (up to early 2010). This review yielded little on EU and EFTA countries⁴, but the evaluation framework applies equally well to interventions from these countries.

Figure 2: Conceptual framework for measuring efforts to increase access to health workers in underserved areas



Source: Huicho, L., Dieleman, M., Campbell J., Codjia, L., Balabanova, D., Dussault G., Dolea C. (2010). Increasing access to health workers in underserved areas: A conceptual framework for measuring results, Bulletin of the World Health Organization, 88 (5), 358.

⁴ Except for 3 OECD studies, the list of references (N=105) of this Report does not contain a single one from a EU-EFTA country. On the other hand there are many on Australia and South Africa.

After a first reading of the documents deemed relevant for analysis, the categorization of interventions used in the above framework was only slightly modified to reflect better the contents of the literature to be reviewed. The four categories which were used are defined in Box 2.

Box 2: Typology of interventions on Recruitment and Retention of health professionals

- **Education interventions** refer to changes in the structure, length and contents of curricula, in the location of training institutions, and in the development of continuing education programmes.
- **Financial incentives** refer to increased remuneration and to any type of direct or indirect financial advantage such as subsidies or free access to some goods and services.
- **Professional and personal support** interventions include improving working and living conditions of professionals and their family.
- **Regulation** interventions include policy and organizational level measures such as compulsory service, changes in employment contracts and in care delivery models. Interventions were also categorized according to the level at which they were designed: policy, e.g. at government, professional council or association, such as a hospital federation, or organization, e.g. health services provider such as individual or group of health centres or hospitals, or education institutions.

Adapted from Huicho et al. (2010)

3. Findings

This section starts with an overview of the results of the complete literature search process and of the successive screenings; it then presents the findings in three parts. First, results from the review of primary studies, e.g. studies published in peer-reviewed journals and presenting findings based on direct observation of an intervention, and findings from reviews, e.g., published articles and documents which address R&R issues on the basis of secondary data⁵. Secondly, from grey literature, e.g. reports, working papers and documents not indexed in reference databases but available on web sites. Thirdly, this information was complemented by additional information from the consultation of key informants.

3.1. Overview of the literature search process

A summary of the data collection steps and results is presented in Annex 3. The initial search identified 17,752 potentially relevant documents in databases of references and 24,975 in the selected websites. The first screening, e.g. reading of titles and abstracts and applying the inclusion criteria reduced these figures to 3,534 and 1,159 respectively⁶. The second screening (full reading) further reduced the number to 996 documents of which a final list of 369 (167 EU/EEA-EFTA countries; 202 Non-EU countries) were considered eligible for analysis on the basis that they met all inclusion criteria of language (English, French, Portuguese, Spanish), date of publication (1993 to date) and of explicitly discussing a specific or a set of R&R interventions; 60 (23 EU/EEA-EFTA countries; 37 Non-EU countries) were primary studies. The other documents included reviews (11 in total – 4 EU/EEA-EFTA countries; 7 Non-EU countries), grey literature (50 in total – 37 EU/EEA-EFTA countries; 13 Non-EU countries, Annex 6)⁷. The documents analysed in this report are distributed as follows: 37 peer review articles (Annexes 4 and 5) describing or assessing 37 interventions relating to the education of health professionals, to financial incentives, to professional and personal support, and to regulatory measures.

⁵ Reviews which reported on studies already presented in the Primary studies section were not included in that section. However, the conclusions which they derived from the review of other studies were used in the *Discussion* section.

⁶ “Retention” is also a widely used clinical term, which explains the gap between the initial results and those of the first screening after the elimination of papers with clinical contents.

⁷ We also identified “context documents » (N= 248 - 103 EU/EEA-EFTA countries; 145 Non-EU countries) which were generic descriptions of observed or forecasted R&R issues, advocacy papers, and the like. These have not been included as they typically did not present evidence.

Table 1: Distribution of documents identified as potentially relevant after second screening

	EU/EFTA	NON-EU	Total
Primary Studies	23	37	60
Reviews	4	7	11
Grey literature	37	13	50
Context studies (not included in review⁸)	103	145	248
Total	167	202	369

Table 1: break down of final reviewed documents in types of findings versus EU/EFTA versus NON-EU.

Reviews and grey literature include 20 documents describing 24 interventions (5 South Africa; 17 Australia, and 2 Brazil).

Table 2: Number of interventions identified in Australia, Brazil and South Africa

	Number of Interventions			
	Australia	Brazil	South Africa	Total
Primary Studies	32	0	5	37
Reviews	7	0	2	9
Grey literature	10	2	2	14
Total	49	2	9	60

The documentation collected from country informants generally consisted mainly of reports or policy documents which we reviewed under the category “grey literature”. Informants also identified interventions they were aware of, but which were not documented.

3.2. Primary studies

A total of 37 peer reviewed articles were included, describing: 21 education interventions, 5 financial incentives; 8 professional and personal support; 3 regulation interventions.

⁸ After a second reading these were considered as adding little to the other selected documents: most were advocacy documents presenting no evidence on interventions.

Table 3: Overview of documents reporting on education interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Influence nursing and medicine students' choice of a specialty or of a practice location				
Claassen Institute of Psychiatry for Medical Students program	Australia (Lyons et al., 2010)	Positive: Students gained greater insight into the many different areas of specialization within psychiatry, and increased their knowledge and interest in neurosciences and psychiatry. Importantly, the number of students 'definitely considering' psychiatry as a career increased by 20%.	Facilitators – Support of the Hospital Barriers - Negative aspects of psychiatry can be grouped under four broad themes: negative perceptions of psychiatry; the patient population; negative aspects of psychiatry as a career; and psychiatry as a discipline.	Evaluation
The Rural and Remote Clinical Program	Australia (Neill & Taylor, 2002)	Positive: Overwhelmingly, students found their experiences in rural and remote venues changed their lives and future careers, consistent with studies reported previously.	Facilitators – Support of the Hospital and of the University Barriers - Lack of financial assistance for undergraduate clinical placements	
Rural and Remote Health Placement Program (RRHPP)	Australia (Mak, Miflin 2012)	Positive: Benefits medical students and rural/remote communities.	Facilitators – Not mentioned Barriers - Not mentioned	Descriptive
The Australian Rural Clinical School (RCS) initiative - a rurally based undergraduate clinical training experience.	Australia (Eley et al., 2012)	Positive: A decade on the beginning of this initiative, there is strong endorsement for the positive influence that rural undergraduate clinical training has on promoting rural career intentions. Findings so far show that the primary drivers that influence decisions to pursue rural medicine are personal/family reasons, positive rural exposure and specialty training requirements.	Facilitators – Choosing a regional location as an internship choice was an early indication of choosing a career in rural practice Barriers - To overlook concurrent personal/life choices and while based in an urban training environment. Lack of postgraduate and vocational training programs to provide a continuum of opportunities and a clear pathway to rural medicine	A longitudinal mixed methods sequential explanatory design
Innovative model of clinical education - University of Wollongong, Graduate School of Medicine	Australia (Strasser, Neusy 2010)	not mentioned	not mentioned	not mentioned
The Innovative model of clinical education in Australia	Australia (Hudson et al. 2011)	not mentioned (The Australian Medical Schools Outcomes Database will provide future data to gauge the success of rural return for our program)	Facilitators – Motivation of 'supervisors-to-be' - they were prepared to engage with the initiative whatever the financial or other impact on their practice. They predicted it would be cost-effective, cost neutral, or even cost-negative. GPs are motivated to engage in novel regional and rural longitudinal clinical clerkships as they perceive that they offer students an authentic	Qualitative

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Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
			learning experience and are a potential strategy to help address workforce shortages and misdistribution Barriers - Participants identified potential responsibilities and burden associated with the supervisor role.	
Clinical Placement Support Scheme	Australia (Courtney et al., 2002)	Positive: A rural clinical placement can have a positive effect on the intention to seek future employment in a rural setting. Eighty-nine percent of students who undertook a rural clinical placement intended to seek work in a rural setting following their placement, compared with 46% of the students who undertook a metropolitan placement. This was an increase of 12% in the number of students who undertook a rural placement and intended to seek rural work in the future compared to pre-clinical placement numbers. Students who undertook a metropolitan placement had a smaller increase of 5% in the number of students intending to work in a rural setting.	Facilitators – Support of the University Barriers - The lack of professional opportunities, provision of appropriate continuing education, access to professional development or interaction and limited resources have been cited by a number of authors as problems which may negatively influence health professionals’ desire to practice in rural or remote areas.	A quasi-experimental pre-post test survey design
Fast-track Bachelor of nursing program - provides students with a qualification which gives an immediate access to paid professional work	Australia (Walker 2007)	not mentioned	Facilitators – not mentioned Barriers - not mentioned	Web search
Mental Health Nursing Enhancement Project,	Australia (O’Brien et al., 2008)	Positive: Based on the results from 254 pre-placement and 248 post-placement surveys there was a significant increase in student interest in mental health nursing with almost 50% indicating that they were “seriously interested” or “totally interested” in mental health nursing as a specialty choice upon graduating and 75% indicating that they would consider mental health nursing as a career. This interest did translate into an increase in actual applications for employment in mental health nursing in this facility	Facilitators - Clinical facilitators also can assist in changing attitudes towards people with mental illness, mental health services, and mental health nursing. Barriers - The stigma associated with mental illness also may extend to mental health nursing as a career option which provides challenges to the recruitment process.	Evaluation
preceptorship training	Australia (Charleston & Goodwin,	Positive: Participants’ initial evaluation was very positive. There is now less reluctance on the part of staff to accept a student for preceptorship. In fact, they actively volunteer their	Facilitators - Important to the participants, was that both the structure and assessment for the workshop met the requirements of a 12.5 credit university	Evaluation

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Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	2004)	services and work cooperatively to provide consistency across shifts.	subject should they successfully complete and choose to pursue future credit applications. The focus of assessment was practical and relevant to current practice in the area of student supervision. barriers – not mentioned	
Rural health clubs (RHC) and the National Rural Health Network (NRHN),	Australia (Turner & Scott 2007)	Positive: In the context of the national rural health strategy, RHC occupy a unique niche that enables particularly effective execution of their aims and objectives	Facilitators – not mentioned Barriers - not mentioned	Descriptive
Health training in the targeted area				
Undergraduate rural clinical rotations to increase the likelihood of medical students to choose a rural career.	Australia (Somers et al, 2012)	Mixed - While rural rotations are an important component of undergraduate medical training, it is the nature of the students choosing to study in rural locations rather than experiences during the course that is the greater influence on rural career choice.	Facilitators – not mentioned Barriers - not mentioned	Prospective, controlled quasi-experiment
Rural Workforce Agencies - Continuing Medical Education (CME)	Australia (White et al, 2007)	Positive: the workshops provided by HWQ are extremely effective in increasing practitioners' confidence in practising in rural and remote communities, reducing professional isolation and increasing commitment to remain in rural practice. It is also acknowledged that there are other factors, including on-call arrangements, access to locum relief, local availability of services and proximity to a city or large regional centre, that interact with professional support to influence retention decisions.	Facilitators – Since its establishment as a rural workforce agency, Health Workforce Queensland (HWQ; formerly Queensland Rural Medical Support Agency) has seen the provision of high quality, rurally relevant medical education and training as a key retention and support strategy for rural and remote medical practitioners in Queensland, Australia. Barriers - not mentioned	Evaluation (of workshops)
The development of a Major in mental health nursing has been identified as a strategy to promote this area of practice.	Australia (Happell et al 2011)	Mixed: The numbers of students taking the major is relatively small in most universities; however, the retention rates are favourable.	Facilitators – Political willingness Barriers - Lack of workforce data to assist with identification and planning of effective strategies to promote mental health nursing; uncertainty about the sustainability of these programmes (only 50% of the universities started a Major in Mental Health Nursing)	Survey

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Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
decentralized model of GP training	Australia (Robinson et al, 2013)	Positive: Decentralised training model has had a positive impact on the workforce in the Bogong region - at the conclusion of the study 42% of doctors who trained with BRTN remained in the region	Facilitators - Government reviews and policy decisions - allowed the changes in GPs training from centralised practice education to decentralised training Barriers - The development of specific rural training programs such as the Rural Generalist Pathway need more support	Qualitative
Australian Rural Clinical School (RCS) programmes	Australia (Isaac et al 2014)	Positive: The number of years in RCS training not only has a positive association with students' intention to work in a rural location, but also is positively associated with students' level of interest in rural practice.	Facilitators - There have been considerable efforts from the Australian Federal Government to address these shortages by funding a range of programmes aimed at medical students. Barriers - not mentioned	Evaluation
Educational program for Enrolled Nurses (EN) in the specialised haemodialysis environment	Australia Chow et al 2008)	Positive: The on-the-job education programme has been very effective with regard to recruitment and retention of nursing staff and has been beneficial both to the individual and the organization.	Facilitators - Involvement of the nursing managers and key clinical nursing staff who designed the education program. Barriers - not mentioned	Descriptive
Attraction of students by employers				
Mentor Development and Support Project.	Australia (Mills et al, 2007)	Positive: The benefits of mentoring relationships for mentors and mentees are career success and advancement; personal and professional satisfaction; enhanced self-esteem and confidence; preparation for leadership roles and succession; Benefits for organizations: mentoring improves retention of staff through the creation of a climate of support that in turn indicates an organizational culture of care. Other benefits include improved staff morale and levels of job satisfaction, and enhanced role transition, thereby assisting managers and clinical specialists with succession planning. Mentoring also promotes a cross-generational understanding of values and traits that can improve workplace relations	Facilitators - not mentioned Barriers - not mentioned	Descriptive
The Transition Programme into Mental Health Nursing, at Central Sydney Area Mental Health Service	Australia (Cleary et al, 2009)	Positive: The findings of this evaluation suggest that the transition to practice programme has been effective in supporting the new graduates as they commence practice as a registered nurse within the mental health field. Satisfaction with all aspects of the programme was high.	Facilitators - Adequate support for graduates is ensured through a combination of clinical facilitation and unit-based preceptorship programmes. Barriers - Increasing workload, poorly defined career structure, high attrition rates of new and experienced practitioners versus the number of new graduates entering the field, and the underutilization of Division 2 nurses (enrolled nurses). Inadequate theoretical and clinical preparation for specialty practice.	Survey Mixed methods research

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Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
The Graduate Nurse Program (GNP)	Australia (Cubit & Ryan 2011)	Positive: Seventeen GN began the 2008 GNP, with one leaving during the second rotation. Fifteen (88%) of those who completed the 2008 GNP continue to work at the hospital in 2009. This is a significant increase from the previous year in which the retention of GN from the 2007GNP was only 64%. It is very evident from this evaluation that the retention of Gen Y GN is unmistakably linked to frequent and regular contact with a L&D Unit whose role is to facilitate: flexible rotations through clinical areas of interest; regular opportunities for fun and socialisation; advocate for fostering with preceptors and release for study days; ongoing support and prompt feedback. The background research, development,	Facilitators – Calvary Health Care ACT is a not-for-profit hospital that provides public and private hospital services within the Australian Capital Territory. Barriers - Generation Y characteristics (They want to work in a positive environment where people are happy, teams work together and have lots of fun. Generation Y view all learning opportunities as crucial components to their development and therefore welcome constructive criticism in the workplace)	Evaluation
The Psychiatrist Training Initiative	Australia (Wilks, Oakley Browne, & Jenner, 2008)	Positive: The candidates attribute achieving their fellowship largely to this program.	Facilitators – Support of the Hospital Barriers - Professional isolation was highlighted as a concern, with requests received for additional linkages to city based psychiatrists and services. Feedback was also received on the need for increased peer supervision.	Qualitative

Table 4: Overview of documents reporting on financial incentives interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
Financing structure				
Improve nurses' wages	Australia (Achterstraat, 2006)	not mentioned	Facilitators – Not mentioned Barriers – Not mentioned	Audit
The Occupation-Specific Dispensation (OSD)	South Africa (Ditlopo, Blaauw, et al., 2013)	Negative: a number of preconditions were not met, and this resulted in sub-optimal implementation; the decentralisation of the implementation of OSD resulted in insufficient coordination among different stakeholders and different interpretations and variations in OSD policy implementation	Facilitators – Favourable political context Barriers – Existing evidence suggests numerous problems with the implementation of the OSD policy, ranging from inadequate planning, budget overruns (25) and some unintended negative consequences (26). These consequences included unmet nurses' expectations, inequities in the amounts received,	Descriptive case study design

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Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
			perceived unfairness, and dissatisfaction and divisions among the different categories of nurses (26).	
Rural allowances	South Africa (Ditlopo, Blaauw, et al., 2013)	<p>Mixed: Using a policy analysis framework, we analyzed the implementation and perceived effectiveness of a rural allowance policy and its influence on the motivation and retention of health professionals in rural hospitals in the North West province of South Africa.</p> <p>This study illustrates that good policies with admirable intentions can have reduced impact or even negative consequences because of process and implementation weaknesses. The successful implementation of future retention strategies will require more coordinated effort across a range of governmental actors. Particular attention needs to be paid to process issues, better communication, use of evidence to inform policy and effective monitoring and evaluation.</p> <p>Partial effectiveness of rural allowance in recruitment Some hospital managers reported that the rural allowance had been partially effective in attracting health professionals to their facilities.</p> <p>Other managers argued that the rural allowance was only effective in addressing short-term recruitment needs.</p> <p>Financial incentives alone are insufficient Most participants (nurses, doctors, health managers, and policy-makers) indicated that financial incentives alone are insufficient to motivate and retain staff.</p>	<p>Facilitators – not mentioned</p> <p>Barriers – (weaknesses) - Lack of evidence to guide policy formulation; restricting eligibility for the allowance to doctors and professional nurses; lack of clarity on the definition of rural areas; weak communication; and the absence of a monitoring and evaluation framework.</p> <p>Limited resources make it difficult to provide allowances to all categories of health professionals, their impact may be short-lived, and they may be inadequate if implemented alone.</p>	Multiple descriptive case study design
Financial support for Students				
Increase the number of students with a rural background who enter medical school through the Rural Australian Medical Undergraduate Scholarship (RAMUS)	Australia (Laven et al 2005)	<p>Positive: rural GPs are about two to three times more likely to fulfil the RAMUS rural background criterion than urban GPs. This supports the value of the RAMUS scheme in increasing the number of rural doctors.</p>	<p>Facilitators – Political support to the measure</p> <p>Barriers – not mentioned</p>	Case-control study

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
scheme The Friends of Mosvold Scholarship Scheme (FOMSS), a scholarship for rural students in health science careers	South Africa (Krauss, 2006).	Positive: Mosvold's success has led to its replication in other areas of South Africa, inspiring a similar program at the University of the Witwatersrand, the Wits Initiative for Rural Health Education (WIRHE). Twenty students from rural communities in North West and Limpopo provinces are receiving scholarship support to study health sciences at Wits Medical School; afterwards, they will return to their rural homes to work in local hospitals.	Facilitators - Mosvold Hospital and Local community members. Barriers - Not mentioned	not mentioned

Table 5: Overview of documents reporting on professional and personal support interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
Motivating staff by providing professional development or career opportunities.				
The Australian Support Scheme for Rural Specialists	Australia (Pond, Dalton, et al., 2009).	Positive: Key outcomes that were reported included: (i) decreases in professional isolation and increased access to CPD for rural specialists; (ii) increased interorganisation and inter-college collaboration; (iii) support of access to CPD for overseas-trained specialists; and (iv) identification of effective approaches for the provision of CPD to rural specialists.	Facilitators - Australian Government Department of Health and Ageing (DoHA) Barriers - CPD programs, especially those that are designed to bring about practice change, are resource intensive in terms of cost, time and infrastructure. Some colleges have also expressed concern that within the current SSRS program framework, there is an expectation that colleges have comparable capacity and infrastructure to compete for program funds. This includes the capability to develop and implement rural-specific CPD projects that deliver practice improvement, or evidence of knowledge transfer. Another limitation, reported by both the programs' external evaluators and the SSRS Program Management Committee is related to the implementation timeframes	not mentioned
Addressing a sense of isolation when working in remote areas through outreach support from specialists				
Rural Outreach Strategy	Australia O'Sullivan et al. (2014)	Mixed: Despite greater need, remote outreach is less prevalent and depends on harnessing specialists based proximally as well as those from metropolitan areas.	Facilitators - Sustained national commitment to outreach Barriers - Rural outreach depends on health workers	Survey

EUROPEAN COMMISSION

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
			who are willing to travel and their distribution to areas of need.	
IMPROVING THE PRACTICE ENVIRONMENT: MAKING MANAGEMENT AND ORGANIZATIONAL CULTURE MORE RESPONSIVE				
The Central Australian Nurse Management Model (CAN)	Australia (Haaren, Melanie and Williams, Gerald 2002).	Positive: Implementation of the three key initiatives that comprise the CAN Model has succeeded in attracting, stabilising and skilling a remote area nursing workforce, fundamental to achieving better health outcomes in Aboriginal populations	Facilitators – political context Barriers – While the logic and wisdom of the above policy direction is unquestionable, operationalising such plans in the current context of high staff turnover and poor coordination of the many elements of service delivery in remote settings is very difficult, with few sustainable models for success.	Descriptive
Mix of methods developed and implemented by the university and used to improve recruitment and retention				
A coordinated approach to recruitment, both domestically and overseas, support for IT and information systems, assistance with relocation and accommodation, an academic appointment at the university, and support to reduce personal and professional isolation by providing leave and locum cover.	Australia (Wilkinson et al, 2001).	Positive: Rural academic family practices have successfully recruited and retained medical staff in this setting over the past few years. It seems that the university practices offer a useful and complementary recruitment and retention strategy.	Facilitators – Integrative approach adapted to local needs. Academic component with offers interesting opportunities for career progression for those GPs interested in research. Barriers – not mentioned	not mentioned
Mix of social and psychological support with practical interventions,	South Africa (Gardiner et al 2006)	Positive: The improvements seen in the areas of support and well-being for rural GPs, and participation in initiatives aimed at enhancing those areas, supports the role of the Dr DOC program in improving the well-being of rural GPs. As such, the Dr DOC program, which combines social and emotional support with practical interventions, provides a useful framework for future programs aimed at reducing levels of stress and dissatisfaction among rural GPs and for reducing the number of GPs	Facilitators – Rural Doctors Workforce Agency Barriers – not mentioned	Survey

EUROPEAN COMMISSION

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
		leaving rural practice. It now remains to build on these findings by offering more evidence-based programs targeted at improving the psychological well-being of rural GPs.		
Salary increases, improved working conditions, attracting back "returners", and, with a more specific focus on "regulation", that the use of new models of care that took greater account of workload	Australia (Achterstraat, 2006)	not mentioned	Facilitators – not mentioned Barriers – not mentioned	Audit
The Cadetship Program	Australia (Dunbabin, et al 2006)	Positive: The study concludes that exposure to rural practice works in favor of recruitment, but that overall career choice seems to be the main determinant of practice location.	Facilitators – Support in the community Barriers – not mentioned	Survey
Mentorship programme	Australia (McCloughen, & O'Brien 2005).	Not mentioned (The present paper was written prior to a formal programme evaluation, and hence these results are not presented here)	Facilitators - The mentorship process facilitates relationships based on reciprocity and mutuality. Barriers – not mentioned	Descriptive

Table 6: Overview of documents reporting on regulation interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Strength of the evidence
Compulsory Community Service programme	South Africa (Khan et al 2009)	Mixed: Respondents found the CS experience both personally and professionally rewarding, but that there was a need for substantial adjustments in the structure of the program, such as improvements to administration, supervision, mentoring and logistical support.	Facilitators – not mentioned Barriers – Lack of resources; poor support and supervision for CS therapists by peers, more senior therapists and hospital management especially in rural areas and district hospitals where problems may be more complex and intractable.	Observational cross sectional study
Community service programme	South Africa (Hatcher et al 2014)	Mixed: Participant satisfaction with CS was high, and that an emphasis on professional development and supervision was critical to retaining medical staff in rural areas.	Facilitators – not mentioned Barriers – Transparency of placement processes is noted to be a key ingredient to the success of compulsory community service; the programme management should better describe the overall programme goal to provide services to underserved communities through more appropriate allocations.	Survey
Team nursing - a new model of nursing care in a hospital in Sydney	Australia Fairbrother et al (2010)	Mixed: Positive impacts on the level of localized workplace organization and was praised by many participants as superior to IPA in a variable skill mix work environment. Negative – the role of the “shift coordinator” who acted as the main link person in communications between teams, and supportive senior clinicians and managers.	Facilitators – Willingness of staff to change Barriers – The Models of Care project was sourced in a perception that the individual patient allocation model of care may not be serving the patient’s or the profession’s best interests in the prevailing variable skill mix and human power-short environment.	Action research

3.2.1. Education interventions

Overall, specific interventions include: clinical rotations during health professionals' studies, coaching and mentoring of students, adaptation of curricula for rural health workers, decentralization of education institutions or programmes of studies, recruitment of students from rural areas, attraction of students or young graduates to certain fields of practice, and development of continuous education programmes. Papers report interventions at the **policy level** in Australia, and at **organizational level**; in provider organizations these include interventions designed and implemented by single or groups of organizations, principally hospitals and health centers. Some target the whole organization, others only departments with greater turnover rates and difficulty to attract professionals.

3.2.1.1. Education interventions at policy level

- **Australia:** Australia introduced *undergraduate rural clinical rotations* to increase the probability of medical students to choose a rural career. For example, the three clinical years (2002-2005) at Monash University (Melbourne, Victoria) were divided in 10 clinical rotations, one in year 3, four in year 4 and five in year 5. A 3-year study considered these rotations as an important component of undergraduate medical training in improving learning, but concluded that it was less important than rural origin in influencing the choice to practice in a rural area (Somers et al., 2012).
- **Australia:** *Rural Workforce Agencies* were established in the six Australian states and the Northern Territory in July 1998, following recommendations of the General Practice Strategy Review Group. From its inception, one of these, Health Workforce Queensland, has offered "rurally relevant medical education and training" in workshops targeting medical practitioners working in rural zones. Between 2004 and 2006, 753 physicians participated in these workshops. The average stay in rural and remote practice for attendees in 2006 was 12 years. Self-reports indicated that the availability of professional support from well qualified colleagues and specialists, and from professional organizations through continuing medical education, is an important factor of retention. Respondents also identified factors such as on-call arrangements, access to locum relief and proximity to a city or large regional centre, as also contributing to retention (White et al., 2007).

- **Australia:** In March 2003, the Association for Australian Rural Nurses (AARN), in partnership with the Royal College of Nursing, Australia (RCNA⁹), implemented a 2-year *Mentor Development and Support Project*. The AARN project was funded by the Government's *Rural and Remote Nurse Scholarship Programme: Undergraduate Scheme*, and managed by the RCNA. The Project focused on working with experienced rural and remote nurses who wanted to share their experience with undergraduate nursing students who had an interest in rural and remote nursing. Mentors who completed a Mentor Development Workshop have been able to confidently establish, maintain and monitor their mentoring relationships. A strong network of rural and remote nurses, who are also mentors, started growing and providing mutual support. Between 2003 and 2006, 101 nurses were trained under the project. Mentoring was considered as strategy for rural and remote nurse managers to motivate staff and contribute to a culture of learning in the organizational environment (Mills et al., 2007)
- **Australia:** *Mental health nursing curricula* were considered in Australia in response to the difficulty in recruiting and retaining an adequate mental health nursing workforce. The development of a Major in mental health nursing has been identified as a strategy to promote this area of practice. Fourteen universities have been involved in a Major in mental health nursing in some capacity. Two programmes were abandoned before commencement; two are delayed; two have discontinued, with a third planning to discontinue from 2011 and one was proposed for introduction in 2011. The intake of students has been modest in most universities, but overall, the completion rate has been positive. It would appear that a common understanding of what constitutes a major study in mental health nursing does not exist. A systematic approach to analysing the effects on growth within the mental health nursing workforce as a result of participation in a mental health nursing major within a Bachelor of Nursing is warranted (Happell et al., 2011).
- **Australia:** The *General Practice Education and Training* programme was launched in 2001 to manage GP training via a consortium of 21 regional training providers (RTPs) which began delivering training in 2004. The decentralized training model has had a positive impact on the workforce in the Bogong region (States of Victoria and New South Wales); a survey of participants between 2004 and 2009 showed that 42% of the 57 doctors who participated in the training were practicing in a rural area, among whom 32% in the Bogong region (Robinson et al., 2013). The authors concluded that decentralized training had a

⁹ Now called the Australian College of Nursing.

positive effect on recruitment, and that this impact was more important among Australian-born than foreign-born physicians.

- **Australia:** The *Australian Rural Clinical School (RCS)* programme was designed to create experiences that influence graduates to choose rural medical careers. The programme provided students with extended rural clinical placements. Medical students enrolled in a RCS in 2013 at the University of New South Wales (UNSW) completed the newly developed self-administered UNSW Undergraduate Destinations Study (UDS) questionnaire. Data were collected at baseline and after one year of RCS training on preferred location for internship, work and intended specialty. Interest for graduate practice location (career intent) was assessed on a five-variable Likert scale at both baseline and at follow-up. A total of 165 students completed the UDS at baseline and 150 students after 1 year of follow-up. Rural work intentions and longer time spent in RCS were associated (Isaac et al., 2014).

3.2.1.2. Education interventions at organizational level

Three interventions were identified in Australia in the field of mental services in provider organizations and one in haemodialysis.

- **Australia:** The *Transition Programme into Mental Health Nursing* was implemented, in 1998, at Central Sydney Area Mental Health Service, which serves a population of 500,000, as a strategy to attract qualified nurses to mental services, while offering new career opportunities (Billett, 2006; cit. in Cleary et al., 2009). The programme included 4 weeks of theoretical education and 1 week of critical incident training. Participants were encouraged to participate in other in-service education offered by the service. Four 3-month clinical rotations provided an overview of mental health nursing specialties. Support was available through a combination of clinical facilitation and unit-based preceptorship by experienced mental health nurses. Successful completion of the programme provided credit points towards the Graduate Diploma in Mental Health Nursing at the University of Technology, Sydney. A first evaluation suggests that the programme has been effective in supporting the new graduates as they commence practice as a registered nurse within the mental health field. Satisfaction with all aspects of the programme was high (Cleary & Happel, 2005; cit. in Cleary et al., 2009).
- **Australia:** The *Graduate Nurse Program* (GNP) is a 12-month program corresponding to the first year of employment, divided into four clinical rotations with a strong focus on support and socialization, and designed to meet the needs of "Generation Y" (born between 1980 and 2003), graduate nurses. The

Programme's retention rates for the 12 months following its completion increased from 64% in 2008 to 88% in 2009. This increase was attributed to factors such as regular contact with a *Learning and Development* unit (Cubit & Ryan, 2011).

- **Australia:** The *Psychiatrist Training Initiative* is an educational programme developed specifically for international medical graduates at Latrobe Regional Hospital which serves the rural Gippsland region (State of Victoria), to support recruitment and retention of psychiatrists by helping them to prepare for specialty exams (Royal Australian and New Zealand College of Psychiatrists' Southern Regional Training Committee Psychiatry Registrar Programme). This programme includes communication skills, and "acculturation issues and exposure to the Australasian model of psychiatry". The hospital had reached a "crisis" in 1994, when it had a large number of vacancies for psychiatrist posts, and this stimulated a focus on recruitment and retention which improved staffing from 1 to 11 by 2006 and retention rates from an average of 18 months to 4 years. A review of these efforts was conducted in 2006, using data analysis from personnel records, examination of organization structure changes and changes in education support, and interviews with individual staff. Key lessons learned included a focus on building an individualized rapport with staff when they were first recruited, an extensive orientation program taking into account cultural background as many recruits were from overseas, more emphasis on meeting individual and family needs, and provision of ongoing educational support with a specific focus on preparing for RANZCP fellowship exams (Wilks, Oakley Browne, & Jenner, 2008).
- **Australia:** *Educational programme for Enrolled Nurses (EN) in the specialised haemodialysis environment:* a new model of care was designed to introduce (EN) into what was previously almost exclusively a Registered Nurse (RN) workforce in **Australia**. The programme comprises training in medication administration conducted at the Technical and Further Education (TAFE) centre of New South Wales, training in dialysis procedures in the haemodialysis unit and clinical placement in the renal ward. Successful participants were recognised as Endorsed Enrolled Nurses, authorized to undertake extended roles in renal nursing care. Throughout the training, candidates have individualised clinical teaching and supervised practice to achieve accreditation in haemodialysis policies and procedures. One of the key elements for the success of the EN programme in the dialysis unit was the vision from the nursing managers and key clinical nursing staff who designed the education program. Comprehensive specifications for job performance for the ENs were developed. Job duties were

placed in the realm of the EN's scope of practice in compliance to the current Nurses' Act. This programme serves not only to educate but also act to attract and retain nurses who are committed to renal nursing. The success in staff recruitment and retention has been one of the positive outcomes of this programme. There was a total of 12.5 FTE vacancy (32%) and poor staff morale prior to the introduction of the ENs in the dialysis unit. With the increase in newly enhanced dialysis capacity and nursing positions each year to meet the demand of 10% per annum patient growth, there is now rarely any vacant position currently (0.2% vacancy rate) (Chow et al., 2008).

Most peer reviewed articles at the **organizational level**, in **education institutions**, present examples of interventions aimed at influencing nursing and medicine students' choice of a specialty or of a practice location in Australia:

- **Australia:** In the *Claassen Institute of Psychiatry for Medical Students programme*, participants gained greater insight into the many different areas of psychiatry, and increased their knowledge and interest in neurosciences and psychiatry (Lyons et al., 2010); it is not reported whether this led to more students choosing psychiatry as a specialty.
- **Australia:** The *Rural and Remote Clinical Programme* is an initiative of the Northern Territory Department of Health and Community Services, which started in 1998. It consists in a 5-16 week rotation for nursing students in remote health centres of Central Australia; it gives access to support for essential immunizations, transport, clinical preceptors, free accommodation and inexpensive meals. Students have supported the development of a strong rural and remote focus for undergraduate placements and reported that their experience changed their lives and future career choices (Neill & Taylor, 2002).
- **Australia:** *Rural and Remote Health Placement Programme (RRHPP)* – In 2004, the University of Notre Dame School of Medicine, in Fremantle (Western Australia), started the RRHPP to provide a foundation for, and complement the medical focus of, rural clinical placements. It provides students with personal experience of living and working in the bush and opportunities to develop patient and community centred perspectives on rural and remote area health. Key findings from the formal study of the Kimberley remote area health placement were: the programme was seen as effective because it provided structured, constructive means for prospective doctors to appreciate the richness of remote area living and encouraged them to think and act cross-culturally. The programme was seen as beneficial for the long-term health needs of Kimberley because: – at least 'one good doctor' might return to work in the region; –

prospective doctors, whether they chose to return to the bush or practise in the city, would be better informed about the particular circumstances of patients from the bush, including the conditions in many Aboriginal communities; and – prospective doctors were stimulated to reflect on their own attitudes and practices (Toussaint & Mak 2010). The School has been informed by the Postgraduate Medical Education Council of Western Australia that Notre Dame graduates have indicated their willingness to work outside the metropolitan area and requested that more intern and postgraduate training places be developed in rural health services (Mak et al. 2011 cit in Mak and Mifflin 2012)¹⁰.

- **Australia:** The *Australian Rural Clinical School* (RCS, Western Australia) initiative maintains contact with all former medical graduates since 2002 and invites them to participate in a survey every two years to provide an update on their current career intentions/decisions. The initiative showed that the primary drivers of decisions to pursue rural medicine are personal/family reasons, positive rural exposure and specialty training opportunities (Eley et al., 2012).
- **Australia:** Flinders University School of Medicine's experience is illustrative of successful rural based, socially accountable medical education, school using an evidence-based and context- driven educational approach to producing skilled and motivated health workers. Through the *Parallel Rural Community Curriculum* (PRCC), students undertake the third year of a four-year medical programme based in family practice and live in a rural community for the whole year. The learning objectives are the same as for third-year students in the city teaching hospital. The PRCC has been found to provide learning experiences which are equivalent to, if not better than, clinical learning in the metropolitan teaching hospital. PRCC students consistently outperform their colleagues based in city teaching hospitals in the end-of-year examinations. In addition, PRCC students were found to have a higher level of confidence and competence and a broader range of clinical knowledge and skills when compared with their metropolitan counterparts After 12 years, 70% of PRCC graduates are practising in rural locations (Strasser & Neusy, 2010).
- **Australia:** The *Innovative model of clinical education in Australia* (2009) is a programme of 12-month integrated community-based clerkship where senior medical students in the third year of their 4-year course live, learn and work in a regional or rural community hub. Hudson et al. (2011) report that it is not yet possible to measure the results of the intervention.

¹⁰ In December 2013, the program received the top award from Australian Government's Office for Learning & Teaching (OLT) (<http://www.nd.edu.au/news/media-releases/2013/254#sthash.xAvZ6ZEK.dpuf>).

- **Australia:** The *Clinical Placement Support Scheme* is a rural undergraduate clinical nursing placement programme which places over 200 students in rural and remote health care services. Over the years, more students in the Bachelor of Nursing pre-registration course have expressed interest in undertaking a rural clinical placement. Students who have a positive experience during a rural or remote area clinical placement are more likely to express intention to seek employment such areas after graduation –no numbers given. (Courtney et al., 2002).
- **Australia:** *Fast-track Bachelor of nursing programme* - The fast-track mode provides students with a qualification which gives an immediate access to paid professional work. The programme saves a year of study and the various costs and burdens associated with it. (Sheahan, 2005: 28). Data from two evaluation studies were planned to provide evidence of the effectiveness of this initiative (Walker 2007). A web search has identified the University of Southern Queensland, University of Tasmania, University of Technology in Sydney, and Flinders University as offering this option. However, we have not found the results of the evaluation envisaged by Walker (2007).
- **Australia:** The *Mental Health Nursing Enhancement Project*, started in 2004, is a collaboration between a university nursing school and a mental health facility, consisting in a “mental health clinical facilitation” programme aimed at improving the placement experience of nursing students, by giving them insights into the nature, role and responsibilities of nursing in this specialty. The Project resulted in an increase in actual applications for employment in mental health nursing. Based on the results from 254 pre-placement and 248 post-placement survey responses, there was a significant increase in student interest in mental health nursing with almost 50% indicating that they were “seriously interested” or “totally interested” in mental health nursing as a specialty choice upon graduating and 75% indicating that they would consider mental health nursing as a career. This interest did translate into an increase in actual applications for employment in mental health nursing in this facility¹¹ (O’Brien et al., 2008).
- **Australia:** The *Centre for Psychiatric Nursing Research and Practice* (CPNRP, Melbourne, Victoria) preceptorship training is a 2-day workshop followed by online contacts and a follow-up day 4–6 weeks later. These workshops focus on developing new or strengthening existing skills and knowledge in the area of nursing student supervision, as well as providing a supportive venue for networking and for the exchange of ideas. Online posting required participants to

¹¹ Not identified in the article.

respond to a weekly 'theme' around preceptorship. The follow-up day enabled participants to present work assignments and to develop a set of local guidelines for the provision of preceptorship. The training improved preceptors' skills and valued their role, which in turn improved their capacity to influence students during their mental health placement to view mental health nursing. This was evidenced by the subsequent recruitment of six graduate nurses, and the higher demand for placement opportunities as students learned of the positive nature of the experiences offered (Charleston & Goodwin, 2004).

- **Australia:** *Rural health clubs (RHC)* and the *National Rural Health Network (NRHN)*, established in 1995, have two broad aims: to provide positive rural experiences for medical, nursing and allied health students with the hope of encouraging rural practice in the future; to raise awareness of rural health issues among students and the wider community. University *RHC* conduct diverse activities such as trips to rural locations, information and scholarship sessions, practical workshops, discussion forums, health promotion activities and social events. For clubs with a combination of nursing, allied health and medical membership, these activities are cross-disciplinary in nature. Collaborative activities with university departments of rural health, Divisions of General Practice, medical rural clinical schools (RCS), Aboriginal medical services, community organisations and rural health professionals are also undertaken. The NRHN enables communication and organisation of events at different universities and provides external representation on a national level. The cross-disciplinary and inter-university nature of the NRHN and its member clubs enables cooperation with many national rural health bodies and communication of issues, ideas and initiatives across a large portion of Australia's potential future rural health workforce. In the context of the national rural health strategy, RHC occupy a unique niche that enables particularly effective execution of their aims and objectives, namely providing positive rural experiences and fostering peer promotion of rural health (Turner & Scott, 2007).

3.2.2. Financial incentives interventions at policy level

- **Australia:** The *Rural Australian Medical Undergraduate Scholarship (RAMUS)* scheme, launched in 1999-2000, provided students A\$10 000 per annum to compensate for the additional costs they incur at medical school. 880 scholarships were awarded between 2000 and 2004. Candidates must have a rural background, e.g., having lived in a rural community for five consecutive or

eight cumulative years. A retrospective study conducted in 2005, (Laven et al., 2005) which aimed at verifying if physicians with this profile were indeed more likely to work in rural areas, showed that those who had this profile were more than 2.5 times likely to work in a rural area, leading to the conclusion that attracting students with a rural background was a sound strategy to address recruitment difficulties in such areas.

- **Australia:** the Ministry of Health and the Nursing Association in New-South Wales negotiated a pay increase in 2001 “to make nurses feel more valued”, which made nurses the highest paid nurses in the country (Achterstraat, 2006).
- **South Africa:** the *Friends of Mosvold Scholarship Scheme (FOMSS)*, a scholarship for rural students in health science careers, was implemented in 1998 to address difficulties in filling vacancies for nurses, physicians, pharmacists and others, in a district hospital in Mosvold (Province of KwaZulu-Natal). The scholarship, in addition to funding books, accommodation, food and tuition, provides mentoring. Beneficiaries have to work with the hospital for each year of the scholarship, also four weeks per year during their academic vacations, for which they receive a payment (Krauss, 2006). Of the 24 FOMSS students who have graduated, 18 were working in the district that supported them (Ross, 2006 cit in Krauss, 2006).
- **South Africa:** “Rural and *scarce-skill allowances*” introduced in 2003 in South Africa, equivalent to 25% of the basic salary, were paid to medical doctors and certain categories of registered nurses, such as operating theatre nurses, critical care/intensive care nurses and oncology nurses. Dieleman et al. (2011) and Yumkella (2005) refer to studies that showed that it had a positive impact on short-term career plans (decision to stay in their position) and that the retention of one third of the health workers was positively influenced by the allowance. Young nurses in particular responded to proposed changes in short-term career plans when annual incentives of ZAR 50 000 would be introduced. Another study (Gilson, Erasmus 2005), pointed to unintended negative effects, such as the divisive impact of the allowances at the level of the workplace, with the allowance benefiting doctors more than nurses and only benefiting selected nurses, despite the fact that all categories of nurses live and work in the same difficult circumstances. Day and Gray (2008) report that *rural allowances* encouraged about 30% of nurses to keep working in rural areas. However, in 2008, 34% of rural medical practitioner posts and 40.3% of rural nursing posts were still vacant. Although no concrete data were provided, Ditlopo and Blaauw (2011) report that payment of such rural allowances, according to interviewed hospital managers, had positive for recruitment, whereas others said that they

had only short- term effects. Problems of implementation were reported, such as time and resource- constraints, insufficient coordination and collaboration, lack of consultation with facility managers and provincial health authorities, unclear role division between central and decentralised level and inadequate training of implementers. Additionally policymakers, health workers and managers reported that financial incentives alone are insufficient to motivate and retain staff (Ditlopo et al., 2013).

- **South Africa:** In 2007, the South African government introduced the occupation-specific dispensation (OSD), a financial incentive strategy to attract, motivate, and retain health professionals in the public sector. The OSD implementation faced inconsistent provincial implementation and dissatisfaction as occupational categories in the public service were re-graded according to new salary structures and not all categories of nurses benefitted from this initiative (Ditlopo et al., 2013).

3.2.3. Professional and personal support interventions

In the category “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 being 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 (care of children or of family members, ageing), through the use of refresher programmes and flexible rosters; and motivating staff by providing professional development or career opportunities.

3.2.3.1. Professional and personal support interventions at policy level

- **Australia:** The *Cadetship Programme* which started in 1988 in New South-Wales offered scholarships to medical students covering the first two years of their postgraduate studies who accepted a rural placement. Dunbabin et al. (2006) tracked the 180 students who participated in the scheme between 1989 and 2004; when dropouts and those who did not complete their placement or were still studying were excluded, there remained 107 whose practice location was identified. New graduates who had chosen to specialize were more likely to work in urban settings; 43% of former cadets were working in a rural setting, compared to 20,5% of all physicians nationally. The study concludes that

exposure to rural practice works in favor of recruitment, but that overall career choice seems to be the main determinant of practice location.

- **Australia:** According to a *National specialist outreach policy*, that was introduced in 2000 by the Australian government to promote specialist redistribution, private specialists can gain subsidies and salaried specialists can receive back-up for providing outreach to rural and remote areas with service needs. Outreach is relatively common among Australian specialist doctors, though this policy is said to account for only a small proportion of all outreach services. O'Sullivan et al. (2014) published the findings from a 2008 survey which indicated that rural specialists are more likely to provide outreach. Despite greater need, remote outreach is less prevalent and depends on harnessing specialists based proximally as well as those from metropolitan areas. It was found that private specialists may be less inclined to provide remote outreach. The authors concluded that coordinated planning to promote outreach by specific specialties, and integrate services arising from different locations, is important to harnessing the benefit of outreach, specific to community needs.
- **Australia:** The *Support Scheme for Rural Specialists (SSRS)* provides a coordinated and collaborative framework to support the continuing professional development (CPD) and peer-support needs of medical specialists practising in rural and remote Australia. Guidelines are in place to ensure that CPD projects are based on consultation with rural specialists about their CPD needs; are aimed at reducing professional isolation through facilitation of peer-learning networks; are embedded within specialist college CPD structures and incorporate adult learning principles; include cost-effective and sustainable approaches that will enable specialists to access CPD from their rural location; and include an appropriate evaluation framework that includes measures such as participant satisfaction, increased opportunities to network, and increased knowledge base or demonstrated practice change (Pond et al., 2009).
- **Australia:** The *Central Australian Nurse Management Model (CAN)* incorporated three integrated initiatives to attract nurses to remote areas where mainly Aboriginal populations lived: a framework to improve the working environment; a professional development programme; and a dedicated pool of relief staff which aim to recruit, retain the remote area nursing workforce. A review of the results concluded that after the implementation of the CAN Model, the nursing service has been able to attract and retain staff, to provide a stable and supportive working environment, and to prepare nurses for extended practice and non-traditional roles (Haaren et al., 2000).

3.2.3.2. Professional and personal support interventions at organizational level

- Australia:** The shortage of general practitioners (GPs) in rural South Australia was the driver for a mixed package of interventions aimed at improving recruitment and retention of GPs in four rural family practices, in the period 1995-1999 (Wilkinson et al., 2001). The four practices were linked through a not-for-profit company associated with the University of Adelaide medical school. The paper reports on the mix of methods developed and implemented by the university and used to improve recruitment and retention, with an emphasis on academic practice and linkage, which included a coordinated approach to recruitment, both domestically and overseas, support for IT and information systems, assistance with relocation and accommodation, an academic appointment at the university, and support to reduce personal and professional isolation by providing leave and locum cover. The study reported on “largely positive” results in terms of recruitment and retention of GPs.
- Australia:** The *Dr DOC Programme* started in 1999 in South Australia and results were assessed in 2001 and 2003 (Gardiner et al., 2006). It consisted in a mix of social and psychological support with practical interventions, such as creating peer-support networks among rural physicians, in providing assistance those who were experiencing professional or personal distress and an emergency support line, and rural retreats involving problem solving and cognitive behavioral coaching. Results indicate improvements in the support networks and in the physical and emotional health of rural GPs from time 1 to time 2 and a reduction in the number of GPs wanting to leave rural general practice in the short to medium term (from 30% to 25%). GPs requested more continuing medical education courses for personal self-management, had increased levels of social support and had lower levels of distress and lower feelings of being isolated and unsupported. Researchers concluded that programmes targeted at psychological and physical wellbeing do indeed impact on rural GPs’ intentions to leave.
- Australia:** The New South Wales Ministry of Health *recruitment strategy* is an audit that examined how nursing resources are managed in ten general wards at four hospitals (Royal Prince Alfred, Bankstown, Tamworth and Scone) to find out whether nursing resources are well managed and if hospitals are effectively attracting and retaining nurses and to assess how well the Ministry is addressing the risk of a future shortage of nurses in public hospitals. The report highlighted that there had been recent nurse staffing growth in the hospitals, which was attributed to a range of interventions, including salary increases, improved

working conditions, attracting back “returners”, and, with a more specific focus on “regulation”, that the use of new models of care that took greater account of workload (Achterstraat, 2006).

- **Australia:** A Mentorship Programme for New Graduate Nurses Working in Mental Health was developed in New South Wales to (i) promote and maintain ongoing dialogue between the university and area mental health services regarding the education and clinical experience of new graduates in mental health nursing; (ii) assist new graduates in the transition from student to nurse clinician; (iii) provide new graduates with educational and experiential support and positive role models; and (iv) increase knowledge of the educational and clinical needs of new graduate nurses working in mental health. It was expected that in the long term the programme would have a positive impact on the retention rates of new graduates in the local area mental health services. Mentorship was identified as a useful strategy for supporting and retaining new nurses in the mental health workplace (McCloughen & O’Brien, 2005).

3.2.4. Regulation interventions

Two papers report on surveys on the impact of compulsory service (CS) in remote/rural areas in South Africa, and one on changes in care delivery models, and broader based re-organization in response to retention challenges in Australia.

- **Australia:** Fairbrother et al. (2010) report on the implementation of a new model of nursing care in a hospital in Sydney as a response to management concerns about staff retention, workload and error rates. The new model was “team nursing”, where identified teams of staff shared tasks amongst themselves, rather than being allocated to individual patients. Six units within the hospital tested the use of team nursing, whilst six remained with the patient allocation model; the time period was 2002-2004. A 12 month prospective experimental comparison of job satisfaction and staff retention between staff in the two groups was conducted. Group discussions with staff also took place. The study found statistically significant job satisfaction benefits and “important staff retention benefits” associated with moving to the team based model. Key enablers identified in the report were the role of the “shift coordinator” who acted as the main link person in communications between teams, and supportive senior clinicians and managers.
- **South Africa:** Khan et al. (2009) reported on a survey of rehabilitation therapists’ perceptions and attitudes to a one year compulsory service (CS)

program, in 2005. They were surveyed before and after their period working in CS (using a repeat observational cross sectional study method). Response rates varied at the two points in time; only one third (47) replied to both the “before” and “after” surveys. Respondents found the CS experience both personally and professionally rewarding, but that there was a need for substantial adjustments in the structure of the programme, such as improvements to administration, supervision, mentoring and logistical support.

- **South Africa:** Hatcher et al. (2014) surveyed “community service officers” (those who had completed their medical or dental training but would not be registered until they had completed CS in 2009). The survey covered a population of 685 doctors and dentists, with a 44% response rate. Those who served in a rural facility during CS, those reporting professional development during CS, and those with higher levels of reported satisfaction about their supervision were more likely to plan to continue in rural work, but overall only 25% reported they were likely to continue in rural practice after CS was completed. The report concluded that participant satisfaction with CS was high, and that an emphasis on professional development and supervision was critical to retaining medical staff in rural areas.

3.3. Reviews and grey literature

In that section, we report on published reviews, which typically summarize the findings of various studies and often cover more than one dimension of R&R issues. The same applies to grey literature. We kept the four categories used above and classified reviews and grey literature according to the dimensions which received more attention in the document analysed.

Table 7: Overview of documents reporting on education, financial incentives, professional and personal support and regulation interventions: Reviews

Education interventions				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Health training in the targeted area				
The North Queensland Nursing experience	Australia (Larkins et al., 2011)	Positive: Between 2006 and 2011 the numbers of resident medical staff in the region doubled (for example, from 32 interns to 60 for the Townsville Hospital). Early trends suggest that the school's mission is being met, with graduates choosing markedly different patterns of practice compared with graduates from other Australian medical schools.	Facilitators - Herein, substantial financial resources have been allocated to address issues of shortage and maldistribution of the GP workforce by funding increased undergraduate medical student places and additional GP vocational training posts. Barriers - In Australia, at least, there are many barriers remaining before the health system can be transformed into a service, teaching and research health system (Sen Gupta et al. 2009). In particular, resource constraints, and a lack of understanding by some rural clinicians and administrators about the central role of teaching as core business are relevant (Jones et al. 2003), along with a lack of confidence of some GPs about teaching (Eley et al. 2007).	NM
Transition to Practice Programs - a clinical placement initiative for undergraduate nursing student's	Australia (Procter et al., 2011)	Positive: Mentorship is a useful strategy for supporting and retaining new nurses in the mental health workplace. Gradual and sustained improvements to TTP programs are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs.	Facilitators - Clinicians play pivotal role in ensuring a positive clinical placement experience. Barriers - Fear of mental health setting, misconceptions about mental illness and organizational constraints inhibit the degree of success achieving this.	Qualitative
The Allied Health Workforce Enhancement Project	Australia (Dieleman & Harnmeijer, 2006)	Positive: Preliminary results indicate reduced staff turnover, fewer vacancies and high satisfaction levels with the continuous professional development opportunities, improved skills and number of patients seeking care	NM	NM
The Training for Health Equity Network (THEnet)	Australia and South Africa (Larkins et al., 2011)	Mixed: Although these schools are at various stages in their development, most have produced remarkable impact in terms of graduate outcomes, and sometimes even in health outcomes. Although it is relatively easy to demonstrate outcomes in terms of graduate outcomes and retention, it is harder to measure some attitudinal	Facilitators - Political commitment (substantial financial resources have been allocated to address issues of shortage and misdistribution of the GP workforce by funding increased undergraduate medical student places and additional GP vocational training posts.).	

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Education interventions				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		variables. It is harder still to link population health outcomes in a region to medical education in a complex system impacted by so many determinants.	Barriers - In Australia, at least, there are many barriers remaining before the health system can be transformed into a service, teaching and research health system (Sen Gupta et al. 2009). In particular, resource constraints, and a lack of understanding by some rural clinicians and administrators about the central role of teaching as core business are relevant (Jones et al. 2003), along with a lack of confidence of some GPs about teaching (Eley et al. 2007).	

Financial incentives				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
Financing structure				
Rural Allowance	Australia (Dieleman et al., 2011)	Mixed: The financial incentives were only partially successful. The amount of money offered was too limited to make a difference. In Australia, the intervention led to a general feeling among doctors of being appreciated and valued by the government, despite the small amount that was paid. By working in rural areas, physicians were able to practise and apply a broad range of professional skills, which gave them a sense of fulfilling ideological and philosophical commitments. In Australia, the incentive scheme did not trigger motivation to relocate either, as it was not related to salaries and costs. Both studies also indicated that nonfinancial incentives are important to trigger motivation. In addition, implementation problems hampered the programme, as both studies suffered from extensive bureaucratic procedures.	Facilitators - In Australia, the intervention led to a general feeling among doctors of being appreciated and valued by the government, despite the small amount that was paid. By working in rural areas, physicians were able to practise and apply a broad range of professional skills, which gave them a sense of fulfilling ideological and philosophical commitments. Barriers - The bureaucracy and paperwork.	Cross-sectional, quantitative.

Professional and Personal Support				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
IMPROVING THE PRACTICE ENVIRONMENT: MAKING MANAGEMENT AND ORGANIZATIONAL CULTURE MORE RESPONSIVE				

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Professional and Personal Support				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of the evidence
A bottom-up and team-based approach	Australia Dieleman & Harnmeijer (2006)	Positive: After implementation of the project, a survey in 2002 showed that, as a result of this approach, the percentage of nurses intending to leave the organization had fallen to 28%, and that the percentage of nurses intending to leave the profession entirely had also dropped to 28%. Results also showed an improved corporate culture within the organization. The team members responsible for developing and implementing these retention strategies felt empowered and had developed feelings of ownership towards the programme.	NM	NM
Mix of retention strategies				
Effective retention incentives for health workers in rural and remote areas	Australia (Buykx et al., 2010)	NM	Facilitators - Since the early 1990s, Australian governments have responded to the rural workforce crisis with recruitment strategies and retention incentives designed to attract and keep more doctors in rural and remote regions. Unfortunately, with the exception of the large numbers of International Medical Graduates who are mandated to work in areas of workforce shortage (largely rural and remote areas to date), there is little evidence that these incentives have made any significant difference to the medical workforce supply in underserved areas.	Systematic review

Regulation interventions				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence

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Regulation interventions				
Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Community Service and/or Bonding Schemes	South Africa (Yumkella, 2005; Dieleman & Harnmeijer, 2006; Dieleman et al., 2011)	Mixed: Although the three outlined interventions do not allow for generalization, and data are lacking, a pattern emerges: the studies show that compulsory service in rural areas without preparation to provide health services in resource constrained settings (and without training in rural health) is not likely to be successful in terms of improving service quality and health worker motivation. It may be that because of the relatively short duration of compulsory service in both Ecuador and South Africa, drop-out was not mentioned as a major problem.	Barriers - The study in South Africa specifically mention the problems that graduates faced due to their lack of training to practise rural medicine in resource-constrained settings. Facilitators – NM.	Qualitative study (Dieleman et al., 2011)
Informal task-shifting takes place at facility-level	South Africa (Caillhol et al., 2013)	NM	NM	Mixed methods

3.3.1. Education interventions

- Australia:** The Australian College of Rural and Remote Medicine (ACRRM) was created in 1997 to address the shortage of physicians in rural areas by offering vocational training and continuing education. It developed a four-year training curriculum leading to a Fellowship. Trainees complete the program while working in a rural area under the Remote Vocational Training Scheme. Overtime other programs, including self-learning; some target students and junior doctors to expose them to rural practice through short-term placements, bonded scholarships with support, networking opportunities, access to Virtual Classrooms, e-Mentoring and other educational resources. In 2014, 1064 scholarships were available (www.acrrm.org.au/junior-doctors-and-students).
- Australia:** The North Queensland experience: James Cook University School of Medicine and Dentistry was established in 2000; it is the only medical school in the northern half of the country. Its mission is to work with rural, remote, tropical and Indigenous populations in north Queensland, to train graduates equipped to deal with health inequities in the region (Hays et al., 2003, Veitch et al., 2006; cit in Larkins et al., 2011). James Cook University recruits students from underserved populations, particularly from rural and remote areas and Indigenous communities. The curriculum is focussed on the health needs of these populations. Medical students spend their entire medical course outside capital cities, with 20 weeks of placements in small rural or remote areas. Rural clinicians are the backbone of JCU's distributed teaching network, both those directly employed by the school in academic roles, or as supervisors in community and health service settings. Large proportions of the students spend their last two years of the medical course in smaller outer regional centres of less than 150 000 population, for example, in 2011, 128 of 188 (65%) Year 5 and 6 students were based in Mackay, Cairns and Darwin. Between 2006 and 2011 the numbers of resident medical staff in the region doubled (for example, from 32 interns to 60 for the Townsville Hospital). In following the first six years of graduates (450 doctors), JCU School of Medicine and Dentistry has been able to demonstrate good uptake of rural and regional internships. Fifty-two per cent of JCU graduates have elected to undertake their internship (first postgraduate year) in outer regional or remote locations (in both newly created and existing positions), and only 34% in a major city. Furthermore, 43.1% (25 of 58) of the first cohort of JCU graduates are undertaking general practice and rural

generalist training, and a number more training as general physicians and surgeons. In 2009, over 60% of JCU's medical graduates were practising in regional areas, compared with an Australian average of less than 20%. Early trends suggest that the school's mission is being met, with graduates choosing markedly different patterns of practice compared with graduates from other Australian medical schools.

- **Australia:** In a review of *Transition to Practice Programmes*, Procter et al. (2011) describe the context in which a mentorship program for new MHN graduates developed and was implemented. They report that mentorship is a useful strategy for supporting and retaining new nurses in the mental health workplace. They conclude that "although contentious debates surrounding theory–practice gaps are likely to continue, gradual and sustained improvements to TTP programmes are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs." (p.260).
- **Australia:** The *Allied Health Workforce Enhancement Project* initiated by the Greater Green Triangle University Department of Rural Health (a partnership between Flinders University and Deakin University), intends to increase the number of allied health professionals working in rural areas and to augment the length of their stay in these areas. It is a state-funded scheme (by the Victorian Department of Human Services) and aims to provide an evidence-based recruitment and retention model. The project is multifaceted, addressing individual health worker needs, organizational requirements and community needs. It focuses on encouraging students to take up rural positions by training preceptors to strengthen student placement and by organizing orientation programmes for students and initiatives to link students to local community groups. It aims to improve retention of professionals by offering continuous professional development, by developing and promoting new care models and locum services to prevent burnout, and by organizing cultural awareness training and rural health seminars to improve understanding of rural health issues. The project tries to improve community involvement in projects and information provision on developments in the health sector and on health staff themselves, in order to create support from communities for health professionals. The project also conducts exit interviews to identify reasons for departure, and collaborates with organizations to develop evidence-based recruitment. Preliminary results indicate reduced staff turnover, fewer vacancies and high satisfaction levels with the continuous professional development opportunities,

improved skills and number of patients seeking care (Dieleman & Harnmeijer, 2006).

- **Australia:** the Regional Health Strategy, *More Doctors, Better Services*, was launched in 2000. It included short- and long-term measures to address rural shortages of health practitioners such as: additional places and financial incentives for GP registrar training in dedicated Rural Pathways; the funding of Rural Clinical Schools aimed at encouraging medical students to take up careers in rural practice; financial incentives for students to remain in rural medical practice, including Medical Rural Bonded Scholarships and the Australian Medical Undergraduate Scholarships; and incentives through the Higher Education Contribution Scheme Reimbursement Scheme (Healy et al., 2006).
- **Australia:** *Expansion of domestic health training capacity:* five new medical schools have opened since the year 2000. Combined with increases of intake numbers in existing medical schools, this represented a “square wave shift that is in stark contrast to the static pattern of graduate numbers over the previous two decades” (Joyce et al., 2007). The planned intake by medical schools was projected to increase by 17% by 2012. It remains to be seen whether this expansion will be sustained, whether it will lead to equilibrium in the medium term or not, and what will be the implications for migration. There have even been suggestions of possible future oversupply (Joyce et al., 2007; Goodman, 2004 cit in OECD 2008).
- **Australia:** *innovative educational approaches* have assumed an increasingly important role in university-based responses to the rural health workforce shortage promoted by government investment in rural clinical schools, university departments of rural health and a range of other state and federal programmes. The University of Sydney established a group to advise on how best to contribute to national initiatives that increase the recruitment and retention of rural health professionals and improve the quality and appropriateness of health care for rural Australians. Although there has been substantial targeted investment through RCS, UDRHs and a range of other state and federal government programmes, the University of Sydney’s experience demonstrates that this does not necessarily translate into adequate internal resources available to every course or programme to optimise performance for rural health workforce outcomes. In an environment where responding to rural health workforce needs has to compete with other priorities, benefits are more likely to accrue from strategies that draw on the existing resource base and operate through greater collaborative action, coordinated at the institutional level (Lyle et al., 2007).

- **Australia:** *General Practice Super Clinics (GPSCs)* can provide a responsive, flexible work culture; and improved payment and targeted resources to support the need for increased teaching capacity, and to attract and retain workforce for general practice and primary care. General Practice Super Clinics' (GPSCs) objectives are to support the future primary care workforce by providing high quality education and training opportunities, supported by infrastructure for trainee consulting rooms, teaching rooms and training facilities to make general practice attractive to students, new graduates, GP trainees and registrars and other health professionals. (Vickery et al., 2009).
- **South Africa:** the University of Witwatersrand is using the concept of a "*rural pipeline*" to improve recruitment and retention of health workers in rural and remote areas. The first step is selecting the right students: students from rural areas are five times more likely to work in a rural area than students from urban areas. The *Wits Initiative for Rural Health Education (WIRHE)*, established in 2003, has pilot sites in two provinces. A scholarship scheme involves student selection at the district level through village committees, mentoring, community service, and year-for-year contracts. The next step is ensuring that students have sufficient exposure to rural practice during their undergraduate training. The third step is creating opportunities for postgraduate training, for example, through distance programmes, district-based family medicine training and specialist training at regional hospitals. The final step is providing support to rural health workers, for example, with specialist visits, academic links, district learning centres and appropriate skills training. The University was planning to offer a Master of Rural Health starting in 2010 and a postgraduate diploma in rural medicine¹² (AAAH, WHO, & GHWA (2009)).
- **Australia and South Africa:** The *Training for Health Equity Network (THEnet)* is an international collaboration of eleven medical schools which have in common a commitment to socially accountable medical education and their location in underserved and rural areas (<http://thenetcommunity.org/about-thenet/>). Two Australian and one South African schools of medicine participate: Flinders University (South Australia), James Cook University (Queensland), Walter Sisulu University (Transkei). Students and staff are recruited from communities with the greatest health needs, often from rural and remote populations. Learning takes place in community settings and the programmes are located within, or close to the communities they serve. Learning is based on early and longitudinal clinical contact, and is typically student-centred, case-based and with an

¹² Both programmes have been created as planned.; <http://www.wits.ac.za/academic/health/academicprogrammes/postgraduate/8874/phd.html>

emphasis on 'service learning' (Seifer, 2002 cit in Larkins et al., 2011). Curricula emphasise commitment to public service. Although it is relatively easy to demonstrate outcomes in terms of graduate outcomes and retention, it is harder to measure some attitudinal variables. It is harder still to link population health outcomes in a region to medical education in a complex system impacted by so many determinants (Larkins et al., 2011).

3.3.2. Financial incentives

- **Australia:** A review of retention studies (Dieleman et al., 2011) commissioned by WHO quotes an unpublished study of the use of financial incentives to attract health workers to rural areas (Gibbon & Hales, 2006). Data from self-administered questionnaires led to the observation that the financial incentives were only partially successful, because the amount offered was too limited to make a difference. On the other hand, the intervention led to a general feeling among doctors of being appreciated and valued by the government, despite the small amount that was paid. By working in rural areas, physicians were able to practise and apply a broad range of professional skills, which gave them a sense of fulfilling ideological and philosophical commitments (Dieleman et al., 2011).
- **Australia:** *Back-to-practice - financial assistance* was introduced to encourage non-practicing nurses to resume their career; scholarships covering transport, tuition and childcare was offered during additional training needed (Healy et al., 2006, p.85).
- **Brazil:** researchers proposed a variety of R&R measures as part of a Policy to promote the sustainability of the national Health System. These included: scholarships, reimbursement of training debts, creation of a career path for rural practitioners (Campos, Machado & Girardi, 2009). It is not clear however if these measures were actually implemented.

3.3.3. Professional and personal support

- **Australia :** A systematic review of effective retention incentives for health workers in rural and remote areas (Buyks et al., 2010) identified six essential components of any comprehensive retention strategy: (i) maintaining an adequate and stable staffing; (ii) providing appropriate and adequate infrastructure; (iii) maintaining realistic and competitive remuneration; (iv) fostering an effective and sustainable workplace organization; (v) shaping the

professional environment that recognizes and rewards individuals making a significant contribution to patient care; and (vi) ensuring social, family and community support.

- **Australia:** *General practice vocational training supervisor system* – This training aims at recruiting and retaining supervisors of GP training by offering access to higher education qualifications and to a career path. The objective is to strengthen supervisors’ competencies through peer-based professional development and team work (Thomson, 2011).
- **Australia:** *Shift scheduling strategy - increasing working conditions* – Given the shortage of critical care nurses, emphasis has been placed upon improving their working lives through the implementation of flexible work hours. (Dwyer et al., 2007).
- **Australia:** Dieleman and Harnmeijer (2006) report the case of a mother and newborn hospital (Mercy) serving Melbourne and rural Victoria which was experiencing major problems in retaining nurses in the early 2000’s. A survey identified poor organizational climate (culture of blame) as the main cause of the problem. The hospital management decided to ask their nurses to develop a staff-retention strategy; a team of 14 nurses from the various hospital departments trained in team development and teamwork. It designed various retention strategies by reviewing relevant information and by consulting staff. They proposed a plan that focused on: Components of this plan included: ensuring rewards and recognition; meals provided for night staff; addressing staff bullying and setting up mechanisms to support staff wellbeing; developing innovative roster guidelines to address individual needs and reduce heavy workloads; setting up a social club to organize activities to which staff are invited. After implementation of the plan, a survey in 2002 showed that the percentage of nurses intending to leave the organization had fallen to 28% from 40% the year before. Results also showed an improved corporate culture within the organization.

3.3.4. Regulation

- **Australia:** a set of regulatory interventions supported *advanced roles for nurse* - as a response to physician shortages and to improve services in rural and remote areas. Advanced nurses/nurse practitioners have some restricted responsibility for direct referral of patients (limitations or constraints on the level of responsibility and autonomy in relation to referral - this authority is

determined at the state / province level), and some prescribing rights. Referral can take place within a legal / regulatory framework. Few evaluations have been conducted on advanced roles of nursing (Buchan & Calman, 2005).

- **Australia:** *Introduction of physician assistants* – the objective was to supplement physician services, either working under the supervision of a licensed physician, or delivering tasks usually carried out by doctors. Studies showed that physician assistants' skills largely overlap with those of primary care physicians, and that they are capable of taking on a high degree of responsibility in some areas of medicine (Hooker, 2006 cit in OECD, 2008). The introduction of this cadre is a state decision, but Health Workforce Australia has recommended their utilization as a strategy to improve flexibility and productivity in the health sector.
- **Brazil:** There have been *initiatives to upgrade qualifications of nurses*, for instance from auxiliary to nursing technicians particularly in National Health System (Sistema Único de Saúde - SUS) establishments where nursing staff at medium level lacked qualifications. The goal was to qualify a contingent of non-qualified workers in four years (2000 – 2004). The results were: 207 844 graduated nursing auxiliaries¹³, 80 124 graduated technical nurses, 13 611 skilled academicians (professional education specialists) and 482 graduated tutors. Also, the initiative resulted in 37 modernized SUS technical schools, 11 newly established SUS technical schools (ETSUS), 9 financed architectural projects, 5 restored schools, creation of the SUS Technical School Network (RET-SUS), Publication and monthly circulation of the RET-SUS journal and 30 research projects were presented (Dussault et al., 2009; Forum Booklet. GHWA, 2008).
- **South Africa:** Compulsory Medical Service for one year upon graduation was introduced in 1998 for physicians (Yumkella, 2005; Dieleman & Harnmeijer, 2006; Dieleman et al., 2011). The graduates submit a list of five areas in which they would like to work, which is taken into consideration during placement. Their work during this period is remunerated. Professionals, in this case physicians, who did not perform community service were not allowed to register as medical practitioners with the Health Professions Council. Community Service showed some positive effects, particularly improving staff availability in relatively under-served areas, but also demonstrated their limited potential to tackle the scale of the problem. Evaluation of the community service programme, for

¹³ Beyond numerical results, there was an important increase of self-confidence of auxiliary nurses. The words of one worker sum it up: "We were nothing, we followed orders, now we can talk and discuss with other professionals."

example, has found that interns are unlikely to change their career plans as a result of it and experience important problems (such as weak supervision) during their placements. The initiative positively contributed to improve access to medical services and to an increased utilization. Despite frustrations associated with supervision, most health professionals exposed to one year of service in underserved areas express positive feelings about the experience. The majority feel they have made a difference in meeting the health care needs of the disadvantaged and have undergone professional growth. Participants felt that their main learning points were independent decision-making and building self-confidence, but that no important gains were made in additional clinical skills. Doctors often relied on senior colleagues for advice. Some considered the allocation process to be unfair, as working conditions and social factors differed according to work site. The smaller hospitals felt an impact on their functioning as a result of this community service, such as stress relief among existing staff, improved staffing levels, reduced waiting times at the outpatient departments, a more rapid turnover of patients in hospital wards, the ability to visit outlying clinics and improved communication, compared to conditions with foreign doctors, all resulting in improved trust by patients and adherence to their medical treatment. Compulsory service in rural areas without preparation to provide health services in resource constrained settings (and without training in rural health) is not likely to be successful in terms of improving service quality and health worker motivation.

- **South Africa:** The National Strategic Plan for HIV and AIDS and STIs 2007-2011 focuses on increasing the number of qualified health workers; nursing colleges which had been closed down were due to reopen and production by medical schools is to increase, the objective being to add 30000 nurses and physicians between 2007 and 2012. It also proposes to correct imbalances between rural and urban areas, to increase the production and retention of health workers, to improve work conditions and remuneration packages of all categories of health professionals (George et al., 2009). A consultation document issued in August 2011 (South Africa, Ministry of Health, 2011) recognizes that these objectives are yet to achieve and that "there is an urgent need for the health departments to focus on how to recruit, retain and support senior health care professionals in rural hospitals for the long term and the HRH plan needs to be relevant to the rural health care" (p.24), as only a small proportion of graduates opt for practice in rural areas, where more than 40% of the population lives.

- **South Africa:** Cailhol et al. (2013) report that informal task-shifting takes place at facility-level and is well accepted locally but making it formal is a slow process, though there are efforts to legitimize expanded professional responsibilities of nurses for example and to standardize practices. Nurse-initiated antiretroviral therapy, after the STRETCH (Streamlining Tasks and Roles to Expand Treatment and Care for HIV) trial demonstrated the safety of such a policy has been authorized. The same authors report “anti-poaching agreements” adopted by a number of NGOs to stop the poaching of HRH from the public sector in one province only. In this case, NGOs signed an agreement with provincial authorities to not recruit public sector HRH from the same province. However, it did not prevent poaching from other provinces.

3.4. Information provided by country informants

Additional information was provided by from country informants on interventions mostly in the form of reference to documents or sources of information; in most instances the documents identified have been analysed in the previous sections of the report. In the case of Brazil, information is about various programmes related to the expansion of coverage of the National Health System. In general they covered a range of measures: here we give a brief description of their contents relating to R&R.

- **Australia:** The federal government agency *Health Workforce Australia* established an online inventory of health workforce innovation. This searchable open access resource provides information on health workforce initiatives implemented across Australia to build capacity, and to improve productivity and the distribution of health professionals. One of the searchable categories, “capacity and skills” includes a section on “innovative recruitment and retention strategies”¹⁴.
- **Australia:** *Rural Health Workforce Australia* (RHWA) is a not-for-profit network of the seven states and territory Rural Workforce Agencies committed to providing access to a sustainable health workforce to rural and remote communities. RHWA is funded by the Australian Government's Department of Health, to whom it provides policy and programme advice. In 2012-2013, RHWA recruited more than 650 new doctors, nurses and allied health professionals for rural communities and Aboriginal Medical Services, supported 5,800 rural doctors and 2,000 rural practices, arranged locum relief for 1,000 rural doctors,

¹⁴ <http://www.hwainventory.net.au/>

so they could take a break, provided crisis support to 81 doctors, and engaged hundreds of medical, nursing and allied health students in positive rural experiences such as rural high school visits, Rural Health Club activities and Go Rural career events¹⁵.

- **Brazil:** Various initiatives aimed at adapting the education of all categories of health professionals to the needs of the National Health System (Sistema Unico de Saúde - SUS) were launched over the years. They all had in common the objective of improving access to services, in particular in underserved rural and isolated areas. Expansion of technical training, up-skilling of public health personnel and auxiliary personnel through the *Project to professionalize workers in nursing (Projeto de Profissionalização dos Trabalhadores da Área de Enfermagem-PROFAE)* started in 2002 for 4 years, was directed at expanding massively and upgrading the training of nurse technicians and nursing aides with a view to be able recruit in underserved areas.
- **Brazil:** The *Programme for "Interiorization" of Health Workers (Programa de Interiorização dos trabalhadores de saúde, PITS, 2001- 2004)* proposed financial incentives (4,000-4,500 reais for doctors – €1,070-1,200; 2,800-3,150 reais for nurses - €750-840 per month) and training to stimulate doctors and nurses to work in primary care services in poorer rural areas; 4,666 registered, but only 469 were contracted¹⁶.
- **Brazil:** The *Project to encourage change in medical education programmes (Projeto de Incentivo a Mudanças Curriculares para os Cursos de Medicina-PROMED 2003)* aimed at financing curricular reform in medical schools to better align education on population needs.
- **Brazil:** The *Program of reorientation of professional education in health (Programa de Reorientação da Formação Profissional em Saúde-PRO-SAUDE 2005)* aimed at bridging the gap between HRH education and primary health care needs.
- **Brazil:** The *Programme for Improving the Qualification and the Mechanisms to Manage the Workforce and the Education within the SUS (Programa de qualificação e estruturação da gestão do trabalho e da educação no SUS-PROGESUS 2006)* aimed at developing organizational guidelines and offering management tools, support and mechanisms for the modernization and professionalization of management and education at municipal and state health secretariats, who have the responsibility of service delivery in Brazil.

¹⁵ <http://www.rhwa.org.au/site/index.cfm?display=257270>

¹⁶ Maciel RF , Branco MAF. Rumo ao Interior: Médicos, Saúde Da Família e Mercado de Trabalho, Rio de Janeiro: Editora Fiocruz; 2008. 205 pp. ISBN: 978-85-7541-164-3.

- **Brazil:** UNA-SUS (*National Health System's Open University*, 2008) is a network of collaborating academic institutions develops distance learning, with free and shared access to learning materials to health professionals; this is meant to connect isolated professionals to continuing education programmes.
- **Brazil:** The *Programme of education for work in health (Programa de Educação pelo Trabalho para a Saúde- PET SAUDE* 2009) supports universities and schools in developing lifelong learning and in-service training with a view to strengthen the family health programme which aims at giving access to qualified health workers to rural populations.
- **Brazil:** Following the positive experience with PROFAE, the *Training of Programme for the education of mid-level health professionals (Programa de Formação de Profissionais de Nível Médio para a Saúde- PROFAPS-2009)* was developed, based on a network of 319 technical schools spread all over the country. These have the objective of training 735 435 health technicians by 2011 that will then be hired to work within SUS.
- **Brazil:** The *Programme for Valorization of primary care Professionals (Programa de Valorização dos Profissionais da Atenção Básica,PROVAB)* started in 2011 and is still in progress to attract dentists, nurses and physicians to remote and extreme poverty areas; incentives are access to training for a postgraduate diploma in family and community health through distance learning, to "points" giving priority in access to specialty training, and to supervision (<http://provab.saude.gov.br/>).
- **Brazil:** In 2013, the Ministry of Health launched "Mais médicos para o Brasil", a campaign aiming at accelerating recruitment of physicians in underserved areas, especially targeting the 700 municipalities without a resident physician. The objective was to recruit 6000 physicians from Brazil itself, but mostly from abroad, from countries which have a higher doctor/population ratio than Brazil. Countries particularly targeted were Portugal and Cuba. Selected candidates receive a monthly financial incentive and support for housing and other living expenses, and in exchange, they had to commit to a three-year contract.

4. Discussion

4.1. Reflection on the findings from the review

This review of recruitment and retention interventions in three non-EU/EFTA countries aimed to identify “good practices” from which lessons could be learned. Australia is a country with vast rural areas and an economic status superior to EU Member States within the membership of the OECD. Brazil and South Africa are two “emerging” countries, also with vast rural areas, significantly more populated in proportion and absolute numbers than Australia, and with a level of economic development comparable to Bulgaria and Romania in the case of South Africa, and to Lithuania and Hungary in the case of Brazil.

Similar to EU/EFTA countries, interventions are mostly triggered by factors such as observed or forecasted shortages of personnel, high attrition rates due to career reorientation, early retirement, or emigration (South Africa), and difficulties in recruiting and retaining personnel in certain specialties, fields of practice, and mainly geographical locations.

Responses to these problems vary. Australia has the longest tradition of intervening at policy and organizational level. Research and publishing are also more developed, which is reflected in the number of documents dealing with R&R interventions in Australia included in the review. In South Africa and Brazil interventions tend to be more recent and are comparatively less documented, in terms of description of the interventions and assessment of results. This might also explain the high amount of interventions in the grey literature compared to the number of primary studies emerging from this country. South Africa is the only country where community service has been implemented. This and other measures taken by the government appear to have had only limited effects; measures taken by organizations such as hospitals are little documented. In Brazil, R&R interventions have been stimulated by the need to support the implementation of the “family health teams” policy which aims at giving access to qualified health services to the whole population and which has extended coverage significantly since its inception at the beginning of the 2000’s. A series of measures targeting the education of health workers, in quantitative and qualitative terms, and the implementation of financial and non-financial incentives have been proposed in the

last 15 years, with varying degrees of success, as illustrated by the option to recruit abroad in 2013.

Challenges remain in the three countries. Australia, in spite of many successes, is still dependent on foreign recruitment to fill in positions in rural and remote areas. It is also a permanent challenge to maintain government commitment at national and state level to supporting measures of attraction and retention. In Brazil, securing support from professional associations and trade unions for more flexibility to attract and retain staff in underserved, remote areas is difficult; for instance, the medical workforce is dominated by specialists who mostly work in urban environments. Also dual employment, a very prevalent strategy to augment revenues, is only possible in urban areas, where hundreds of private insurance and care delivery schemes, covering about 25% of the total population, co-exist with the SUS and offer attractive complementary work opportunities. In South Africa, the most recent consultation document which served to develop a national HRH Strategy¹⁷ paints a bleak picture of “poor retention of graduates in all health disciplines, unplanned and unfunded public sector posts, and inefficient management and recruitment processes”¹⁸.

The review identifies a number of concrete interventions which have produced positive results, but caution is needed in concluding on their transferability. In 2009, a systematic review of R&R interventions found “no well- designed studies in which bias and confounding factors are minimised to support any of the numerous interventions that have been implemented to address the shortage of health care professionals practicing in underserved areas” (Grobler, 2009). None of the documents included in our review presents studies meet this exigency, which means that we cannot talk of replicable “best practices”, which in fact do not exist in policy-making, but that we rather should use expressions like “good or promising practices”. Among conclusions found in the literature, the following can be highlighted:

1. The role of medical schools in recruiting and retaining physicians in rural communities

There are numerous factors that influence efforts in rural physician recruitment and retention, many of which are beyond the scope of the academic medical centre and medical education. Education and training opportunities have strong motivating

¹⁷ http://www.health.gov.za/docs/strategic/2012/HRM_strategy.pdf

¹⁸ Ministry of Health, Government of South Africa 2011, Human Resources for Health South Africa 2030 (Draft for consultation), p.8; https://www.k4health.org/sites/default/files/RSA_%20HRH_Strategy_draft_Aug2011.pdf

effects (Willis-Shattuck et al., 2008). There are strategies that medical schools can adopt to contribute to efforts to recruit and retain physicians in rural communities. Rural student recruitment, admissions policies, rural-oriented medical curriculum, rural practice learning experiences, faculty values and attitudes, and advanced procedural skills training are areas which the medical school has direct control of and which have been shown to influence the likelihood of medical students entering rural primary care practice (Curran & Rourke, 2004).

Completion of undergraduate rotations in family medicine in rural regions which were perceived to be a positive experience and with good role models is a positive predictor of eventually choosing to practice in such areas. If this is combined with having a personal and family rural background, the probability augments (Viscomi, Larkins & Gupta, 2013).

2. Rural allowances

In South Africa, rural allowances were found to have a limited effect on retaining workers. Misfeldt et al. (2014), Bärnighausen and Bloom (2009), who reviewed the literature on financial incentives come to similar conclusions that higher wages appear to have a positive influence on job satisfaction and potentially help in the recruitment and in the initial stages of retention. However, there is evidence that the effectiveness of financial incentives on retention declines after five years. Financial compensation is not necessarily the most effective strategy for retaining nurses compared to other factors such as a positive work environment.

3. The impact of community services

Health professionals who experienced the community service model in South Africa expressed satisfaction in terms of acquisition of experience, particularly when supervision was of good quality. Main sources of dissatisfaction were: having to go to another location than the preferred one and family life disruption. However, community service did not seem to have a major impact on their subsequent plans on workplace location. (Dieleman & Harnmeijer, 2006; Bärnighausen & Bloom, 2009).

4. Single interventions may not be enough to address underserved areas' recruitment and retention problems

Inequitable distribution of health care professionals in underserved areas is likely to be a result of multiple factors with complex interactions which may vary across different settings. Interventions will therefore have to be appropriately tailored to meet various needs (Grobler et al., 2009). A similar conclusion is proposed in

another review in which Mbemba et al. (2013) observe that “several studies suggest that both personal and work-related factors can impact retention, which requires strategies that address these multiple causes simultaneously” (p.6). In the end, it is difficult to identify a single intervention which can be said to address R&R difficulties on its own.

5. Recruitment and retention require different interventions

Simoens (2004) argues that interventions should be different for recruitment and for retention, because the decision to locate in a rural area largely takes place outside this setting when the practitioner is still studying, whereas the decision to continue practising in a rural area is influenced by factors related to the experience of living and working in such an area.

To respond to the challenge of designing R&R strategies and interventions adapted to the various dimensions of the decision to work and keep working in a rural area, Gagnon et al. (2013) propose the notion of “rural pipeline” which comprises four stages: stage 1, “making career choices”; stage 2, “being attached to a specific location”; stage 3, “taking up rural practice”; stage 4, “remaining in rural practice”. Interventions should be adapted to each stage: exposure of potential future students to the profession at stage 1, recruitment from rural areas at stage 2, exposure to rural practice and incentives at stage 3, and educational and professional support at stage 4, Viscomi, Larkins and Gupta (2013) argue along the same lines as they propose to adjust interventions to the five *Life stages of a family practitioner in rural practice* which are: Life before medical school; Experiences during medical school; Experiences during postgraduate training; Recruitment and retention after completion of fellowship qualifications: Maintenance action plan: remaining satisfied.

4.2. Lessons from Australia, Brazil and South Africa for the EU/EFTA countries

As regards policy lessons, the experience of the three countries mainly supports the lessons identified in the literature on EU/EFTA countries. One is particularly strong: political continuing commitment and mobilisation of stakeholders is a prerequisite for interventions to be successful. In Australia, political commitment has been available as illustrated by the creation of and continuing support to numerous initiatives and to organisations implementing them. However, in August 2014, Health Workforce Australia, which played a leadership role in supporting policy

development in that field, has been closed and its responsibilities transferred to the Department of Health. It therefore remains to be seen if political commitment will remain as strong as in the previous years.

As the three countries are federations in which the management of health services is a decentralized responsibility, political commitment is needed at both the national and the decentralized level, which is a major challenge.

In Australia, numerous professional organizations are regrouped in the National Rural Health Alliance (<http://ruralhealth.org.au>), which leads to a strong engagement of stakeholders. Pressure is high on governments to maintain their commitment to addressing issues of access to health professionals in difficult regions. In Brazil and South Africa, political commitment has also been strong and continuous, but the support of stakeholders has been weaker. Consequently, R&R issues remain challenging. In Brazil, the collaboration between the ministries of Health and Education has been critical to the development of workforce policies in support of the SUS (Buchan, Fronteira & Dussault, 2011)¹⁹.

Research and production of evidence is important to inform policy design and to help define implementation strategies. In the three countries, most strategic decisions have been made after reviewing evidence and assessing past experiences. The volume of research has historically been high in Australia where resources available are more important; in Brazil, the development of a network of health workforce observatories has contributed to significantly increase the volume of information and research evidence available to policy-makers (<http://www.observarh.org.br/>). In South Africa, research is also well developed, though the focus on health workforce is more recent than in the two other countries.

As elsewhere in the world, the implementation of interventions remains the greatest challenge. Interventions need to be well designed and appropriate to the specific context, but their implementation depends on various factors, such as economic, political, legal, cultural and organisational feasibility. Technical and managerial capacity is a key ingredient in the success or failure of implementation. In that respect, Australia has been better equipped than the other two countries, which explains its relative success.

4.3. Conclusion

¹⁹ Buchan J., Fronteira, I., & Dussault, G. (2011). Continuity and change in human resources policies for health: Lessons from Brazil. *Human Resources for Health*, 9; 17.

The examples of Australia, Brazil and South Africa add to the information collected in the review of literature on EU/EFTA countries. It confirms many observations already available and reinforces the lessons which policy-makers can learn. They show the need for multipronged and continuous action in tackling R&R problems. These tend to be recurrent and they cannot be taken off the policy agenda. In the EU, the case of the UK shows that addressing these issues is a long-term process. Poorer EU countries can look at the experience of Brazil and South Africa to pick up some ideas and lessons from the strengths and weaknesses of their health workforce policies.

Some measures are within the range of responsibilities and capacity of action of the health sector itself. Others require the collaboration of ministries such as Education (curricular reforms), Public Administration (remuneration, career paths) or Finance. Factors which relate to the context itself, such as security in rural areas in Brazil or South Africa, or limited access to secondary and tertiary education or to social activities in rural regions are not controlled by health sector interventions. This is to say that R&R of health workers is as much a regional development issue as a labour market one.

The most relevant lesson which these country experiences show, and which is supported by the global literature on R&R of health workers, is that there are no one-fits-all interventions. There are experiences, positive and negative, which can inform policy-makers, but in the end, each country has to develop policies adapted to its circumstances.

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Zurn, P., Vujicic, M., Lemièrè, C., Juquois, M., Stormont, L., Campbell, J., ... Braichet, J.-M. (2011). A technical framework for costing health workforce retention schemes in remote and rural areas. *Human Resources for Health*, 9:8. doi:10.1186/1478-4491-9-8

Annex 1: List of search terms and MESH terms and expressions²⁰

General search terms		Additional search terms
<p>"Retention strategy/policy/intervention" "Recruitment strategy/policy/intervention" "retain" "recruit" "attract"</p> <p>("doctor(s)", "nurse(s)", "midwives" "health worker(s)" "human resources for health" "health workforce" "physician(s)" "medical personnel" "health professional")</p> <p>AND</p> <p>(health worker OR health workers OR health professional OR health professionals OR human resources for health OR health workforce OR doctor OR doctors OR nurse OR nurses OR midwife OR midwives OR physician OR physicians)</p>	<p>In combination with</p>	<p>Financial incentives Non-financial incentives Professional incentives Social incentives Monetary incentives Non-monetary incentives Housing benefits Benefits Differential payment Professional development Special allowances Salaries Motivation Professional support Personal support Training Education Continuing education Continuing professional development interventions Regulation Regulatory interventions Working environment Management strategies bonding/ obligatory service Turnover Wastage Attrition Stability Scaling-up staff engagement selection</p>

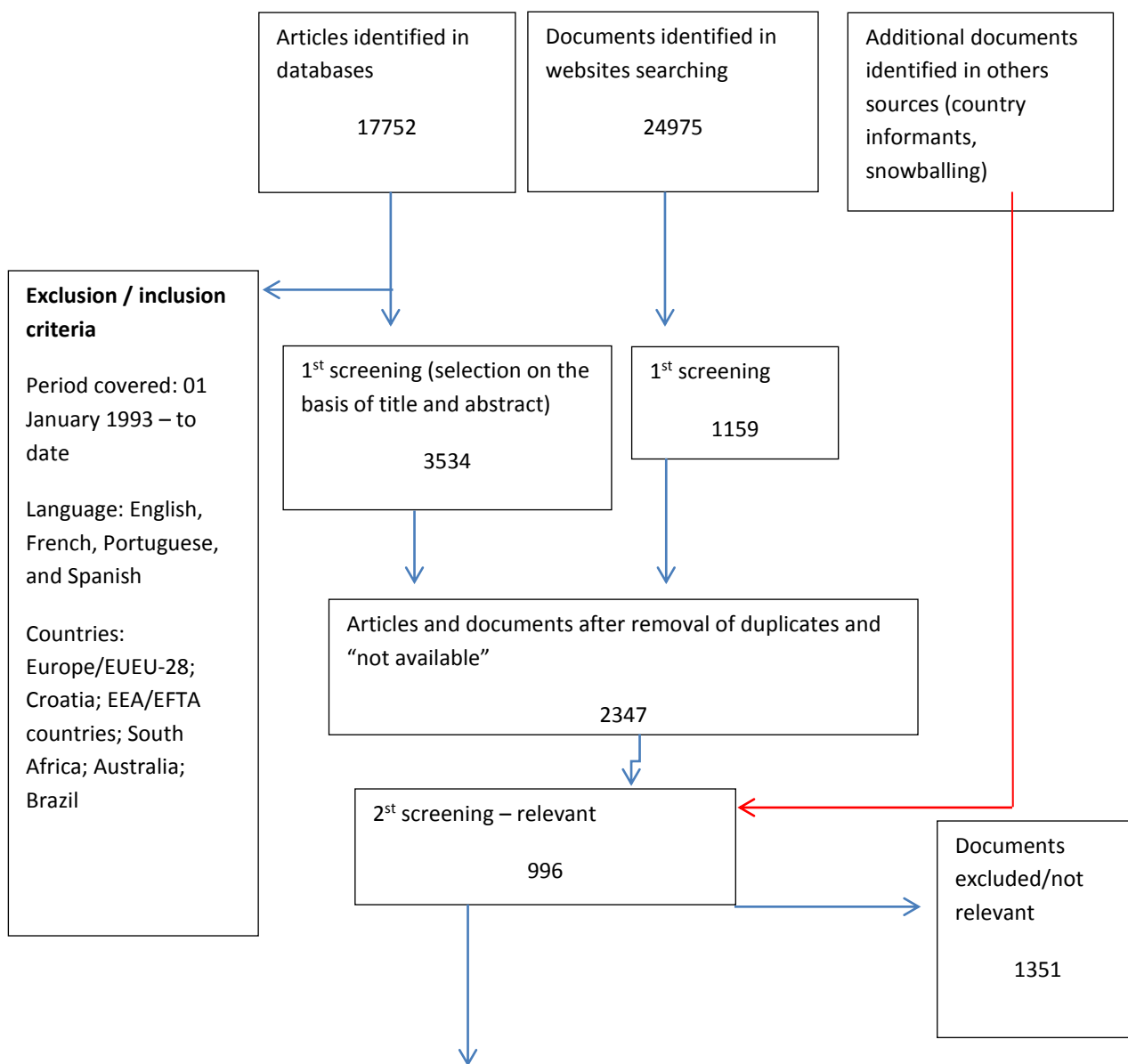
²⁰ Boolean language (And/Or) is used. The search is based on the following documents:
 Dolea Carmen, Stormont Laura & Braichet Jean-Marc (2010). Evaluated strategies to increase attraction and retention of health workers in remote and rural areas. *Bulletin of the World Health Organization*; 88:379-385. doi: 10.2471/BLT.09.070607;
 World Health Organization (2011). Technical meeting on health workforce retention in countries of the South-eastern Europe Health Network. http://www.euro.who.int/data/assets/pdf_file/0018/152271/e95775.pdf
 Dieleman M., Kane, S., Zwanikken P., Gerretsen B. (2011). Realist review and synthesis of retention studies for health workers in rural and remote areas. World Health Organization. http://whqlibdoc.who.int/publications/2011/9789241501262_eng.pdf
 Fulton B., Scheffler R., Sparkes S. et al. (2011). Health workforce skill mix and task shifting in low income countries: a review of recent evidence. *Human Resources for Health*, 9:8 <http://www.human-resources-health.com/content/9/1/8>
 Buchan (2010). Reviewing The Benefits of Health Workforce Stability. *Human Resources for Health*, 8:29 <http://www.human-resources-health.com/content/8/1/29>
 Lehmann Uta, Dieleman Marjolein and Martineau Tim (2008). Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. *BMC Health Services Research*, 8:19 doi:10.1186/1472-6963-8-19
 Royal Tropical Institute, KIT Dossier Human resources for health <http://www.kit.nl/kit/Dossiers-Health-Human-resources-for-health?tab=4>

		job mobility patterns stocks and flows feminisation
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Annex 2: Sources searched

Data Bases	Websites
Pubmed BVS (Biblioteca Virtual em Saúde)	OECD IOM World Bank CapacityPlus Eldis Human Resources for Health Global Resource Center Recruit and Retain – Northern Periphery Programme European Project on skill-mix WHO (Geneva, Euro, Afro) ILO MoHProf HEALTH PROMeTHEUS RN4CAST reports; HiT series (European Observatory) International Centre for Human Resources in Nursing (ICHRN) EU Joint Global Health Workforce Alliance

Annex 3: Search Strategy and Results



Documents included in the study (R&R interventions):		
	EU Countries / EEA-EFTA Countries	Non-EU Countries
Primary Studies	23	37
Reviews	4	7
Grey Literature (General Descriptions of Interventions & Policy and Plans)	37	13
Context	103	145

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Documents		
TOTAL	167	202

Annex 4: Primary studies according to level and type of intervention

Levels / types of intervention	Education (n=6)	Country (n)	Regulation (n=2)	Country (n)	Financial Incentives (n=5)	Country (n)	Professional and Personal Support (n=4)	Country (n)	
Policy (n=17)	<i>Continuing Medical Education (CME)</i> (White, Willett, Mitchell & Constantine, 2007)	Australia (6)	<i>Compulsory Community Service programme</i> (Khan, Knight & Esterhuizen, 2009)	South Africa (2)	<i>Rural allowance policy</i> (Ditlopo, Blaauw, Bidwell & Thomas, 2011)	South Africa (3)	<i>The Cadetship Program</i> (Dunbabin, McEwin & Cameron, 2006)	Australia (4)	
					<i>The Occupation-Specific Dispensation (OSD)</i> (Ditlopo, Blaauw, Rispel, Thomas & Bidwell, 2013)				
					<i>The Friends of Mosvold Scholarship Scheme (FOMSS)</i> (Krauss, 2006)				
					<i>Community service programme</i> (Hatcher, Onah, Kornik, Peacocke & Reid, 2014)	<i>Rural Australian Medical Undergraduate Scholarship (RAMUS)</i> (Laven, Wilkinson, Beilby & McElroy, 2005)	Australia (2)		<i>The Support Scheme for Rural Specialists (SSRS)</i> (Pond, Dalton, Disher & Cousins, 2009)
	<i>Australian Rural Clinical School (RCS) Programmes</i> (Isaac, Watts, Forster & McLachlan, 2014)								<i>The Central Australian Nurse Management Model (CAN Model)</i> (Haaren & Williams, 2000).
	<i>Undergraduate rural clinical rotations</i> (Somers & Spencer, 2012).								
<i>Mental health nursing curricula</i> (Happell et al., 2011)					<i>Rural Outreach Strategy</i> (O` Sullivan, B. G., Joyce, C. M., & McGrail, M. R., 2014)				
<i>Mentor Development and Support Project</i> (Mills, Lennon & Francis, 2007)									
<i>Decentralized model of GP training</i> (Robinson & Slaney, 2013).									
Organisational (n=20)	Education (n=15)	Country (n)	Regulation (n=1)	Country (n)		Country (n)	Professional and Personal Support (n=4)	Country (n)	
	<i>Claassen Institute of Psychiatry for Medical Students</i> (Lyons, Power, Bilyk, Lofchy & Claassen, 2010)				<i>Trial of team nursing (TN) - Prince of Wales Hospital Models of Care Project</i> (Fairbrother, Jones & Rivas, 2010)				<i>The Nurse Management Program</i> (Achterstraat, 2006)
	<i>Graduate Nurse Programs (GNP)</i> (Cubit & Ryan 2011)								<i>University-linked Rural Family Practices Network</i> (Wilkinson, Symon, Newbury & Marley, 2001)
	<i>Clinical Placement Support Scheme</i> (Courtney, Edwards, Smith & Finlayson, 2002)								<i>Well-Being Program (The Dr DOC Program)</i> (Gardiner, Sexton, Kearns & Marshall, 2006)
<i>The Rural and Remote Clinical Program</i> (Neill & Taylor, 2002)					<i>Mentorship programme</i> (McCloughen, & O'Brien 2005)				

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	<p><i>The Psychiatrist Training Initiative (Wilks, Oakley Browne & Jenner, 2008)</i></p> <p><i>Transition Programme into Mental Health Nursing (Cleary, Horsfall & Happell, 2009)</i></p> <p><i>The Australian Rural Clinical School (RCS) initiative (Eley, Synnott, Baker & Chater, 2012)</i></p> <p><i>Mental health clinical facilitation program (O'Brien, Buxton & Gillies, 2008)</i></p> <p><i>Centre for Psychiatric Nursing Research and Practice (CPNRP) Preceptorship Training (Charleston & Goodwin, 2004)</i></p> <p><i>Educational programme for ENs practicing in the specialised haemodialysis environment (Chow et al., 2008)</i></p> <p><i>National Rural Health Network (Turner & Scott 2007)</i></p> <p><i>Rural and Remote Health Placement Programme (RRHPP) (Mak & Miflin, 2012)</i></p> <p><i>New fast-track bachelor of nursing (Walker, 2007)</i></p> <p><i>Innovative model of clinical education (Strasser, Neusy 2010)</i></p> <p><i>Innovative model of clinical education (Hudson, Weston & Farmer, 2011)</i></p>							
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Annex 5: List of Primary Studies Analyzed

Reference (Author, year)	Country	Intervention (Level, Target Profession)	Methodology (type of study, number of participants, ...)	Comments on results
NON-EU Countries				
1- Education				
Happell, B., Moxham, L., & Clarke, K.-A. (2011)	Australia	Mental health nursing curricula (policy level, nurses-mental health)	The difficulty recruiting and retaining an adequate mental health nursing workforce is acknowledged. The major in mental health nursing has been identified as a strategy to promote this specialist area of practice as desirable for students' future careers. Measuring its success requires the collection of detailed data about the structure, content, and uptake of these programmes. // The development and implementation of a major in mental health nursing has been recommended as a strategy to encourage undergraduate nursing students to consider a career in mental health nursing (McCann et al. 2010; MHNET 2008).	These research findings present a descriptive overview of the implementation of a major in mental health nursing in Australia, particularly in relation to the structure, uptake, and content of these major streams. Fourteen universities have been involved in a major in mental health nursing in some capacity. Two programs were abandoned before commencement; two are delayed; two have discontinued, with a third planning to discontinue from 2011 and one proposed for introduction in 2011. The uptake for most universities has been modest, but overall, the completion rate has been positive. An overview of the structure and content of the major programmes demonstrates considerable variation between universities. It would appear that a common understanding of what constitutes a major study in mental health nursing does not exist. A systematic approach to analysing the effects on growth within the mental health nursing workforce as a result of participation in a mental health nursing major within a Bachelor of Nursing is warranted.
Mills, J., Lennon, D., & Francis, K. (2007)	Australia	<i>Mentor Development and Support Project</i> (policy level, graduate nurses)	In addition to financial assistance, scholarship recipients are offered the option of mentor support. Undergraduates can select as their mentor a rural or remote nurse already known to them, or opt to be matched with a nurse from an existing pool	Positive effect/results - The AARN's commitment to developing mentoring as a way of supporting and encouraging novice rural and remote nurses was played out in a

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			of volunteer mentors. This strategy aims to introduce undergraduates to rural and remote nursing practice through mentoring.	very tangible and productive way through its initial Mentor Development and Support Project 2003–2005.
Robinson, M., & Slaney, G. (2013)	Australia	<i>Decentralized model of GP training</i> (policy level, physicians-GPs)	Comprehensive socio-demographic profile of former registrars; semi-structured telephone and face-to-face interviews were conducted with GPs to explore career path decisions; of 61 prospective interviews, current practice addresses were found for 51 doctors.	Positive effect/results – The decentralized training model has had a positive impact on the workforce in the Bogong region - at the conclusion of the study 42% of doctors who trained with BRTN remained in the region.
Somers, G. T., & Spencer, R. J. (2012)	Australia	<i>Undergraduate Rural Clinical Rotation</i> (policy level, student physicians)	A prospective, controlled quasi-experiment using self-paired scores on the SOMERS Index of rural career choice likelihood, before and after 3 years of clinical rotations in either mainly rural or mainly urban locations. Setting: Monash University medical school, Australia. Participants: Fifty-eight undergraduate-entry medical students (35% of the 2002 entry class).	No conclusion on effectiveness of intervention.
White, C. D., Willett, K., Mitchell, C., & Constantine, S. (2007)	Australia	<i>Continuing Medical Education</i> (CME) (policy level, physicians-GPs)	Each session/topic in each workshop is evaluated on a daily basis using a written questionnaire incorporating 5 point Likert scales in terms of appropriateness to skill level, relevance to learning needs, utility in updating or gaining new knowledge and skills, relevance to the type of work the practitioners and appropriate coverage of topic areas. Additionally, for all workshops (except those offered during the annual Rural Doctors Association of Queensland [RDAQ] conference), delegates from RRMA 4 to 7 locations are asked to indicate their extent of agreement with a series of statements: participation in this workshop has assisted in alleviating my sense of professional isolation; access to, and participation in, CME activities contributes to my confidence in practising in a rural and remote locality; without access to CME, I am less likely to remain in rural practice. Similar to the session/topic evaluations, these questions are asked as part of the overall evaluation on the final day of the workshop, using a written questionnaire incorporating 5 point Likert scales ranging from strongly disagree to strongly agree. It is the extent of agreement to these questions that forms the thrust of this article.	Positive effect/results - Evaluations provided by attendees indicate that the workshops provided by HWQ are extremely effective in increasing practitioners' confidence in practising in rural and remote communities, reducing professional isolation and increasing commitment to remain in rural practice. Although based on self-report, the data supports the contention that the availability of professional support from well qualified colleagues and specialists, and from professional organizations through continuing medical education, is an important factor in the retention of rural doctors. It is also acknowledged that there are other factors, including on-call arrangements, access to locum relief, local availability of services and proximity to a city or large regional center, that interact with professional support to influence retention decisions.
Isaac, V., Watts, L., Forster, L., & McLachlan, C. S. (2014).	Australia	Australian Rural Clinical School (RCS) Programmes (policy level, physicians-students)	The study participants were medical students enrolled in a RCS in the year 2013 at the University of New South Wales (UNSW) and who completed the newly developed self-administered UNSW Undergraduate Destinations Study (UDS) questionnaire. Data were collected at baseline and after one year of RCS training on preferred location for internship, work and intended specialty. Interest for graduate practice location (career intent)	Positive effect/results - A significant number of studies have clearly evaluated the experience of training at RCS and its positive influence on a student's intent for future rural training and practice [6,17]. The Graduate Destination Study at UNSW also found there was a positive association

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			<p>was assessed on a five-variable Likert scale at both baseline and at follow-up. A total of 165 students completed the UDS at baseline and 150 students after 1 year of follow-up.</p>	<p>between time spent at the RCS and rural career intention [5]. Our current study here suggests that number of years in RCS training not only has a positive association with students' intention to work in a rural location, but also is positively associated with students' level of interest in rural practice. Our study also validates previously identified extrinsic factors associated with rural workforce intentions for rural medical students [6,7]; that is students with a rural entry background and a greater length of training at a RCS had a greater intent for rural practice. Importantly, we also showed intrinsic values for rural work intentions related to stronger interest levels. Particularly, levels of interest increased over one year of follow-up for those students with rural work intentions. This suggests that a clinical training model of extended rural placements of more than one year increases interest in rural practice. Interest level is an assessment tool that has been studied in vocational career selection. Particularly, it has been used to assess both career intent and also location. However, interest, for medical career location or specialty choice has received little attention [18]. In our study, rural work intentions and longer time spent in RCS were both associated with increased career location interest levels. Rural career intent and the positive experience in a novel environment could serve as an effective mechanism for cultivating competencies – self efficacy that may subserve higher intrinsic interest levels [19].</p>
<p>Charleston, R., & Goodwin, V. (2004)</p>	<p>Australia</p>	<p><i>Centre for Psychiatric Nursing Research and Practice (CPNRP) Preceptorship Training (organizational level, mental health nurses)</i></p>	<p>A total of 17 participants from a total establishment of 42, registered for the course. All nurses participating in the course were informed of the evaluation process involved, and gave written consent to information gathered by questionnaire and focus groups during and after the training to be used as part of the evaluation. A consumer consultant and a nurse educator</p>	<p>Positive effect/results - Participants' initial evaluation was very positive. Preliminary analysis of this evaluation has indicated positive change in participants practices related to preceptorship. As a result of the evaluations carried out at intervals since the</p>

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			<p>from an adjoining service completed the enrolment of 19. Ages for the 19 participants ranged from 34 to 58 years, with the mean age being 43.6 years. Although one participant had trained at TAFE (Division 2), all other participants were hospital trained. The range of years since initial registration was 6–26 years. Frequency of precepting student nurses ranged from nil (for one participant) to 'lost count' for other participants. Most participants indicated they had preceptored undergraduate nursing students many times. The main aims of the workshop were for participants to be able to identify conceptual underpinnings of a learning organization, outline various models of teaching and learning relevant to preceptorship, apply skills in student supervision, and implement a student supervision program in the workplace. In addition, the workshop aimed to identify and develop the knowledge and skills of participants in the clinical setting through a teaching/learning practice environment with the ultimate objective of improving client outcomes. Core content from the existing CPNRP metropolitan 12-week 'Preceptorship in Psychiatric Nursing' unit, was modified for workshop delivery.</p>	<p>training, a number of benefits have been noted. There is now less reluctance on the part of staff to accept a student for preceptorship. In fact, they actively volunteer their services and work cooperatively to provide consistency across shifts. Once the trained preceptors returned to their respective duties, it became clear, and was borne out by the evaluations, that they constituted a critical mass to encourage and support changes in practice. Once changes in the practice of and valuing of the role of preceptor occurred, the ability of the service to influence students during their mental health placement to view mental health nursing more positively increased dramatically. This was evidenced by the subsequent recruitment of six graduate nurses, and the higher demand for placement opportunities as students learned of the positive nature of the experiences offered.</p>
<p>Chow, J., Lau, B., Gibb, C., South, S., Arca, W., & Service, H. (2008)</p>	<p>Australia</p>	<p>Educational programme for ENs practicing in the specialised haemodialysis environment (organizational level, nurses-dialysis)</p>	<p>A new model of care was designed to introduce Enrolled Nurses (EN) into what was previously almost exclusively a Registered Nurse (RN) workforce. The programme comprises training in medication administration conducted at the Technical and Further Education (TAFE) centre, training in dialysis procedures in the haemodialysis unit and clinical placement in the renal ward. Successful participants were recognised as Endorsed Enrolled Nurses, able to undertake extended roles in renal nursing care. // The programme has two main strands: (1) accredited TAFE training in medication administration and dialysis procedures (NRB 2003, 2004, 2006), comprising 17 modules, all of which must be successfully completed (http://www.tafensw.edu.au). (2) Clinical placement in the Renal Ward, overseen by clinical nurse educators. The programme therefore focuses on knowledge-skill transfer and practical application. Throughout the training, candidates have individualised clinical teaching and supervised practice to achieve accreditation in haemodialysis policies and procedures. These theoretical and clinical components are conducted in the hospital setting by Clinical Nurse Educators and Clinical Nurse Specialists, respectively.</p>	<p>Positive effects reported: Despite initial resistances, the change process was well received, as shown by the comments from the RN staff. One of the key elements for the success of the EN programme in the dialysis unit was the vision from the nursing managers and key clinical nursing staff who designed the education programme. Comprehensive specifications for job performance for the ENs were developed. Job duties were placed in the realm of the EN's scope of practice in compliance to the current Nurses' Act. The decision to keep over 80% of RNs in each dialysis shift continues to ensure safety in the workplace in a healthcare delivery system that is rapidly moving, with highacuity patients and complex procedures through the continuum of care. At all times, the EN remains responsible and accountable for his/her actions in providing delegated nursing care</p>

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				(Australian Nursing Council Incorporated 2002). This programme serves not only to educate but also act to attract and retain nurses who are committed to renal nursing. The success in staff recruitment and retention (99.8%) has been one of the positive outcomes of this programme. There was a total of 12.5 FTE vacancy (32%) and poor staff morale prior to the introduction of the ENs in the dialysis unit. With the increase in newly enhanced dialysis capacity and nursing positions each year to meet the demand of 10% per annum patient growth, there is now rarely any vacant position currently (0.2% vacancy rate).
Turner, J. V, & Scott, L. M. (2007)	Australia	National Rural Health Network (NRHN) (organizational level, health professionals-students)	In 1995, the National Rural Health Network (NRHN) ¹ was founded as an overarching body consisting of representatives from each club, as well as an executive committee. Each RHC regularly reports to the NRHN Council. The NRHN is funded by the Commonwealth Department of Health and Ageing (DoHA) through an external auspicing body, the Australian Rural and Remote Workforce Agencies Group (ARRWAG), and is a member body of the National Rural Health Alliance (NRHA). Rural health clubs and the NRHN can be considered to have two broad aims: 1. To provide positive rural experiences for medical, nursing and allied health students with the hope of encouraging rural practice in the future. 2. To raise awareness of rural health issues among students and the wider community. University RHC conduct numerous and diverse activities, including trips to rural locations, information and scholarship sessions, practical workshops, discussion forums, health promotion activities and social events ² . For those clubs with a combination of nursing, allied health and medical membership, these activities are often crossdisciplinary in nature. Collaborative activities with university departments of rural health, Divisions of General Practice, medical rural clinical schools (RCS), Aboriginal medical services, community organisations and rural health professionals are also undertaken. The NRHN enables communication and organisation of events at different universities and provides external representation on a national level. The cross-disciplinary and inter-university nature of the NRHN and its member clubs enables cooperation with many	Positive effects reported: In the context of the national rural health strategy, RHC occupy a unique niche that enables particularly effective execution of their aims and objectives: • providing positive rural experiences; • fostering peer promotion of rural health; • promoting personal and professional development; • providing a volunteer workforce for rural health initiatives; • promoting cross-disciplinary interaction. Positive rural experiences: The provision of affirming experiences is a rational concept in addressing the shortage of Australian rural health professionals. It is a focus of university RHC and the NRHN. It is necessary to target future health professionals early to encourage an informed and positive perspective on future rural practice. Rural health clubs aim to do this as well as to equip students as they graduate to become health practitioners.

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			national rural health bodies and communication of issues, ideas and initiatives across a large portion of Australia's potential future rural health workforce. This is an approach applicable both to Australia and other countries.	
Cleary, M., Horsfall, J., & Happell, B. (2009)	Australia	<i>Graduate Nurse Programs (GNP)</i> (policy level, mental health nurses)	Several methods were described on others studies regarding the Transitional Programs.	Positive effect/results - It is often understood that successful completion of the program can provide advanced standing towards further tertiary studies. Thus, investment in transition programs is important for the appropriate functioning of the health service, as well as the individuals pursuing the program pathway (Billett 2006).
Courtney , M ., Edwards , H ., Smith , S . and Finlayson, K. . (2002)	Australia	<i>Clinical Placement Support Scheme</i> (organizational level, student nurses)	This study used a quasi-experimental pre-post test survey design. The population under study consisted of all final year Bachelor of Nursing students at Queensland University of Technology who were enrolled in a clinical placement program in 2000 (n = 212). The study surveyed all the population to ensure the avoidance of sampling bias and sampling error. A student list was generated from the normal School of Nursing clinical placement listings. The questionnaire, consisting of 38 items: 16 Likert scale questions, 15 closed (yes/no) and 7 open ended questions; was trialed on a similar group of students prior to distribution and modifications made where necessary. Each individual student was handed the questionnaire and duplicate Consent Forms prior to their clinical placement. A copy of the Consent Form was retained by each participant. A second questionnaire was given to participants after the completion of their clinical unit. The questionnaires were coded to assist in the identification of non-respondents and to match the pre and post questionnaire respondents. Ethical approval was obtained from QUT Human Research Ethics Committee prior to commencement of the study.	Positive effect/results - The findings of this study support the view that a rural clinical placement can have a positive effect on the intention to seek future employment in a rural setting. Eighty-nine percent of students who undertook a rural clinical placement intended to seek work in a rural setting following their placement, compared with 46% of the students who undertook a metropolitan placement. This was an increase of 12% in the number of students who undertook a rural placement and intended to seek rural work in the future compared to pre-clinical placement numbers. Students who undertook a metropolitan placement had a smaller increase of 5% in the number of students intending to work in a rural setting.
Walker, K. (2007)	Australia	New fast-track bachelor of nursing Program (organizational level, nurses-students)	The fast-track mode allows Gen Y students to pursue an education and take out a qualification that will provide them with immediate access to the world of paid professional work. For this generation, time is a precious commodity and in a 2-year program, shaving off a year of studentship and the various costs and burdens associated with it is a very attractive option. The program strongly recognises that this generation 'want all the success and all the money that a career offers, but unlike the baby boomers, they are not prepared to give their life to do	Data from these two evaluation studies will provide us with robust evidence of the effectiveness (or otherwise) of our initiatives and enable us to more strongly promote and market them accordingly. As well, the learning and insights we gain will be very useful for our peers in terms of demonstrating the potential such relatively radical ideas have to turn recruitment and retention from being a human resources

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			it' (Sheahan 2005: 28). Of course, the program has raised more than a few eyebrows amongst our boomer and Gen X colleagues who are somewhat affronted by the idea of gaining a degree in such a short timeframe. Philosophically and ideologically, they struggle with this generation's impatience, sense of entitlement and access to opportunities that were often denied them. However, the nursing profession simply cannot afford to indulge the anxieties and antipathies of earlier generations but must instead find ways of placating them. This would help foster a degree of balance and harmony in the workplace while differing generations wrestle with their various competing demands and desires.	nightmare into a utopian dream (well, at least a dream worth remembering and retelling, if not entirely perfect and complete).
Cubit, K., & Ryan, B. (2011)	Australia	<i>Graduate Nurse Programs (GNP)</i> (organizational level, graduate nurses)	Two data collection methods were used to evaluate the 2008 GNP. On-line surveys were administered on four separate occasions during the 12 month GNP. In 2009, following the completion of the program all GN who completed the 2008 GNP were invited to participate in focus groups. This program evaluation received approval from the Calvary Health Care ACT Human Research Ethics Committee prior to commencement (HREC No. 5-2009). Sixteen RN completed the 2008 GNP. Of these 15 were female and one male. Ages ranged from 23 to 53 years with the average age 28.8 years and 69% (n=11) of the GN belonging to Generation Y. Two GN were considered to be Baby Boomers, and the remaining three GN belonging to Generation X.	Positive effect/results - An important measure of the success of the new GDP is recruitment and retention. Seventeen GN began the 2008 GNP, with one leaving during the second rotation. Fifteen (88%) of those who completed the 2008 GNP continue to work at the hospital in 2009. This is a significant increase from the previous year in which the retention of GN from the 2007 GNP was only 64%. It is very evident from this evaluation that the retention of Gen Y GN is unmistakably linked to frequent and regular contact with a L&D Unit whose role is to facilitate: flexible rotations through clinical areas of interest; regular opportunities for fun and socialisation; advocate for rostering with preceptors and release for study days; ongoing support and prompt feedback.
Eley, D. S., Synnott, R., Baker, P. G., & Chater, A. B. (2012)	Australia	<i>The Australian Rural Clinical School (RCS) Initiative</i> (organizational level, rural practice physicians)	A longitudinal mixed methods sequential explanatory design employed a quantitative data collection phase followed by a qualitative phase with the merging of data sources during the interpretation and analysis. The qualitative sample was recruited through a survey question asking for interest in participating in an interview.	Positive effect/results - A decade on the beginning of this initiative, there is strong endorsement for the positive influence that rural undergraduate clinical training has on promoting rural career intentions. Findings so far show that the primary drivers that influence decisions to pursue rural medicine are personal/family reasons, positive rural exposure and specialty training requirements.
Strasser & Neusy (2010)	Australia	<i>Innovative model of clinical education</i>	This paper presents evidence for policy initiatives involving the training of medical students from, in and for rural and remote	Positive effect/results - The PRCC has been studied closely and found to provide

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			<p>areas. We give examples of medical schools in different regions of the world that are using an evidence-based and context-driven educational approach to producing skilled and motivated health workers. In addition, there is evidence that academic involvement (teaching and research) is both a retention and recruitment factor for physicians. Training rural health workers in the rural setting is likely to result in greatly improved recruitment and retention of skilled health-care providers in rural underserved areas with consequent improvement in access to health care for the local communities. Flinders University School of Medicine (Australia), Northern Ontario School of Medicine (Canada) and Zam-boanga School of Medicine (the Philip-pines) are three members of THEnet whose experience is illustrative of successful elements of rural based, socially accountable medical education.</p>	<p>learning experiences which are equivalent to, if not better than, clinical learning in the metropolitan teaching hospital.³³ Specifically, PRCC students consistently outperform their colleagues based in city teaching hospitals in the end-of-year examinations.³⁴ In addition, PRCC students were found to have a higher level of confidence and competence and a broader range of clinical knowledge and skills when compared with their metropolitan counterparts.²⁷ After 12 years, 70% of PRCC graduates are practising in rural locations.</p>
<p>Hudson, J. N., Weston, K. M., & Farmer, E. A. (2011)</p>	<p>Australia</p>	<p><i>Innovative Model of Clinical Education</i> (organization level, physicians)</p>	<p>A qualitative study using semi-structured interviews was conducted just before the first student cohort started their longitudinal clerkship. The longitudinal clerkships were implemented in ten teaching and learning hubs in regional and rural New South Wales. By integrating clinical education with health care in communities with workforce shortages we aimed to provide a quality clinical clerkship experience for all students in the first cohort (n= 68) and enhance the 'rural return' of these students following qualification as a clinician. Just prior to commencement of the first cohort, we asked a sample of our supervisors what motivated them to engage with this model of clinical clerkship.</p>	<p>Other effects/results - A vital factor in further recruitment and sustainability of this clerkship model is the proportion of students who choose to return to work in rural and regional areas. Considerable success in terms of 'rural return' has been achieved by the longitudinal Rural Physician Associate Program (RPAP) addressing shortage of primary care physicians in rural Minnesota. The Australian Medical Schools Outcomes Database will provide future data to gauge the success of rural return for our program.</p>
<p>Lyons, Z., Power, B., Bilyk, N., Lofchy, J., & Claassen, J. (2010)</p>	<p>Australia</p>	<p><i>Claassen Institute of Psychiatry for Medical Students</i> (organizational level, mental health physicians)</p>	<p>The evaluation used a pre/post study design. Students were asked to complete a baseline questionnaire at the beginning of the week, a follow-up questionnaire on the final day, and a daily questionnaire to rate each day's seminars and elective sessions. Questions were rated on a scale of 1-10, where 1 indicated low interest/knowledge and 10 indicated high interest/knowledge. Opportunities for qualitative comments were provided in all questionnaires.</p>	<p>Positive effect/results - All participants were positive about the week and enjoyed the experience. Students gained greater insight into the many different areas of specialization within psychiatry, and increased their knowledge and interest in neurosciences and psychiatry. Importantly, the number of students 'definitely considering' psychiatry as a career increased by 20%.</p>
<p>Neill, J., & Taylor, K. (2002)</p>	<p>Australia</p>	<p><i>The Rural and Remote Clinical Program</i> (organizational level, undergraduate student nurses)</p>	<p>Students are selected six to 12 months in advance of their placement, on the basis of a written statement of their reasons for requesting a rural placement and how it would meet their learning objectives or future career plans. Preference is given to self-sufficient, motivated, and culturally aware students from</p>	<p>Positive effect/results - Flinders University nursing students who undertake rural and remote clinical placements demonstrate they quickly become valued contributors and culturally safe team members, given</p>

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			<p>both urban and rural backgrounds, who value the clinical experiences offered by destinations, rather than the potential for tourism. Satisfactory clinical and academic records are required. Few are rejected on academic grounds but it is not always possible to fill all the venues available. Students are prepared for their experience by attending extra meetings, by working with each other to improve critical thinking skills, and through an orientation workshop provided by Spencer Gulf Rural Health School. Informal observations made during these activities provide lecturers with valuable information, helping to refine placement decisions. In each venue there is an on-site orientation. In Alice Springs a more comprehensive program is provided including Aboriginal Cultural Awareness, communication issues, Indigenous health, and 4-wheel-drive vehicle familiarization. Students in Alice Springs have access to hospital library resources, computer facilities and a locally based Lecturer in Nursing from Flinders University, but the other venues mentioned previously have fewer computer and library resources at this stage. Students remain in contact with an academic coordinator in Adelaide, who also liaises with rural clinical preceptors and supervisors.</p>	<p>the right encouragement, support and preparation. A number of students have undertaken two placements in rural or remote areas or an extended rotation to gain more experience. Overwhelmingly, students found their experiences in rural and remote venues changed their lives and future careers, consistent with studies reported previously.</p>
<p>Mak, D. B., & Mifflin, B. (2012)</p>	<p>Australia</p>	<p>Rural and Remote Health Placement Programme (RRHPP) (organizational level, physicians-students)</p>	<p>The University of Notre Dame Fremantle's School of Medicine (SoM) has added an extra element – the Rural and Remote Health Placement Programme (RRHPP) – to the clinical placements model. The RRHPP aims to provide a foundation for, and complement the medical focus of, rural clinical placements. It provides prospective medical practitioners with personal experience of living and working in the bush and opportunities to develop patient- and community centred perspectives on rural and remote area health prior to their clinical placements in these areas. The expectation is that graduates, regardless of where they practise medicine, will understand the issues that influence the health of rural and remote populations and have empathy with their health needs.</p>	<p>Positive effects reported: Key findings from the formal study of the Kimberley remote area health placement (Toussaint & Mak 2010) were: The Programme was seen as effective because it provided structured, constructive means for prospective doctors to appreciate the richness of remote area living and encouraged them to think and act cross-culturally. The Programme was seen as beneficial for the long-term health needs of Kimberley because: - at least 'one good doctor' might return to work in the region; - prospective doctors, whether they chose to return to the bush or practise in the city, would be better informed about the particular circumstances of patients from the bush, including the conditions in many Aboriginal communities; and - prospective doctors were stimulated to reflect on their own attitudes and practices. The ultimate effectiveness of the RRHPP will not be known for several years until the first</p>

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				graduates of the SoM Fremantle have completed postgraduate specialist training. The School has been informed by the Postgraduate Medical Education Council of WA that Notre Dame graduates have indicated their willingness to work outside the metropolitan area and requested that more intern and postgraduate training places be developed in rural health services (Mak et al. 2011).
O'Brien, L., Buxton, M., & Gillies, D. (2008)	Australia	<i>Mental health clinical facilitation program</i> (organizational level, mental health nurses)	There were two phases to this project: (1) the pilot phase, in which the facilitation programme and evaluation questionnaires were developed and piloted, and (2) the main body of the project, wherein the facilitation program was run and evaluated with second and third year undergraduate nursing students during their mental health placement. In the second phase, 257 second and third year undergraduate nursing students from four campuses of the participating university who were undertaking a clinical placement at the participating mental health facility in 2004 were invited to participate. Three Questionnaires and focus groups with the students and facilitators were implemented.	Positive effect/results - Based on the results from 254 pre-placement and 248 post-placement surveys there was a significant increase in student interest in mental health nursing with almost 50% indicating that they were "seriously interested" or "totally interested" in mental health nursing as a specialty choice upon graduating and 75% indicating that they would consider mental health nursing as a career. This interest did translate into an increase in actual applications for employment in mental health nursing in this facility.
Wilks, C. M., Oakley Browne, M., & Jenner, B. L. (2008)	Australia	<i>Psychiatrist Training Initiative</i> (organizational level, mental health physicians)	Individual interviews were recently undertaken with past and present psychiatrists with a response from 14 out of 19 previously and currently employed psychiatrists. To be described in more detail in a future article, a number of themes emerged from these interviews. Initial recruitment and commencement issues were generally viewed very positively. It was suggested, however, that further introductory materials should be supplied prior to commencement with LRH.	Positive effect/results - In recent months there has been significant success with two LRH candidates passing the final clinical component of the RANZCP fellowship exams. The candidates attribute achieving their fellowship largely to this program.
2- Financial Incentives				
Laven, G. A., Wilkinson, D., Beilby, J. J., & McElroy, H. J. (2005)	Australia	<i>The Rural Australian Medical Undergraduate Scholarship (RAMUS) scheme</i> (policy level, students-GPs)	The Australian National Rural Background Study was a national case control study that used a self-administered questionnaire distributed by mail in December 2000. Cases were defined as GPs in rural practice and controls were defined as GPs in urban practice at the time of the mail out. A national sample, stratified by state and territory (excluding the Australian Capital Territory (ACT)), was developed. As there were only three rural GPs working in the ACT they were excluded for confidentiality reasons. We also excluded GPs working in the armed forces.	Positive effect/results - A retrospective study conducted in 2005 which aimed at verifying if physicians with this profile were indeed more likely to work in rural areas, showed that those who had this profile were more than 2.5 times likely to work in a rural area, leading to the conclusion that attracting students with a rural background was a sound strategy to address recruitment difficulties in such areas.
Achterstraat, P. (2006)	Australia	<i>The department</i>	This audit looks at how nurses are managed in four of our public	Effectiveness of intervention was not

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		<i>improved nurses' wages to make them the highest paid in Australia</i> (policy level, nurses)	hospitals and examines how the Department has responded to expected nurse shortages.	mentioned.
Ditlopo, P., Blaauw, D., Bidwell, P., & Thomas, S. (2011)	South Africa	<i>Rural Allowance Policy</i> (policy level, dieticians, dentists, nurses, pharmacists, psychologists, physicians, radiographers, therapists)	A multiple descriptive case study design, with complementary methods was used: document reviews, key informant interviews with policy-makers, and in-depth interviews with hospital managers and with health professionals. The study was conducted <i>in the</i> North West province, a predominantly rural province with a population of 3.2 million (6.4 per cent of the total South African population). We selected five hospitals out of a total rural province with a population of 3.2 million (6.4 per cent of the total South African population). Five hospitals out of a total of 30 were selected: all three district hospitals participating in a national hospital revitalization programme (the broader study focus), and two other randomly selected hospitals.	Mixed effect/results - Using a policy analysis framework, we analyzed the implementation and perceived effectiveness of a rural allowance policy and its influence on the motivation and retention of health professionals in rural hospitals in the North West province of South Africa. This study illustrates that good policies with admirable intentions can have reduced impact or even negative consequences because of process and implementation weaknesses. Some hospital managers reported that the rural allowance had been partially effective in attracting health professionals to their facilities. Other managers argued that the rural allowance was only effective in addressing short-term recruitment needs. Most participants (nurses, doctors, health managers, and policy-makers) indicated that financial incentives alone are insufficient to motivate and retain staff.
Ditlopo, P., Blaauw, D., Rispel, L. C., Thomas, S., & Bidwell, P. (2013)	South Africa	<i>Occupation-Specific Dispensation (OSD)</i> (policy level, nurses)	A descriptive case study design was used, combining a review of policy documents and in-depth interviews with key informants who were knowledgeable on OSD policy design and/or implementation. The document review included relevant government documents including policy directives (23, 24) and media releases (28 30) in order to understand the context and content of the OSD implementation. The study was conducted in North West and Gauteng provinces between 2008 and 2010. North West is a predominantly rural province with a population of 3.2 million (6.4% of the total South African population) while Gauteng is an urban province with a population of 11.1 million (22.4% of the total population). A total of 10 hospitals in the two provinces were selected. Out of 30 hospitals in North West province, three were purposively selected to ensure inclusion of those hospitals that were part of the hospital revitalisation programme and two were selected randomly. Similarly, in Gauteng province, one hospital was purposively selected while	Negative effect/results - The study found that very few of the preconditions were met, namely that the policy was based upon a valid theory of cause and effect and that the relationship between cause and effect is direct. The study found that a number of preconditions were not met, and this resulted in sub-optimal implementation. The challenges included time and resources, dependency relationships, task specification, and communication and coordination.

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			four were selected at random. Forty-two key informants were selected purposively on the basis of their influence or knowledge of the OSD policy or their involvement with OSD implementation, using a snowballing sampling technique. The selected key informants were interviewed using a semi-structured interview guide. The questions focused on the background and context of OSD for nurses, actors and their responsibilities, implementation of OSD, successes of the OSD implementation, challenges experienced, and recommendations. A thematic content analysis of the documents and transcripts was conducted using ATLAS.ti. To ensure coding consistency, two researchers (one being the first author) independently read at least seven transcripts and discussed discrepancies until agreement on the codes was reached.	
Krauss, K. (2006).	South Africa	<i>The Friends of Mosvold Scholarship Scheme (FOMSS)</i> (organizational level, student nurses, pharmacists, physicians)	NM	Positive effect/results - From the scholarship's inception in 1998 through mid-2005, fourteen students successfully completed a degree program (the scholarship can be applied to a number of health sciences degrees, including physician training, nursing, or pharmacy). All have now returned to their rural district. They are now practicing optometrists, physiotherapists, radiographers and pharmacists at Mosvold Hospital or one of its satellite clinics, bringing many skills that were not available before to the area. This has included opening the hospital's first optometry clinic and dental therapy unit. Another forty-six students were enrolled in degree programs, including medicine, nursing and social work, as of 2005.
3- Professional and Personal Support				
Haaren, M. Van, & Williams, G. (2000)	Australia	<i>The Central Australian Nurse Management Model (CAN)</i> (policy level, nurses)	The CAN Model has provided an example whereby nurses can succeed with: (i) a comprehensive, systematic approach to support service delivery; (ii) appropriate education; and (iii) a secure indenture program.	Positive effect/results - From a remote Australia nursing perspective, the integration and dedicated implementation of the three initiatives contained within the CAN Model have demonstrated remarkable improvements in the service's ability to recruit, retain and skill the remote area nursing workforce. Since the implementation of the CAN Model, the nursing service has been able to attract

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				staff; retain staff; provide a stable, supported and focused working environment; and prepare nurses for extended practice and non-traditional roles. Implementation of the three key initiatives that comprise the CAN Model has succeeded in attracting, stabilizing and skilling a remote area nursing workforce, fundamental to achieving better health outcomes in Aboriginal populations.
Pond, B. R., Dalton, L. G., Disher, G. J., & Cousins, M. J. (2009)	Australia	<i>The Support Scheme for Rural Specialists (SSRS)</i> (policy level, physicians-medical specialists)	NM	Positive effect/results - Key outcomes that were reported included: (i) decreases in professional isolation and increased access to CPD for rural specialists; (ii) increased inter-organization and inter-college collaboration; (iii) support of access to CPD for overseas-trained specialists; and (iv) identification of effective approaches for the provision of CPD to rural specialists.
O`Sullivan, B. G., Joyce, C. M., & McGrail, M. R. (2014)	Australia	<i>Rural Outreach Strategy</i> (policy level, physicians-specialists)	We used data from the Medicine in Australia: Balancing Employment and Life (MABEL) survey, collected between June and November 2008. Weighted logistic regression analyses examined the effect of covariates: sex, age, specialist residential location, rural background, practice arrangements and specialist group on rural outreach. A separate logistic regression analysis studied the effect of covariates on remote outreach compared with other rural outreach.	NM
Dunbabin, J. S., McEwin, K., & Cameron, I. (2006)	Australia	<i>The Cadetship Program</i> (policy level, student physicians)	Dunbabin et al. (2006) tracked the 180 students who participated in the scheme between 1989 and 2004; when dropouts and those who did not complete their placement or were still studying were excluded, there remained 107 whose practice location was identified.	Positive effect/results - New graduates who had chosen to specialize were more likely to work in urban settings; 43% of former cadets were working in a rural setting, compared to 20,5% of all physicians nationally. The study concludes that exposure to rural practice works in favor of recruitment, but that overall career choice seems to be the main determinant of practice location.
Achterstraat, P. (2006)	Australia	<i>The Nurse Management Program</i> (organizational level, nurses)	This audit looks at how nurses are managed in four of our public hospitals and examines how the Department has responded to expected nurse shortages.	Effectiveness of intervention was not mentioned.
McCloughen, A., & O'Brien, L. (2005)	Australia	Mentorship programme (policy)	The working group focused on the mentoring process as being discrete from preceptorship and supervision, and with the aim	Mentorship was identified as a useful strategy for supporting and retaining new

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		level, nurses-mental health)	of the mentoring relationship providing new graduates an environment in which they could critically reflect, plan, and adapt. It was not intended for the Mentorship Programme to replace other professional development activities or enabling relationships found in preceptorship or clinical supervision, rather it was seen as being complementary to these. The Mentorship Programme was designed to empower the new graduate to progress following the task orientation provided by preceptorship, and prepare them for the more intensive clinical guidance and socialization provided by clinical supervision. The overall aims of the Mentorship Programme were to: (i) promote and maintain ongoing dialogue between the university and area mental health services regarding the education and clinical experience of new graduates in mental health nursing; (ii) assist new graduates in the transition from student to nurse clinician; (iii) provide new graduates with educational and experiential support and positive role models; and (iv) increase knowledge of the educational and clinical needs of new graduate nurses working in mental health. It was expected that by achieving these aims, in the long term the Mentorship Programme would potentially have a positive impact on the retention rates of new graduates in the local area mental health services. The philosophy of the Mentorship Programme reflected the aims identified by the working group: Caring and dynamic relationships must be fostered in the pursuit of continued improvement and progressive achievement. Collaborative partnerships that accept responsibility for the development of nurses in mental health are required if the nursing profession is to mature and progress. The mentorship process facilitates relationships based on reciprocity and mutuality. In the mental health context, mentorship for nurses determines guidance, support, and growth for those new to the profession, and ensures proficient nurses continue to experience enhancement and validation of skills and knowledge. Within the framework of the Mentorship Programme for New Graduate Nurses Working in Mental Health, mentorship refers to a developmental, empowering and enabling relationship between a new employee and an experienced staff member, which develops over time.	nurses in the mental health workplace, and as a result, a university and three area mental health services collaborated on developing the Mentorship Programme for New Graduate Nurses in Mental Health. The present paper has aimed to describe the context in which the Mentorship Programme for New Graduate Nurses in Mental Health evolved, and provided an overview of how the programme was developed and initially implemented. The present paper does not provide a comprehensive account of how to set up such a programme, rather it briefly addresses some of the salient issues identified by this particular working group. It may provide a starting point to work from for other groups contemplating developing similar initiatives. The present paper was written prior to a formal programme evaluation, and hence these results are not presented here. Overall programme results will be reported in a subsequent paper.
Gardiner, M., Sexton, R., Kearns, H., & Marshall, K. (2006)	Australia	<i>Well-Being Program (The Dr DOC Program)</i> (organizational level, physicians-GPs)	The administration of this survey represented the second wave of data in an ongoing study to determine the well-being of South Australian rural GPs and measure the impact of the Dr DOC program. The first wave of data was collected in August 2001 (time 1; see Gardiner et al.4 for a full review of time 1	Positive effect/results - The Dr DOC program, which combines social and emotional support with practical interventions, provides a useful framework for future programs aimed at reducing

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			findings), with the second wave collected in September 2003 (time 2). A comparison of time 1 and time 2 findings provides evidence of any improvements occurring in GP well-being following exposure to the Dr DOC program.	levels of stress and dissatisfaction among rural GPs and for reducing the number of GPs leaving rural practice.
Wilkinson, D., Symon, B., Newbury, J., & Marley, J. E. (2001)	Australia	<i>University-linked Rural Family Practices Network</i> (organizational level, physicians-GPs)	Between August 1995 and October 1999, 17 doctors were recruited; eight (47%) were female and six (35%) worked part time. Recruitment strategies have included advertising both locally and internationally and personal networking. The core employment package offered includes assistance with relocation and accommodation, an academic appointment, a percentage of gross receipts and university support within the practice to develop and maintain modern information technology and information management systems. Particular effort has been put into supporting leave and locum needs. The heavy teaching commitment in some practices is actively supported and remunerated through sessional appointments. Modern premises are maintained at all sites, modern information technology is ensured and a multidisciplinary environment is encouraged, in line with recent recommendations.	Positive effect/results - Rural academic family practices have successfully recruited and retained medical staff in this setting over the past few years. It seems that the university practices offer a useful and complementary recruitment and retention strategy.
4- Regulation				
Fairbrother, G., Jones, A., & Rivas, K. (2010)	Australia	<i>Trial of Team Nursing (TN) - Prince of Wales Hospital Models of Care Project</i> (organizational level, nurses)	Action research is an amalgam of research inquiry and practical implementation of change (Kemmis & McTaggart, 1982). A nine step method was devised for commencing the appropriate change cycle. The method was informed by Lewin's (1948) approach and sought to incorporate B. Taylor's (2000) reflective notions, particularly in the model of care planning/revising steps. Steps one to seven reflect an interchanging series of planning and inquiry steps. The eighth step is the action or change step and the ninth step is an open-ended continuance step that is indicative of the need for further cycles of planning, inquiry and action.	Mixed effect/results - TN was widely held to have had positive impacts on the level of localized workplace organization and was praised by many participants as superior to IPA in a variable skill-mix work environment (Positive). Negative impacts of the model of care change were principally felt among senior clinical nurses who in some cases continued to prefer the IPA model of care because of its capacity to deliver a more personally satisfying day's work; and among experienced Enrolled Nurses who mourned a loss of autonomy by taking their place as a nominal subordinate in the team. Open communication lines within managerial, educational and mentoring contexts were also emphasized (Negative).
Khan, N. B., Knight, S., & Esterhuizen, T. (2009)	South Africa	<i>Compulsory Community Service Programme</i> (policy level, rehabilitation therapists)	A repeat observational cross sectional study design was used to ascertain the attitudes and perceptions of rehabilitation therapists to their CS experience in hospitals in KZN at two points in time, namely on commencement and after completion of CS. These were then compared amongst the different occupational categories of therapists. All therapists undergoing	Positive effect/results - Therapists found the CS experience both personally and professionally rewarding. However, if community service therapists and health care professional are to be retained in rural and under-served areas, there need to be

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			<p>CS in 2005 were included in the sample and answered a self-administered questionnaire on commencement and again on completion of their CS. The data collection was based on a previously validated questionnaire used to evaluate CS in physicians (Reid, 2004), and adapted with assistance from key stakeholders and piloted for therapists. The questions focused on issues in CS such as the community outreach component, language difficulties experienced and other topics specifically relevant to therapists in KZN. The commencement questionnaires were distributed to 142 community service rehabilitation therapists and 126 (89%) completed the initial questionnaire, but only 59 (42%) completed the exit questionnaire. A third (47) of respondents completed both the initial and exit questionnaire. Therapists were placed at 59 gazetted sites in under-served areas², of which 32 (54%) were situated in rural areas.</p>	<p>substantial structural adjustments in the health system including improved administration, management, supervision, mentoring and logistical support. The study also compared the therapists' intentions to remain in the public sector at onset to that of working in the public sector in subsequent years, after CS. The intention to work in the public sector declined from 50% (24/48) at onset, to only 35% (17/48) at exit. Others expressed interest to work in other sectors with 29%, (14/48) indicating the private sector, 19% (9/48) overseas and 17% seeking alternate work outside the public sector. The current study confirms both national and international support for compulsory CS as a strategy for the recruitment of health care professionals to under-served and rural areas. However, CS needs to be implemented together with other financial and non-financial strategies if it is to lead to sustained improvements in under-served and rural areas.</p>
<p>Hatcher, A. M., Onah, M., Kornik, S., Peacocke, J., & Reid, S. (2014)</p>	<p>South Africa</p>	<p>Community Service Programme (policy level, dentists, physicians)</p>	<p>The data collection tool was a brief, structured questionnaire. A number of items explored characteristics of community service placement, including whether the facility was the participant's first choice in the allocation process. Rural placement was determined by participants responding that they received a government rural allowance, placement location and level of facility. The DoH provides regulations relating to categories of hospitals where public hospitals are defined as district, regional, tertiary, central and specialized facilities. Additionally, military hospitals/sick bays were included in the survey to accommodate assessment of the South African Military Health Service community service officers. Community health centres/clinics were included in the survey as they form part of hospital clusters approved for the purpose of performing community service. Placement satisfaction was assessed with a series of items rated on a three-point Likert-type scale (0 = disagree, 1 = neutral, 2 = agree). Placement satisfaction included practical items (quality of accommodation, overtime duties, personal safety, fairness of remuneration, and timeous payment of salaries). A Supervision Satisfaction Scale (SSS) was created</p>	<p>Mixed effect/results - Findings suggest that South Africa's community service programme is an excellent recruitment strategy for health professionals. However the programme needs to be complemented by transparent processes that clearly articulate a strategy for placement of community service officers. The programme should facilitate numerous mechanisms for professional development, and employ innovative strategies to improve retention with rigorous identification, implementation and evaluation mechanisms. Placement data suggest a strategy to increase the health workforce in the rural environment. Rural placement by participant choice was viewed as un-desirable within this sample. The intention of the provincial distribution may be according to the human resource needs of the target populations. Adjusted</p>

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			<p>following data collection to ease interpretation of a number of interrelated supervision factors. The survey was distributed to all medical and dental community service officers in South Africa in 2009. Individual contact details were supplied by the Health Professions Council of South Africa (HPCSA), and the questionnaires were sent out through the DoH and the relevant provincial coordinator. With the survey, each doctor and dentist received two HPCSA forms (Form 11b - Application for Registration as an Independent Practitioner and Form 27 - Certificate of Completion of Community Service).</p>	<p>analysis suggests that race, provincial bursary obligations, contribution to community, and supervision satisfaction were no longer significant predictors of rural or underserved community work intentions. Overall, participants reported high levels of satisfaction with community service training and mentorship.</p>
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NM – Not Mentioned

Annex 6: List of Grey Literature documents

Reference (Author, year)	Country	Intervention (Level, Target Profession)	Additional information of the intervention	Comments on results
NON-EU Countries				
1- Education				
The Australian College of Rural and Remote Medicine (ACRRM) Student Membership retrieved from http://www.acrrm.org.au/juni-or-doctors-and-students	Australia	The Australian College of Rural and Remote Medicine (ACRRM) (policy level, physicians)	The John Flynn Placement Program (JFPP) was established in 1997. Funded by the Department of Health, is an important part of the Australian Government's strategy to attract more doctors to rural and remote areas to address areas of workforce shortage and improve the quality of healthcare for local communities. The Australian College of Rural and Remote Medicine (ACRRM) administers the program on behalf of the Government.	not mentioned
Larkins et al. (2011)	Australia	The north Queensland experience: James Cook University School of Medicine and Dentistry	James Cook University (JCU) School of Medicine and Dentistry was established in 2000 as the first medical school in Australia in 25 years, only the second to be established outside a capital city, and the only medical school in the northern half of the country. Its mission is to work with rural, remote, tropical and Indigenous populations in north Queensland, to train graduates equipped to deal with health inequities in the region (Hays et al. 2003; Veitch et al. 2006).	Positive: Between 2006 and 2011 the numbers of resident medical staff in the region doubled (for example, from 32 interns to 60 for the Townsville Hospital). Early trends suggest that the school's mission is being met, with graduates choosing markedly different patterns of practice compared with graduates from other Australian medical schools.
Procter et al. (2011)	Australia	Transition to Practice Programmes (organizational level, nurses)	A number of significant challenges face graduate mental health nurses entering the workforce. In response, Transition to Practice programs have been promoted as a potential strategy for improving recruitment and retention within the mental health system.	Positive effects reported: Mentorship is a useful strategy for supporting and retaining new nurses in the mental health workplace. In conclusion, although contentious debates surrounding theory-practice gaps are likely to continue, gradual and sustained improvements to TTP programs are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs.
Dieleman & Harnmeijer (2006)	Australia	The Allied Health Workforce Enhancement Project (policy level,	The programme, entitled the Allied Health Workforce Enhancement Project and	Positive effects reported: The project is relatively new and therefore only

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		health professionals)	initiated by the Greater Green Triangle University Department of Rural Health, intends to increase the number of allied health professionals working in certain rural areas and the length of their stay in these areas. It is a state-funded scheme (by the Victorian Department of Human Services) and aims to provide an evidence-based recruitment and retention model. The project is multifaceted, addressing individual health worker needs, organizational requirements and community needs. It focuses on encouraging students to take up rural positions by training preceptors to strengthen student placement and by organizing orientation programmes for students and initiatives to link students to local community groups. It aims to improve retention of professionals by offering continuous professional development, by developing and promoting new care models and locum services to prevent burnout, and by organizing cultural awareness training and rural health seminars to improve understanding of rural health issues. The project tries to improve community involvement in projects and information provision on developments in the health sector and on health staff themselves, in order to create support from communities for health professionals. The project also conducts exit interviews to identify reasons for departure, and collaborates with organizations to develop evidence-based recruitment.	preliminary findings are available. These demonstrate reduced staff turnover, fewer vacancies and high satisfaction levels with the continuous professional development opportunities, improved skills and number of patients seeking care.
Healy et al. (2006)	Australia	the Regional Health Strategy, More Doctors, Better Services (policy level, health professionals)	NM	NM
OECD (2008)	Australia	Expand domestic health training capacity (policy level, physicians)	NM	Positive effects reported: Five new medical schools have opened since the year 2000, with a further seven programmes planned by 2008, doubling the number of medical schools since 2000. Combined with

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				increases to intake numbers in existing medical schools, this represents a square wave shift that is in stark contrast to the static pattern of graduate numbers over the previous two decades" (Joyce et al., 2007). Colleges (AAMC) called for an urgent and immediate expansion of medical schools by 30% (AAMC, 2006). By 2007, the AAMC was able to report that planned intake by its members schools was set to increase by 17% by 2012. It remains to be seen whether this expansion will be sustained, or whether it will lead to equilibrium in the medium term or not, and what will be the implications for migration. There have even been suggestions of possible future oversupply (Joyce et al., 2007; Goodman, 2004). In these countries, enrolment almost doubled between the middle of the 1990s and 2007.
Lyle et al. (2007)	Australia	Educational approaches (policy level, midwives, nurses, physicians, health professionals)	Efforts of health faculties at the University of Sydney to contribute to the recruitment and retention of rural health professionals. In Australia, educational approaches have assumed an increasingly important role in university-based responses to the rural health workforce shortage promoted by government investment in rural clinical schools, university departments of rural health and a range of other state and federal programs. The University of Sydney established a group to advise on how best to contribute to national initiatives that increase the recruitment and retention of rural health professionals and improve the quality and appropriateness of health care for rural Australians. The group was directed to report on efforts to date, and advise on what strategic and operational matters required further attention to ensure the response was targeted and productive.	Mix results mentioned: Although there has been substantial targeted investment through RCS, UDRHs and a range of other state and federal government programs, the University of Sydney's experience demonstrates that this does not necessarily translate into adequate internal resources available to every course or program to optimize performance for rural health workforce outcomes. In an environment where responding to rural health workforce needs has to compete with other priorities, benefits are more likely to accrue from strategies that draw on the existing resource base and operate through greater collaborative action, coordinated at the institutional level.
Vickery et al. (2009)	Australia	General Practice Super Clinics (GPSCs) (policy level, physicians-GPs and	General Practice Super Clinics can provide a responsive, flexible work culture; and	Mix results mentioned: We suggest that GPSCs are well placed to provide the

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		students)	improved payment and targeted resources to support the need for increased teaching capacity, and to attract and retain workforce for general practice and primary care. General Practice Super Clinics (GPSCs) around Australia has as one of its core objectives to support the future primary care workforce by providing high quality education and training opportunities supported by infrastructure for trainee consulting rooms, teaching rooms and training facilities to make general practice attractive to students, new graduates, GP trainees and registrars and other health professionals.	necessary technological resources, office space and flexibility of hours for teaching. GPSCs will need adequate recurrent funding if they are to play a lead role in the establishment of better teaching practices. A responsive and flexible workplace culture, improved payment, and targeted resources and support are needed to increase teaching capacity, and to attract and retain doctors in general practice. With additional funding and new models of training, GPSCs could be part of the solution to training the new medical workforce in Australia. The GPSCs at present may solve locally the issue of space, but unless they also offer solutions for time and money, their potentially important educational role will be limited.
AAAH, WHO & GHWA (2009)	South Africa	Enhancing the rural pipeline (organizational level, not specified)	The University of Witwatersrand is using the concept of a "rural pipeline" to improve recruitment and retention of health workers in rural and remote areas of South Africa. The first step is selecting the right students: students from rural areas are five times more likely to work in a rural area than students from urban areas. The Wits Initiative for Rural Health Education (WIRHE), established in 2003, has pilot sites in two provinces. A scholarship scheme involves student selection at the district level through village committees, mentoring, community service and year-for-year contracts. The next step is focused on ensuring students have sufficient exposure to rural practice during their undergraduate training. The third step is creating opportunities for postgraduate training, for example, through distance programmes, district-based family medicine training and specialist training at regional hospitals. The final step is providing support to rural health workers, for example, with specialist visits, academic links, district learning centres and appropriate skills training. The University is	Effectiveness of intervention was not mentioned.

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			planning to offer a Master of Rural Health starting in 2010, and, in the future, a Master of Primary Care Nursing and a postgraduate diploma in rural medicine	
Larkins et al. (2011)	Australia	The Training for Health Equity Network (THEnet) (policy level, physicians – students)	The Training for Health Equity Network (THEnet) is an international collaboration of eight medical schools from a range of contexts selected on the basis of striving for social accountability (Pálsdóttir et al. 2008). These foundation schools have come together as a community of practice focused on sharing best practice in socially accountable medical education and developing international research and evaluation projects to contribute to the shared knowledge base (THEnet 2010).	Positive effects reported: Although these schools are at various stages in their development, most have produced remarkable impact in terms of graduate outcomes, and sometimes even in health outcomes. Although it is relatively easy to demonstrate outcomes in terms of graduate outcomes and retention, it is harder to measure some attitudinal variables. It is harder still to link population health outcomes in a region to medical education in a complex system impacted by so many determinants.
2- Financial Incentives				
Dieleman et al. (2011)	Australia	Rural Allowance (policy level, physicians)	not mentioned	Mixed results: In Australia the financial incentives were only partially successful. The amount of money offered was too limited to make a difference. In Australia, the intervention led to a general feeling among doctors of being appreciated and valued by the government, despite the small amount that was paid. By working in rural areas, physicians were able to practise and apply a broad range of professional skills, which gave them a sense of fulfilling ideological and philosophical commitments. In Australia, the incentive scheme did not trigger motivation to relocate either, as it was not related to salaries and costs. Both studies also indicated that nonfinancial incentives are important to trigger motivation. In addition, implementation problems hampered the programme, as both studies suffered from extensive bureaucratic procedures.
Healy et al. (2006)	Australia	Back-to-practice: financial assistance to encourage non-practising nurses to resume their nursing careers (policy level, nurses)	Professional and personal support and financial incentives: Back-to-practice: financial assistance to encourage non-practising nurses to resume their nursing	Effectiveness of intervention was not mentioned.

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			careers and scholarships that cover transport, tuition and childcare costs to help with additional training once they are back in nursing	
Campos, Machado & Girardi (2009)	Brazil	Scholarships, reimbursement of training debts, creation of a career path for rural practitioners (health professionals).	not mentioned	Effectiveness of intervention was not mentioned.
3- Professional and Personal Support				
Buykx et al. (2010)	Australia	Six essential components of any comprehensive retention strategy (policy level, Nurses, Physicians, Health Professionals)	Based on this review of the effectiveness of retention incentives, we have formulated a framework identifying six essential components that should be included in any comprehensive retention strategy. The core components of a comprehensive retention strategy comprise: (i) maintaining an adequate and stable staffing; (ii) providing appropriate and adequate infrastructure; (iii) maintaining realistic and competitive remuneration; (iv) fostering an effective and sustainable workplace organisation; (v) shaping the professional environment that recognises and rewards individuals making a significant contribution to patient care; and (vi) ensuring social, family and community support.	Effectiveness of intervention was not mentioned.
Thomson et al. (2011)	Australia	General practice vocational training supervision (policy level, physicians-GPs)	This training includes: access to higher education qualifications; Peer-based professional development; Feedback to GP supervisors; Competence-based learning; E-learning; Vertical integration; Teams of GP teachers; The senior GP clinical supervisor; Remote supervision; Time-efficient models; Infrastructure; Remuneration; Streamlining administrative requirements.	We need further research into and evaluation of the effectiveness of some of these solutions, including vertical integration models, GP teacher role development, and financial arrangements.

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Dwyer et al. (2007)	Australia	Shift scheduling strategy - increasing working conditions (organizational level, nurses)	NM	Effectiveness of intervention was not mentioned.
Dieleman & Harnmeijer (2006)	Australia	A bottom-up and team-based approach (organizational level, nurses)	<p>A bottom-up and team-based approach was deployed to address retention of nurses and midwives. A team of 14 nurses was established by the hospital management, consisting of nurses from across the various hospital departments. They were first trained in team development and teamwork. They also developed a shared vision on the retention plan and clear expectations of the outcomes. The team was guided and supported by a sponsor.</p> <p>Subsequently this team designed various retention strategies by reviewing information on best practices for retention and by consulting other staff. They then developed a project plan. Components of this plan included:</p> <ul style="list-style-type: none"> • ensuring rewards and recognition by allocating resources to nurse managers according to the number of staff employed, in order to allow correct staff rewards. Meals were also provided for the night staff. • addressing staff bullying and setting up mechanisms to support staff welfare by advocating appropriate staff behaviour towards each other, and informing nurses about this via a printed brochure. It helped staff to know how to act when they had problems or concerns. 	Positive effect - After implementation of the project, a survey in 2002 showed that, as a result of this approach, the percentage of nurses intending to leave the organization had fallen to 28%, and that the percentage of nurses intending to leave the profession entirely had also dropped to 28%. Results also showed an improved corporate culture within the organization. The team members responsible for developing and implementing these retention strategies felt empowered and had developed feelings of ownership towards the programme.

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			<ul style="list-style-type: none"> • improving working practices by developing innovative roster guidelines to encompass individual needs and by introducing a framework to adapt working practices and reduce high workloads. Although these guidelines and the framework were developed, they have not (yet) been put into practice. • providing staff with better information on certain arrangements to create understanding, such as car parking fees. This helped staff to understand the reasons behind certain decisions and helped them to accept these arrangements. • setting up a social club to organize activities to which staff are invited. 	
4- Regulation				
Buchan & Calman (2005)	Australia	Extension of the use of / advanced roles for nurse (policy level, nurses)	Allow for the prescription of medicines by nurses. advanced nurses/nurse practitioners have some restricted responsibility for direct referral of patients (limitations or constraints on the level of responsibility and autonomy in relation to referral - this authority is determined at the state / province level). Developments in new and advanced roles were linked to developing workforce flexibility, individual competence and multidisciplinary teams rather than to the actual substitution of one type of worker by another. Referral can take place within a legal / regulatory framework.	Mix results mentioned: Very few evaluations have been conducted thus far on advanced roles of nursing in Australia. Smith et al. (2001) have evaluated home care services provided by advanced nurses for chronic obstructive pulmonary disease (COPD). Their main finding was that patient outcomes were dependent on the seriousness of cases: outcomes were rather positive with nurse led management of COPD when the disease was moderate but not when it was severe. General: Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction (Similar findings were reported in a Finnish based systematic review- Vallimies-Patomäki et al, 2003). Not all data from the studies reported could be reported as meta-

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				<p>analysis, but meta-analysis data did confirm that patients were more satisfied with consultations with nurses than with doctors. Of interest is that nurses ordered significantly more investigations than doctors and had longer consultations with patients. However, the authors report that the studies reviewed did not have robust enough economic analysis to draw any firm conclusions about cost-effectiveness, and quality of life and health status and quality outcomes could not be analysed because of the heterogeneity of measures utilised in different studies. A meta-analysis of nurse practitioners and nurse midwives in primary care in the US was reported by Brown and Grimes (1995). The value of this analysis is limited as only one third of the studies included involved research designs that were randomised and cost-effectiveness was not addressed (Brown and Grimes 1995). The analysis revealed that, in randomised studies, greater patient compliance (e.g. compliance in taking medications, keeping appointments, and following recommended behavioural changes) was apparent with nurse practitioners in comparison to doctors. In other, non-randomized, studies which were included, satisfaction and resolution of illness was higher for patients of nurse practitioners. The outcomes of other variables, quality of care, prescription of drugs, functional status, number of visits per patient and use of the emergency room, were comparable between nurses and doctors. Nurse midwives also achieved outcomes that were comparable to doctors and used less technology and analgesia in interpartum care. Dealy (2001) reports a systematic review, of nine papers that met inclusion criteria, examining the effectiveness of emergency nurse practitioners. The conclusion of this review</p>
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				<p>is that emergency nurse practitioners are no better or worse than House Officers³ in seeing treating and discharging patients from minor injuries units in accident and emergency departments. One study in the review reported that the cost of treatment and investigations were similar in both groups but did not compare cost of employing a nurse practitioner and a junior doctor. Dealy (2001) recommends that in light of reduced access to junior doctors and long waiting time in accident and emergency it would be worth exploring the use of emergency nurse practitioners (In: Buchan and Calman, 2005). Richardson et al. (1998) report a review of skill-mix changes, but the current value of this review may be limited as many of the reported studies were conducted in the 1970s and 1980s. The authors report that although individual studies may identify positive outcomes of the substitution of nurses for doctors, many of these studies are methodologically weak such as small sample size and inadequate measures of outcome or cost, and generalisability of findings were deemed near negligible. However, they do highlight some pertinent findings about cost-effectiveness from individual studies in their review indicating that substitution can be cost effective as long as the salaries of the substitute clinicians remain below half of the physician salary (Schneider and Foley 1977 in Buchan and Calman, 2005). Centre de Recherche d'étude et de Documentation en Economie de la Sante (CREDES) in France report a literature review of the efficacy and efficiency of the sharing of competencies in the primary care sector 1970 –2002 (Midy 2003). The review is almost exclusively based on texts in English language from the UK and North America and therefore reflects</p>
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				the development of primary care services in these countries (the fact that the review could not identify French language publications itself is interesting). The CREDES review indicates that the method of financing primary care was seen to play a specific role in the acceptability of transfer of competencies for one profession to another, specifically whether health-care staff are reimbursed for a contract or per head or for a particular intervention. The willingness of professions to either accept or delegate some of its activities was also an important factor. It was reported that some nurses did not feel equipped to take on diagnosing patients and associated prescribing competencies. The review concludes that current literature, although offering an opportunity to reflect on issues of skill-mix, currently does not present any solutions to the current shortages of health-care personnel. (Buchan and Calman 2005)
OECD (2008)	Australia	Delegation of clinical activities to other cadres: introduction of physician assistants (policy level, physicians)	NM	General comment related to this type of interventions: Studies revealed that physician assistants' skills largely overlap with those of primary care physicians, and that they are capable of taking on a high degree of responsibility in other areas of medicine (Hooker, 2006). Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction.
Dussault et al. (2009) Forum booklet: First Global Forum on Human Resources	Brazil	Upgrade qualifications of nurses (policy level, nurses)	Upgrade qualifications of nurses: nursing attendants with no formal technical qualifications; auxiliary nurses to nursing technicians; nurses to nursing teachers.	Positive effects reported: A total of 218,244 students enrolled in the auxiliary nursing course; of these, 207,844 graduated as auxiliary nurses. Of 82,029 individuals

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<p>for Health 2-7 March 2008, Kampala (2008). Global Health Workforce Alliance, 262. Retrieved from http://www.nmcth.edu/images/gallery/Report</p>				<p>enrolled in the nursing technician course, 80,124 graduated as nursing technicians. Meanwhile, 13,161 university nursing teachers were trained. Increased self-confidence of auxiliary nurses. The words of one worker sum it up: "We were nothing, we followed orders, now we can talk and discuss with other professionals." // The results: 207 844 graduated nursing aides, 80 124 graduated technical nurses, 13 611 skilled academicians (professional education specialists) and 482 graduated tutors. Results concerning the technical schools: 37 modernized SUS technical schools, 11 newly established SUS technical schools (ETSUS), 9 financed architectural projects, 5 restored schools, creation of the SUS Technical School Network (RET-SUS), Publication and monthly circulation of the RET-SUS journal and 30 research projects were presented.</p>
<p>Yumkella (2005) Dieleman & Harnmeijer (2006) Dieleman et al. (2011)</p>	<p>South Africa</p>	<p>Community Service and/or Bonding Schemes (policy level, physicians and dentists-students)</p>	<p>In order to improve access to health care in underserved areas, the Ministry of Health formulated a national policy to oblige young health professionals to work in rural areas. This was introduced in 1998 as one of the strategies: compulsory service for health professionals. The strategy also aimed to increase knowledge and skills of young health professionals to work in underserved areas without support and thus aimed to raise the number of professionals willing to work in these areas. The first batch of young health professionals who had to undertake community service were doctors. One year of compulsory community service for doctors and dentists on completion of training (Reid, 2003).</p>	<p>Mix results reported: In South Africa, the authors wrote that the initiative positively contributed to the number of doctors required in rural areas and to an increase in service utilization. However, data on retention, the reduction in the gap between the number of doctors needed and the number of doctors present and the proportion of students completing their compulsory service were not provided (26). Although the three outlined interventions do not allow for generalization, and data are lacking, a pattern emerges: the studies show that compulsory service in rural areas without preparation to provide health services in resource constrained settings (and without training in rural health) is not likely to be successful in terms of improving service quality and health worker motivation. It may be that because of the relatively short duration of compulsory service in both Ecuador and South Africa, drop-out was not mentioned as a major</p>

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<p>George et al. (2009) South Africa, Ministry of Health (2011)</p>	<p>South Africa</p>	<p>A set of measures: to increase the production and retention of health workers, to improve work conditions and remuneration packages of all categories of health professionals (policy level, health professionals)</p>	<p>To alleviate the HRH crisis in South Africa the South African Government has developed several policy initiatives ranging from a new Nursing Act, which introduced community service for professional nurses, to the introduction of a clinical associates programme. Further strategies have also been discussed within a government document outlining the strategic framework for the modernisation of tertiary hospital services and within the National HRH Plan released in 2006.</p>	<p>problem. Effectiveness of intervention was not mentioned.</p>
<p>Cailhol et al. (2013)</p>	<p>South Africa</p>	<p>informal task-shifting takes place at facility-level (organizational level, nurses)</p>	<p>Nurse-initiated antiretroviral therapy, after the STRETCH (Streamlining Tasks and Roles to Expand Treatment and Care for HIV) trial demonstrated the safety of such a policy has been authorized. The same authors report "anti-poaching agreements" adopted by a number of NGOs to stop the poaching of HRH from the public sector in one province only. In this case, NGOs signed an agreement with provincial authorities to not recruit public sector HRH from the same province.</p>	<p>Effectiveness of intervention was not mentioned.</p>

NA – Not Available / NM – Not Mentioned