A REVIEW OF EXISTING REGULATORY MECHANISMS TO ADDRESS THE SHORTAGE OF DOCTORS IN RURAL, REMOTE AND UNDERSERVED AREAS:

A STUDY ACROSS FIVE STATES IN INDIA

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List of abbreviations

BEC	Bond Enforcement Cell
CRMC	Chhattisgarh Rural Medical Corp
DHS	Directorate of Health Services
DME	Directorate of Medical Education
DMER	Directorate of Medical Education and Research
HRH	Human Resources for Health
MBBS	Bachelor of Medicine and Bachelor of Surgery
NHSRC	National Health Systems Resource Centre
NRHM	National Rural Health Mission
PG	Post-Graduation
PRC	Population Research Council
SHRC	State Health Resource Centre
SHSRC	State Health Systems Resource Centre
UG	Under-graduation
WHO	World Health Organization

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Executive Summary

Background

India has a shortage of qualified health workers, especially doctors and this workforce is concentrated in urban areas. Bringing skilled health professionals to remote, rural and underserved areas remains a challenge.

States across India have adopted various evidence based strategies to address this crisis. Introducing regulatory measures is one such intervention. This usually involves the compulsory placement of health workers in remote, rural or difficult settings for a specific tenure against a bond. Non-compliance incurs a financial penalty.

Purpose of this study

This study aims to review existing regulatory mechanisms and their implementation in the recruitment and retention of doctors in rural, remote and underserved areas across five purposively selected states across India - Assam, Chhattisgarh, Madhya Pradesh, Maharashtra and Karnataka.

Objectives of the study

This study reviews the salient features of regulatory measures in these states and the extent of their implementation. It explores the perspectives of doctors in - or eligible for - compulsory rural service and also the views of key informants and stakeholders. Based on the emerging themes from the study, this report provides recommendations for improving the effectiveness of current regulatory measures.

Study design

The study adopted a mixed method approach using both quantitative and qualitative data elements to review the effectiveness of regulatory measures. Quantitative information mainly included secondary data provided by state officials while the qualitative element primarily comprised of semi-structured interviews with health professionals affected by compulsory rural service and key informants within the state health department. 564 health professionals and 62 key informants were interviewed.

Summary of findings

These are presented in the context of the six objectives of this study:

1. Key features of regulatory measures in the selected states

Regulatory measures in the form of compulsory service programmes have been in place in states across India. This generally involves a bond making it mandatory for under- and post-graduates from state government medical colleges to complete a pre-agreed tenure in government service, usually in a rural, remote or underserved area. This period usually varies from 1-2 years for under-graduates, but could be longer for post-graduate candidates. Non-compliance with the requirements of the bond incurs a financial penalty - this amount varies between states and is generally higher for post-graduate doctors.

The conditions for compulsory rural service - including the service tenure and bond penalty fee - is periodically revised and updated. Very few states have a separate Bond Enforcement Cell (BEC) to monitor compliance with the requirements of the regulatory bond.

In addition, states provide various financial and non-financial incentives to improve the recruitment and retention of doctors in remote areas.

Financial incentives mainly involve an incremental emolument for serving in difficult areas. This hardship allowance varies across states and is often commensurate with the degree of difficulty in the posting - states use different nomenclatures to define these 'difficult', 'very difficult' and 'inaccessible' areas.

A popular educational incentive is to provide extra grace marks in post-graduate entrance examinations for under-graduate doctors undertaking compulsory rural service. These are often proportional to the numbers of years in rural service, though an upper limit is usually set by the state.

2. Degree of implementation of regulatory measures

The information gathered from states suggests weak implementation and inadequate monitoring of compulsory rural service for under- and post-graduate doctors.

While most states have well developed policies on paper, the practical implementation of compulsory service bonds is far from adequate. There appears to be no systematic mechanism to track and monitor doctors under the bond, including those who have defaulted.

Interviews with doctors and key informants has shown that poor implementation and monitoring has resulted in doctors not taking the bond seriously. The majority choose to forego compulsory service. While a small proportion pay the penalty fee, the majority do not. States find it difficult to track, monitor and issue notices to defaulters as many of them have moved from their original address provided at the time of admission. In any case, follow-up is inadequate and any action against defaulters unlikely.

3. Perspectives of doctors eligible for compulsory service

A range of issues were raised - both about (a) conditions of the bond and also the (b) constraints of rural service.

(a) Issues about conditions of the bond

Interestingly across all states, while most undergraduates felt that any bond, if compulsory, was best implemented after post-graduation - as it interfered with preparation for post-graduate entrance exams and higher study, the majority of post-graduates felt compulsory service should only be mandatory for under-graduates as specialist skills could not be effectively used in the generalist setting of rural areas. This was made worse by irrational deployment of specialists in low-resource settings with poor infrastructure.

The majority of graduate doctors chose to opt out of compulsory service. While some of them paid the penalty fee for exemption, most did not. The lack of effective mechanisms for pro-active tracking and monitoring encouraged this trend.

Doctors raised concerns about various aspects of the bond. They had issues with its compulsory nature and felt the duration of rural service was too long. While some felt one year was adequate, others preferred a shorter duration of six months or less. Respondents from all states felt the bond needed to be binding on graduates from the All India central quota and private medical colleges too. There were also concerns about deploying non-clinical post-graduates in primary and secondary care as they did not possess the necessary clinical skills.

(b) Issues with regard to rural postings

This included both professional and personal factors and affected under-graduates and post-graduates alike:

(i) Professional factors

- Inadequate infra-structure and logistics such as lack of drugs, equipment and operating facilities
- Lack of appropriate support staff, both in terms of capacity and quality
- Irrational deployment, e.g. specialists posted in settings where there was little scope to use their specialist skills and knowledge
- Job insecurity - Doctors felt that staff completing compulsory rural service should be inducted in to the regular state cadre to make this regulatory measure more attractive
- Professional isolation-with inadequate support mechanisms
- Potential for external pressures and influence during postings, management, finance and high profile medico-legal cases and post-mortems
- Inadequate remuneration, both in comparison with the private sector and also with other public service doctors.

(ii) Personal/socio-cultural factors

- Lack of proper accommodation and basic facilities like electricity, water and proper sanitation
- Lack of adequate social and recreational opportunities in rural settings
- Absence of high quality educational opportunities for staff children
- Inadequate security measures, especially for female members of staff

4. Perspectives from key informants and stakeholders

A broad range of stakeholders and key informants were interviewed. These included state health directorate officials, Deans of medical colleges, state and district programme managers and Bond Enforcement Cell (BEC) officials in states where these exist.

The majority of stakeholders confirmed that compulsory rural service was being poorly implemented across states. A primary reason was the lack of a robust mechanism to monitor the roll out of compulsory service. Mechanisms to monitor, track and follow-up defaulters is universally weak across all states. Therefore the compliance with compulsory service is low; drop out rates are higher where the bond penalty fees are low. The long delay between completion of graduation and the issue of posting orders contributes to the high attrition from compulsory service.

Absenteeism is a significant concern among the minority of doctors who do enroll for compulsory service.

Stakeholders mentioned that Bond Enforcement Cells with appropriate authority, guidelines and capacity to monitor compulsory service were needed in states to improve adherence with compulsory rural service.

5. Emerging themes

A review of the information collected from these states shows only a limited impact of this regulatory measure. At most, it has made a modest contribution towards improving the shortage of skilled health workers in rural and underserved areas. The number of doctors enrolling for compulsory service is small; among the minority of doctors enrolling there are significant drop-outs and high levels of absenteeism.

Both doctors and key informants have provided various reasons for the limited success of compulsory service:

(a) Poor implementation of compulsory service bonds

While states have well documented processes for compulsory rural service, the implementation of this regulatory measure is inadequate. States lack a robust mechanism, infra-structure and human resource capacity to monitor the enforcement of compulsory service. Consequently, the majority of doctors opt out and many of them do not pay the penalty fee either as there is no effective mechanism to track and follow-up defaulters. The follow-up of absenteeism requires effective coordination between the district administration and the Directorate of Health Services – this is lacking in many areas.

(b) Professional factors

The single most important disincentive for under-graduates is the adverse effect on admission to post graduate education. There is a strong inclination to use the post MBBS period to prepare for post graduate exams; time devoted to compulsory service is viewed as a distraction from this goal.

Many under-graduates stated that they would be happy to do rural service after post-graudation, while post-graduates were less enthusiastic about compulsory service as they felt they could only make limited use of their specialist skills in a rural setting.

The absence of job security post compulsory service limited the enthusiasm of some doctors who were prepared to work in rural areas.

There were also concerns about external pressures and influences around exemption from compulsory rural service and the performance of post-mortems and medico-legal implications of high profile local cases.

(C) Personal/social issues

The doctors interviewed cited various personal and social barriers that made compulsory service less attractive. Prominent among these were the lack of appropriate accommodation, limited opportunities for high quality education of their children and the feeling of insecurity in rural and remote settings, especially for women. The lack of efficient transport links and a sense of social isolation were also mentioned.

6. Limitations of the study

Despite repeated attempts, study partners in some states found it difficult to collect data on (a) the specific numbers – and proportion – of eligible doctors complying with compulsory rural service and (b) the number of vacancies filled by doctors

under regulatory bond. This has limited some of the quantitative analysis on the degree of implementation of this regulatory measure.

In addition, reliance had to be placed on informal, verbal discussions where key informants were unwilling to participate in written interviews.

Study partners in states generally found it difficult to track and interview bond defaulters, especially those who had not paid their penalty fee. This has resulted in an inadequate review of this important group of stakeholders.

7. Recommendations

All the states reviewed in this evaluation had well developed policies and procedures for compulsory service. Yet their common experience is that the uptake of compulsory service among graduates is poor due to the weak implementation of these well crafted policies. Unless these deficiencies in implementation are addressed, the uptake of compulsory service is unlikely to improve. A number of interventions to improve implementation are discussed below.

(1) Adequately resourced and effective Bond Enforcement Cells (BEC)

Stakeholders advocated the need for BECs with adequate human resource capacity and appropriate authority to monitor, track, follow-up and enforce compulsory service. The BEC will have well developed communication systems with medical colleges, DME, DHS and district authorities to monitor and police compliance of compulsory service.

(2) Terms and conditions of compulsory service

A common complaint among doctors was the lengthy duration of rural service in certain states - both for under- and post-graduates. Under-graduates felt that this diminished their opportunity and ability to pursue post-graduation whereas post-graduate doctors raised concerns about the erosion of recently acquired specialist skills. States that had reduced the period of compulsory service reported better compliance and uptake after the reduction in duration of the bond. In light of these observations the option of reducing the period of compulsory service (e.g. one to two years) should be seriously considered.

(3) Career progression incentives for under-graduates

Compulsory service can be made more attractive by the provision of generous grace marks for those undertaking compulsory service. Where the increase in grace marks is not significant, as is the case in some states, consideration should be given to increasing the weightage of these extra marks – this is likely to be successful as evidence has shown that extra grace marks for post-graduate education is more successful at improving compliance than the offer of financial incentives.

(4) Rational deployment of post-graduates

Irrational deployment constitutes a waste of scarce resources and any compulsory service measure should have a rational deployment policy. Some states have recently adopted a policy which mandates that post-graduates are only posted at the level of a CHC or above.

(5) Financial incentives

Compulsory rural service can be made more attractive by offering adequate financial incentives for working in remote, rural and underserved areas. Some states have developed criteria for this (e.g. 'difficult', 'most difficult' and 'inaccessible') and offer differentially weighted financial incentives for working in these areas. Evidence has shown that financial incentives only work when these are substantial rather than a token amount.[ii]

(6) Non-financial incentives

Financial incentives alone have a limited effect on improving compliance with compulsory service. These are more effective when combined with other non-financial incentives such as suitable accommodation, opportunities for education of children, social support and transport links. Evidence shows that strategies to ensure and secure health worker welfare and workplace entitlements can contribute to long term retention and higher levels of performance.[ii]

(7) Enhancing job security

It is recommended that there should be a systematic and transparent process to absorb doctors completing compulsory service in to the regular state health cadre. This would not only help mitigate the shortage of doctors in public health service, but the additional job security provided would enhance both attracting and retaining doctors in rural settings.

(8) Monitoring absenteeism

This can be mitigated by putting in stringent mechanisms and procedures to monitor absenteeism, e.g. the use of bio-metric attendance, effective monitoring of attendance and prominently displaying the timings of health care staff in the citizen's charter in a prominent place at the facility. Equally important is the need for effective and close communication between the district authorities (e.g. Block Medical Officer) and the DHS/DME to provide an effective platform to monitor absenteeism and enforce compulsory service.

(9) Transparent policies for compulsory service

There was resentment against external interference in the process of postings for rural service. A fair and transparent policy for compulsory postings is necessary to restore confidence in this regulatory measure. This could be based on the basis of merit and allocated against available vacancies – such a process would help build confidence in the integrity of compulsory service allocation by reducing political interference.

(10) Coordination between agencies implementing compulsory service

The long delays between completion of graduation and the issue of posting orders led to high attrition in compulsory service. Delays in communication between the office of the dean of medical colleges, the Directorate of Medical Education and the Directorate of Health Services contributed to this. Communication channels between these organizations will have to improve to reduce drop-outs from compulsory service - the use of technology enabled information exchange systems will be crucial here.

(11) Increasing awareness about incentives of compulsory service

Many of the graduates interviewed were not fully informed about the substantial benefits offered by states for compulsory service, especially the added incentive of extra grace marks for post graduate exams. Raising awareness among candidates at the time of admission when the bonds are signed is likely to improve compliance with compulsory service.

(12) Increasing the penalty fee

The penalty fee is insignificant in many states; many doctors therefore have a low threshold for paying the penalty and avoiding compulsory service. If properly enforced, higher penalty fees will encourage a better uptake of rural service.

(13) Legal considerations

Under-graduates raised concerns about performing post-mortems and under taking

medico-legal cases before they had obtained formal registration from a professional council. The legal implications of this needs to be considered and addressed.

(14) Increasing the capacity of specialists

The acute shortage of specialists in the public health delivery system calls for a substantial increase in the number of post graduate seats in selected specialisms, e.g. Obstetrics, Anaesthesia, Paediatrics.

(15) Eligibility criteria for compulsory service

Demands for the inclusion of graduates from the All-India quota and private medical colleges in compulsory service were made by both doctors and key informants. While the inclusion of doctors from private medical colleges may have legal implications, it could certainly be considered for doctors in government medical colleges under the All-India quota.

(16) Political, professional and administrative commitment

Above all, pro-active intervention by the political and administrative establishment is necessary to ensure the success of this regulatory measure. Professional councils like the Medical Council of India and state medical councils have a critical role in strengthening the policy and implementation framework for effective compliance with compulsory rural service. This will go a long way in reducing the shortage of skilled health professionals in remote, rural and underserved areas while providing graduates with a rich learning experience.

Conclusion

This study illustrates the limited impact of compulsory rural service as a regulatory measure to address the shortage of doctors in remote, rural and underserved areas in the states currently reviewed. Robust implementation of the well-developed compulsory service policies already in existence across states is an essential pre-requisite for improving compliance. But this alone is neither sufficient nor desirable - inferences drawn from the evidence base and past experiences of designing and implementing strategies to address the issue of human resource shortages have proved that no single strategy is sufficient to address this shortfall. It is important to design policies incorporating a mix of strategies – both financial and non- financial as mentioned in the recommendations above - to provide an enabling environment for health workers. This will go a long way in addressing the human resource crisis in rural, remote and underserved settings.

Background

India faces a severe shortage of human resources for health. In addition, this workforce is inequitably distributed – an estimated two-thirds of the health workforce serves 30% of urban India leaving only a third of the workforce for the rural 70%.

Attracting qualified health care providers to work in rural, remote and underserved areas is very challenging. As a consequence, many Indians, especially those living in rural areas, receive care from unqualified providers. In addition, the emigration of qualified allopathic doctors and nurses is substantial and further weakens the system.

The shortage of health workers in rural areas is because of both the disinclination of qualified private providers to work there and the inability of the public sector to attract and adequately staff rural health facilities. Many health workers prefer to work in urban rather than rural locations, because in the former they earn a better income, can work more effectively (because of better access to, for example, equipment and facilities), have better standards of living, have safe working and living environments and because their children can avail better educational opportunities. In addition, higher salaries in the private sector dissuade medical professionals from joining the public health system.

These human resource constraints have been critical in preventing the achievement of optimum health outcomes. A shortage of qualified health workers in remote, rural and under-served areas impedes access to healthcare for a significant proportion of the population, slows progress towards achieving health related targets (including the Millennium Development Goals (MDG) and challenges the aspiration of achieving health for all.

The Kampala Declaration called on governments to "assure adequate incentives and an enabling and safe working environment for effective retention and equitable distribution of the health workforce". The WHO Global Policy Recommendations focus on interventions to increase access to health workers in remote and rural areas through strategies that are within the remit of human resource planning and management.[iii]

Literature review

To address this issue of human resource for health (HRH) crisis in rural and remote areas across countries, various innovative human resource policies have been rolled out and many new initiatives are being designed. The WHO has documented such strategies for 19 countries through an extensive literature review. Six recently published literature reviews, of which two are systematic reviews and one is a Cochrane Systematic Review and Protocol, have attempted to provide a systematic analysis of the literature on the various strategies that have been used to increase access to health workers in remote and rural areas (Grobler et al., 2005; Chopra et al., 2008; Bourgueil et al., 2006; Lehmann et al., 2008; Sempowski et al., 2003, Wallis-Shattuck, 2008 – cited from WHO, 2009).[iv]

Based on the findings of these reviews across countries, the following categories of effective retention strategies have been developed:

(a) Educational interventions

Observational studies have shown that health professionals from rural backgrounds tend to serve their native remote areas in larger numbers and for longer in comparison with candidates from urban backgrounds. Therefore, the policy of preferential selection of candidates from rural or tribal backgrounds for educational courses is being explored across many countries.

(b) Regulatory interventions

This usually involves the compulsory placement in a rural or difficult area for a specific tenure against a bond. This is seen as an important learning experience for doctors trained in allopathic medicine as the tertiary hospital-based model of medical education in an urban setting provides limited exposure to the health needs and limited infrastructure of rural areas. The effectiveness of compulsory placement has been assessed by descriptive surveys with inconclusive results (WHO, 2009).

Professional opportunities linked to a health worker's career path such as better opportunities for doing a post graduate course or skill up-gradation opportunities when offered as an incentive for health professionals working in rural/remote areas without any mandate of a bond have generally shown better results.

Conditional licensing (license to practice in exchange of location in rural areas) is also being considered for the Indian rural medical degree programme.

(c) Monetary Compensation (direct and indirect financial incentives)

Direct financial incentives to practice in rural areas may encourage rural practice, in particular in developed countries, but reports from developing countries are not always positive - perhaps with the exceptions of a few countries such as Mali, Zambia and South Africa (WHO, 2009).

Providing higher salaries for working in rural areas helps build morale. However, to be effective in shifting more providers to these areas, these incentives need to be high enough to cover the opportunity costs – not just a token amount.

Performance based incentives given for delivering specified services and achieving agreed targets set for the health personnel is best used as an additional strategy.

(d) Management, environment and social support

Poorly designed workforce management policies and lack of community support have failed to develop an enabling work environment for the health workforce. These policies affect the motivation and retention rates to a larger extent than anticipated.

Professional and community support to rural workers encourage rural practice and can be achieved by supportive supervision, internet access and community involvement projects, as well as by professional networks. (Loevinsohn et al., 1995, Marquez and Keanne, 2002, Lehamnn et al., 2008) (cited from WHO, 2009)[iv]. Very few countries have implemented large scale interventions to improve the infrastructure and living conditions and evaluations of these interventions have been

published (Mali, Thailand and Zambia are such examples) (Noree et al., 2005; Wibulpolprasert et al., 2003; Coulibaly, 2008; Koot, 2005) (cited from WHO, 2009)[iv]. This is despite the fact that factors which rank highest in workers' preferences and choices of location are precisely those related to local infrastructure, isolation and working conditions (WHO, 2009).

Inferences drawn from the evidence base and past experiences of designing and implementing strategies to address the issue of human resource shortages have proved that no single strategy is sufficient to address this shortfall. Since the problem of human resource crisis is correlated to a wide range of factors even within one setting, it is important to design human resource policies incorporating a mix of strategies to provide an enabling environment for health workers in remote settings.

Systematic reviews and research provide the evidence base for recruitment and retention strategies, but these need to be tailored to suit local contextual needs to be successfully implemented.

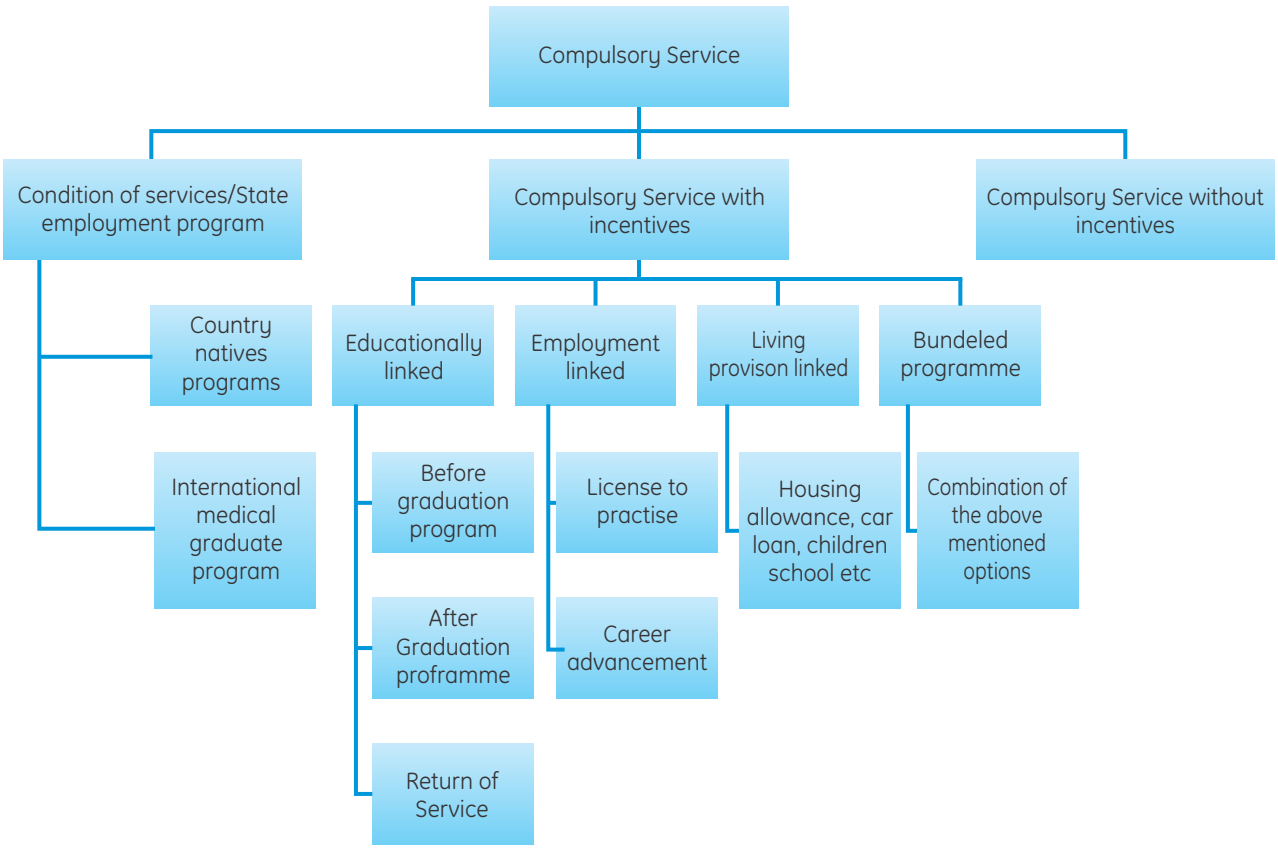
Compulsory Service Programmes

This study focuses on an evaluation of regulatory measures to address the shortage of doctors in remote and underserved areas. This usually involves the compulsory placement of doctors in rural or difficult areas for a specific tenure against a bond. Over the years, different countries have created and implemented compulsory service programmes to improve recruitment shortages. These have existed since the early 20th century as documented in the Soviet Union in 1920, in Mexico in 1936 and in Norway in 1954. The last decade has witnessed an overall increase in attention paid to inequities in health provision.

Classification of Compulsory Rural Service:

Based on evidence from many countries, a tripartite classification of compulsory service programmes has been developed (Fig. 1). These are: (a) condition of service/state employment programme (b) compulsory service with incentives and (c) compulsory service without incentives.

Figure 1: Classification of compulsory service programmes[iv]



Condition of service:

Here health professionals are required to work for the government with little or no opportunity for private or non-governmental practice. The employment contracts framed by the Federal and State Ministries of Health provide the employer with the authority to assign health employees in any part of the country, based on need for a specified number of years.

Compulsory service with Incentives:

Incentives are offered to serve in designated areas for specified periods of time. There are four categories of compulsory service with incentives (a) Educational measures with three types of education-incentive-linked compulsory service. In the first type, candidates are required to complete a rural placement during their training course to complete their education. In the second type, the graduate is required to serve in an underserved region as a prerequisite for entering a postgraduate/ specialization programme as in Mongolia, Viet Nam and parts of India. In the third type, there is a return of service programme where rural placement is required after graduation, often for one year for each year that educational financial support was provided. (b) Employment measures: Two employment-linked strategies exist; the first, as a requirement for attaining a license to practice (publicly or privately) and the second - as a prerequisite for career advancement (c) Living provisions-linked-family and resource linked incentives as in Kenya and Mozambique (d) Bundled as in Ecuador and Thailand which have programmes that combine incentives for education, employment and living provisions.

Compulsory service without incentives:

Graduates are required to work in an underserved setting with no attached incentive, usually for a year as practiced in Kerala and Assam.

Evaluation of compulsory programmes

There is a paucity of information regarding the outcome of such programmes, though the emerging evidence on compulsory rural service strategies has not been very favorable – and is generally not well received by the medical profession. At best, it is seen to address health worker mal-distribution in the short term, but tends to alienate people from the medical profession. A recent review of compulsory education schemes discovered that such schemes rarely got support from health professionals who frequently left after the compulsory posting was over affecting continuity of care[vi].

There have, however, been some successes with this intervention. Administrators in Norway measured a variety of factors such as rural/urban upbringing, age, family composition and gender to identify a co-relation with the types of individuals who stayed on in rural areas after their period of compulsory placement was over. This revealed an estimated 20% of health professionals stayed on in rural areas even after completion of compulsory rural service contracts. In Puerto Rico, 16 out of 78 municipalities had no physician before the introduction of a compulsory service programme. After implementing the programme, all 78 had at least one doctor[vii]. The incentive-linked compulsory service in Indonesia increased doctors' willingness to work in remote areas. In South Africa, better staffing levels in rural hospitals, shorter waiting times for patients and more frequent visits to outlying clinics by health workers was reported.[viii] In Thailand, it helped narrow the disparity between urban/rural health worker density.

Challenges from professional groups:

Many health professionals have objected to compulsory service programmes for various reasons such as cost, utility and sustainability of these programmes, poor rural facilities, lack of transportation and inadequate clean water, electricity, equipment and medication. In Kerala, there was a strike and protests against a three-year compulsory service requirement which resulted in the government reducing the service period to one year.[ix] This opposition from professionals can be reduced if programmes are planned in consultation with them.[x]Several authors advise that compulsory service programmes should be supplemented by a support system and incentives.[xi] Programmes that provide reasonable benefits and support may be more expensive than compulsory service without incentives, but this is likely to lead to better retention.

Turnover of health workers:

The reluctance of doctors to continue in their assigned posts has an adverse impact on continuity of care and results in a high turnover of inexperienced health professionals in underserved areas. Managers in South Africa believe the

inexperience of doctors posted in rural areas results in slower, poorer care for some patients. 30% of compulsory service doctors intended to leave South Africa after completing their obligation - and an additional 13% planned to go into private practice[xii].

Health professional opposition to compulsory rural service suggests that implementation is likely to be a significant challenge especially with weak governance structures. Further, there exists little evidence of the effectiveness of this strategy within the Indian context. This study aims to contribute to the evidence base in this area.

Indian strategies to recruit and retain professional health workers in remote, rural and under-served areas

From 2007 onwards, under the National Rural Health Mission (NRHM) a variety of measures were introduced to address the shortage of skilled health workers in rural areas. These strategies can, in line with international practice, be grouped in to the following five categories:

a. Regulatory: the practice of compulsory rural service as a pre-qualification to be considered for admission to post-graduation courses or bonds which insist on service in rural areas after graduation or post-graduation.

b. Workforce management: These include transfer policies that provide for rotational postings to difficult areas.

c. Incentives: Financial and non-financial.

d. Educational Strategies: Measures to preferentially admit students who are more likely to serve in under-serviced areas on to selected courses.

e. Multi-skilling/task shifting: This includes measures such as the introduction of a three-year course to train mid level health care providers; addressing specialist shortages by providing non-specialists with short term training courses in emergency obstetric care and life saving anaesthesia.

Regulatory measures used in India

Under this measure, there are two common strategies in use (a) mandatory rural service after completion of under-graduation/MBBS and (b) mandatory rural service after completion of post-graduation.

Under these strategies the candidate signs a bond providing assurance that upon completion of their under- or post-graduation course they would be prepared to serve the state for a pre-determined specified period of time, usually in a remote, rural or underserved area. Breach of this agreement incurs a stiff financial penalty. Not all states have employed this strategy as it has proved difficult to implement - either due to lack of mechanisms to enforce it or due to legal issues. However this has been employed in some states to address the shortage of health workers in remote and rural areas – as seen in the table below:

Table 1: Regulatory approaches and linkage between post graduate admission and rural service

States	Years of compulsory rural service		Penalty fees for non-compliance		Marks as incentive	Any other incentives	
	For UG	For PG	For UG	For PG	For PG admissions	For UG	For PG
Arunachal Pradesh	Nil	5 years continuous service with minimum of 3 years rural service	Nil	No penalty fees imposed	Nil	Nil	Mos with PG degrees get an additional Rs 300 every month
Assam	1 year	10 years	Rs 7 lakh	Rs 20 Lakh	Minimum 1 Year service in rural areas is required for eligibility for post-graduation. 3% additional weightage in PG exams for doctors serving in rural areas	Nil	Nil
Chhattisgarh	2 years	2 years	Rs 25 lakh	Rs 50 lakh	5 marks/year with maximum of 10 marks for working in tribal and notified areas	50% reservation (This is currently under revision)	Nil
Gujarat	3 years	3 years	Rs 1.5 lakh fee waiver	Rs 3 lakh fee waiver	Preference given (based on merit) for those who have completed rural posting	Nil	Nil
Haryana	Nil	Nil	Nil	Nil	Candidates accrue additional credits in PG exams for every year of rural service	Nil	Nil
Himachal Pradesh	Nil	Nil	Nil	Nil	Additional points in PG marks for every year based on difficulty of rural posting	Nil	Nil
Jammu & Kashmir	2 years	Nil	Nil	Nil	Nil	Nil	Nil
Jharkhand	1 year	Nil	Nil	Nil	1 point/year with maximum 5 points for PG exams is under consideration	Nil	Nil
Kerala	1 year	Nil	Nil	Nil	Nil	Nil	Nil
Madhya Pradesh	2 years	Nil	Nil	Nil	Nil	Reservation available for In service Medical Officers (regular & contractual) for PG Degree and Diploma Courses. Number of seats is decided at the time of counseling.	Nil

Maharashtra	Nil	1 year	Nil	Rs 25 lakhs and Rs 50 lakhs for PG diploma & degree holders respectively.	25% quota assigned for in-service MOs in Maharashtra PG entrance exam	Nil	Nil
Meghalaya	5 year	5 years	Rs 25 lakh	Rs 10 lakh (Rs 40 lakh for in service candidates)	Nil	Nil	Nil
Nagaland	3 years	Nil	Nil	Proposal for 10 years rural service for post graduates with a penalty fee of Rs 20 lakh under consideration	Nil	Nil	Nil
Punjab	Nil	Rs 10 lakh for Post graduates from in-service quota not serving for 10 years	Nil	Nil	NIL	Nil	Nil
Rajasthan	Nil	Nil	Nil	Nil	Not yet, in process of finalization	In-service candidates are eligible for PG after 3 years of rural service	Nil
Seemandhra & Telangana	Nil	Nil	Nil	Nil	Nil	Additional weightage is given for PG Examinations	Nil
Sikkim	Nil	3 years	Nil	Pay double the expenditure incurred during PG course	Nil	Nil	Nil
Tamil Nadu	Nil	Nil	Nil	Nil	For each year of service in rural areas, MOs get an additional credit mark upto the maximum of 10 marks in their PG exams	Nil	Nil
Tripura	3 year	Nil	Rs 25 lakh	Nil	3 years of rural service required for post-graduation in the State	Nil	Nil
Uttarakhand	3 years	Nil	Nil	Nil	Nil	Nil	Nil

Source: Ministry of Health and Family Welfare and State Health Societies(2014-15).

Aims & objectives of this study

Aim

To review existing regulatory mechanisms and their implementation in the recruitment and retention of skilled health professionals in remote, rural and underserved areas across five purposively selected states across India-Assam, Chhattisgarh, Madhya Pradesh, Maharashtra and Karnataka.

Objectives

1. To review the salient features of regulatory measures for compulsory service programmes across the selected states.

2. To evaluate the degree of implementation of these strategies

3. To explore the views and perspectives of doctors in-and eligible for-compulsory rural service

4. To explore the views and perspectives of key informants and stakeholders e.g. policy makers and administrators/programme managers

5. To capture emerging themes following a review of the information collected

6. To provide recommendations for improving the effectiveness of current regulatory measures

Methodology/Study design

Purposive sampling was used to select states with compulsory service programmes for this study. This was based on the availability of secondary data and the identification of partners to carry out the study in each State.

The review was conducted across two districts in five states: Assam, Chhattisgarh, Madhya Pradesh, Maharashtra and Karnataka. Districts were selected following a review of the availability of human resource secondary data and the geographical and socio-demographic characteristics of districts.

A mixed method approach was adopted using both quantitative and qualitative data elements to review the effectiveness of regulatory measures.

Quantitative information mainly included secondary data provided by the state while the qualitative element primarily consisted of semi-structured interviews with health professionals and key informants within the state health department.

Secondary data

This involved gathering information on policies, guidelines and documents for the implementation of regulatory measures across the states selected for this review. It also included data on the numbers of doctors opting in or out of the compulsory service bond – and its consequent effect on the vacancy of skilled health professionals in remote and underserved areas.

This data was available for all the five states participating in the study, though this was not always complete - especially with regard to information on the number of doctors serving – or not serving - the compulsory bond and its effect on vacancies.

Primary data

This included the use of semi-structured questionnaires to gather quantitative information through in-depth interviews of both doctors affected by compulsory rural service bonds and also key informants and stakeholders in the health system.

Eligibility criteria for primary data collection

Doctors from the following six groups were selected for in-depth interviews:

(a) Under-graduate doctors currently serving the compulsory service bond

(b) Post-graduate doctors currently serving the compulsory service bond

(c) Under- and post-graduate doctors opting out of the bond after paying the penalty fee

(d) Under- and post-graduate doctors opting out of the bond without paying the penalty fee

(e) Doctors who chose to continue working in rural/remote settings despite the expiry of their bond tenure

(f) Doctors currently in training but expected to participate in compulsory service in future

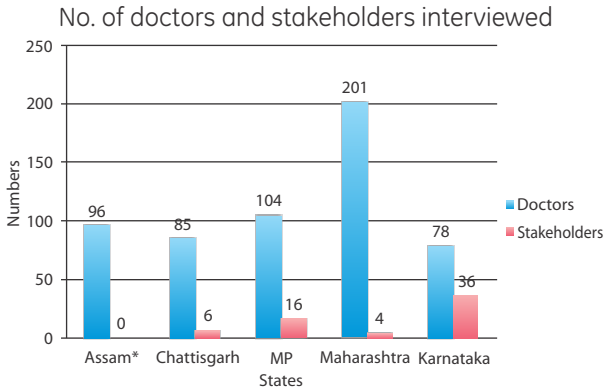
Key informants/stakeholders interviewed for primary data collection included state government officials and programme managers from the State Directorate of Health Services (DHS) and Directorate of Medical Education (DME) and Deans of medical colleges. Their views were captured using convenience sampling supplemented by snowballing.

Sample Size

Depending on feasibility and practical considerations, states were asked to conduct about 200 interviews. They were instructed to include a representative sample of both doctors from the six different categories and a range of key informants/stakeholders.

The investigating teams found it particularly difficult to interview doctors who had defaulted on the conditions of the bond - due to lack of up-to-date contact details and weak governance arrangements to track them down.

In all, 564 eligible doctors and 62 stakeholders/key informants were interviewed by the investigating teams in the five states as follows (Chart 1):



* Only informal discussions were held with stakeholders in Assam

The break-down for individual states is as follows:

Assam

96 doctors were interviewed to gather their perspectives on regulatory measures. This included 57 MBBS doctors, 15 post-graduate doctors, 12 doctors who had served their compulsory service bond but had chosen to continue government service and 12 doctors who were currently in a post-graduate course. Doctors who had defaulted on their bond could not be interviewed due to lack of accurate contact details. In addition, it was not possible to gather written information from key informants through structured questionnaires, though they did provide some useful information through verbal discussions.

Chhattisgarh

85 doctors and 5 key informants were interviewed using convenience sampling and snowballing though semi-structured interviews. This included 26 MBBS doctors, 40 post-graduate doctors, 3 doctors who were still in service even though their bond period had lapsed, 16 defaulters (only one of them had paid the penalty fee) and 5 stakeholders.

Karnataka

78 doctors and 36 stakeholders were interviewed using purposive and convenient sampling. Among doctors, 22 were MBBS (of these, two were serving the bond while the others had either paid the penalty fee or were awaiting posting following internship) and 46 were post-graduates (15 serving bond, 28 studying and 3 defaulters). 10 doctors continuing service after the bond tenure were also interviewed. Apart from this, a broad range of key informants were interviewed - this included stakeholders at the State Directorate level (12), district level (6), Taluka and Zilla Parishad officials (6), programme management officers (11) and an official from the State Bond Enforcement Cell (BEC).

Madhya Pradesh

104 doctors and 16 key informants were interviewed. Doctors included those having completed MBBS and either awaiting their compulsory service posting or those already serving the bond (35), post-graduates either studying or doing compulsory service under the bond (45), those who had completed their bond but continued in service (21) and 3 defaulters who had paid the required penalty fee. None of the doctors who had defaulted their bond and had not paid the penalty could be contacted for interview. The 16 key informants included 5 state officials, 4 Deans of medical colleges and 7 district programme managers.

Maharashtra

201 doctors were interviewed by the investigating team. This included 75 doctors currently serving the bond (32 after completion of MBBS and 43 post-graduates), 21 interns awaiting their posting, 39 post-graduate students and 37 doctors who had continued in service even after completing their bond tenure. In addition, the team interviewed 19 defaulters who had paid the penalty and 10 who had defaulted, but had not paid the penalty fee. Four key informants were also interviewed to gather stakeholder perspectives – this included representatives from the Directorates of Medical Education, Health Services and Deans of state medical colleges.

Study partners

This study was coordinated by the National Health Service Resource Centre (NHSRC) in collaboration with either the State Population Research Council (PRC) or the State Health Systems Resource Centre (SHSRC) in the states selected for this study. The State PRC or SHSRC were responsible for primary and secondary data collection, data analysis and report writing for their individual State.

NHSRC conceptualized and coordinated the study, provided technical assistance and collated the final report on behalf of states.

Key findings

The findings of this review are summarized under six sections – one for each of the six main objectives of this study. Each begins with a summary of the key observations across the five states selected in this review – followed by a brief narrative on the key features for each state:

1. Key features of regulatory measures in the selected states

Summary

Regulatory measures in the form of compulsory service programmes have been introduced in some states across India. This generally involves a bond making it mandatory for under- and post-graduate doctors from state government medical colleges to complete a pre-agreed tenure in government service, usually in a remote, rural or underserved area. This period usually varies from 1-2 years for under-graduates, but could be longer for post-graduate candidates. Non-compliance with the requirements of the bond incurs a financial penalty – this amount varies between states and is generally higher for post-graduate doctors.

The conditions for compulsory rural service - including the service tenure and bond penalty fee - is periodically revised and updated. Very few states have a separate Bond Enforcement Cell (BEC) to monitor compliance with bond requirements.

In addition, states provide various financial and non-financial incentives to improve the recruitment and retention of doctors in remote, rural and underserved areas.

Financial incentives mainly involve an incremental pay for serving in difficult areas. This hardship allowance varies across states and is often commensurate with the degree of difficulty in the posting-states use different nomenclatures to define these 'difficult', 'very difficult' and 'inaccessible' areas.

A popular educational incentive is to provide extra/grace marks in post-graduate entrance examinations for under-graduate doctors undertaking compulsory rural service. These marks are often proportional to the number of years in rural service, though an upper limit is usually set by the state. To attract doctors to government service and rural posts, at least 11 states across India have reserved post-graduate (PG) seats in medical colleges for doctors serving in the public sector. A large number of under-graduate doctors compete for a small number of post-graduate seats across the country and this intervention incentivizes doctors in compulsory service.

In addition, states employ a variety of other non-financial incentives to attract doctors to remote areas. Though these are infrequently implemented, they include measures such as accommodation facilities, various forms of insurance and the ability to choose the next posting after a certain number of years in rural service.

Highlights for each state

Assam

Notices and orders have been issued by the state government at regular intervals to amend the rules and regulations of compulsory service. Since September 2009 the period of compulsory service has been reduced from five years to one year post MBBS. Candidates are eligible for post-graduate study only if they complete this mandatory service requirement. Any breach of the terms and conditions of the bond incurs a financial penalty of Rs. 7 lakhs. Earlier, the compulsory service tenure for post-graduate doctors was 10 years and the penalty fee Rs. 10 lakhs. This also applies to post-graduate doctors under the All-India quota unless they are prepared to forego their stipend during post-graduation. This duration has now been reduced to one year too.

Chhattisgarh

The compulsory service tenure for both under-graduates and post-graduates is two years. Penalty for non-compliance is Rs 25 lakhs for the former and Rs 50 lakhs for the latter. Both under- and post-graduates get paid an additional Rs. 5000 for serving in tribal areas. Besides salary, provisions have been made under the State Project Implementation Plan (PIP) for a range of incentives for these doctors under the Chhattisgarh Rural

Medical Corp (CRMC) Scheme:

Financial benefits

This includes a 30 % increase on the basic annual salary for serving in difficult areas and a 50% increase for serving in most difficult and inaccessible areas.

Non-financial benefits

- An additional 10% marks in postgraduate examinations (up to a maximum 30% marks) for each year of experience
- Additional increments after completion of three years of service and choice of place of posting
- Life insurance coverage for staff working in conflict areas
- Provisions for transfer of spouse to the same area, if possible

Karnataka

Compulsory rural service bonds have been introduced by the state recently in 2012. The tenure for compulsory service is one year for under-graduate and three years for post-graduate doctors. Currently, non-compliance incurs a penalty of Rs. 1 lakh (under-graduates), Rs. 3 lakhs (post-graduate Diploma) and Rs. 5 lakhs (post-graduate Degree). The penalty fee and the duration of compulsory rural service is expected to be raised significantly from 2017 onwards.

The state has set up a separate Bond Enforcement Cell (BEC) to monitor the implementation of compulsory service.

Financial and non-financial incentives have been introduced by the State to boost recruitment and retention. Financial incentives include additional rural service allowances commensurate with the number of years in government service. Educational incentives include the provision of additional grace marks for post-graduate entrance examinations and eligibility for competition through the in-service quota where competition is likely to be easier in comparison to the quota for General candidates.

Madhya Pradesh

For MBBS doctors, compulsory service is a necessary pre-qualification for post-graduation in the state. The bond tenure is for one year, but in-service doctors have to complete two years in rural and underserved areas to be eligible for post-graduation in government medical colleges under

the state quota. This also includes additional grace marks for the post-graduate entrance examinations. The penalty fee for non-compliance is Rs. 3 lakhs for under-graduates, Rs. 8 lakhs for post-graduate Diploma holders and Rs. 10 lakhs for post-graduate Degree holders.

The state PIP also proposes various financial and non-financial incentives such as difficult area allowance, performance based incentives and awards for high performing institutions. Documentation on the status of implementation of these proposed incentives is limited.

Maharashtra

Compulsory service tenure for graduates from government medical colleges is one and two years for under- and post-graduates respectively. Non-compliance attracts a significant penalty fee ranging from Rs. 10 lakhs to Rs. 2 crores under revised iterations of the State recruitment and incentive policies.

Other incentives are also provided to improve the vacancy situation in remote and underserved areas:

Financial

This includes a hardship allowance for remote tribal and left wing extremist postings.

Non-financial

- Graduates serving in difficult, very difficult, tribal and left wing extremist areas are given additional marks for post-graduate entrance examinations – from 10% up to a maximum of 30%.
- Doctors are provided government accommodation for a period of up to 3 years
- Provision for transfer to a posting on one's choice, additional leave and vehicle allowance is included for those completing 3 years of government service in tribal and left wing extremist areas

There is limited information on the extent of implementation of these schemes.

2. Degree of implementation of regulatory measures

Summary

The information gathered from states suggests weak implementation and inadequate monitoring of compulsory rural service for under- and post-graduate doctors.

While most states have well developed policies on paper, the practical implementation of compulsory service bonds is far from adequate. There appears to be no systematic mechanism to track and monitor doctors under the bond.

The list of graduating doctors is usually passed on from the medical college to the Directorate of Medical Education who then forward it to the Directorate of Health Services for issuance of posting orders in most states. This process of inter-departmental coordination often takes time and leads to inordinate delays in providing compulsory service notices. This often takes more than six months resulting in a high rate of attrition from compulsory service and renders the bond invalid in some states.

Interviews with doctors and key informants has shown that poor implementation and monitoring has resulted in the bond not been taken seriously by many doctors. The majority choose to forego compulsory service and do not honour the terms and conditions of the bond. While a small proportion pay the penalty fee, the majority do not. States find it difficult to track, monitor and issue notices to defaulters as many of them have moved from their original address provided at the time of admission. In any case, follow-up is inadequate and any action against defaulters is unlikely.

Due to the above factors, compulsory rural service under this regulatory method is a missed opportunity that has not been able to contribute to the human resource shortage of medical officers and specialists across the states reviewed.

Highlights for each state

Assam

Implementation of the compulsory service bond is inadequate. There are suggestions that a lack of funds has led to a failure to provide timely jobs to doctors completing under- and post-graduation from government medical colleges. In addition, there is no systematic mechanism for monitoring and tracking defaulters. A list of these doctors is present with government, but details were not provided to the review team as no action against them had been initiated. It had also not been possible to procure a list of district level vacancies

for doctors across the State either through the National Health Mission or the Directorate of Health Services.

Chhattisgarh

Information from three government medical colleges in the state suggests significant inadequacies in implementation of the bond. Monitoring is not rigorous either by the Directorate of Health Services or the Department of Medical Education. Delays have been reported in the allotment of doctors to health facilities once they complete their under- or post-graduation. This has resulted in doctors adopting a lackadaisical attitude towards this regulatory measure - despite the recent hike in the penalty fee. They would rather forfeit their bond fee than undertake compulsory service. According to information from one government medical college, about two-thirds of the doctors preferred to pay the penalty in preference to compulsory rural service, while the rest neither paid the fee nor undertook compulsory service. The situation in the other two medical colleges in the State has been reported to be similar. This is despite each college having a well established student cell which monitors student activities including bond related processes.

In addition, there is a requirement that for the bond to be valid, posting orders need to be issued to candidates within six months of completing under- or post-graduation. But, the process of issuing compulsory service orders coordinated between the Department of Medical Education student cell and the Directorate of Health Services establishment cell often takes more than six months by which time the bond period lapses as per the conditions of bond implementation.

Information provided to the investigating team indicates significant vacancies for specialists and medical officers, especially the former, across the districts reviewed. This regulatory measure has only had a limited impact in addressing these shortages. There is also inequitable distribution as districts and areas with less well developed amenities like schools, hospitals and social opportunities have far greater vacancies.

Karnataka

Information on effectiveness of regulatory measures in Karnataka was provided by the Bond Enforcement Cell (BEC) in the Directorate of Health Services. Like other states, implementation of the bond is weak in Karnataka too:

Undergraduates: The majority of doctors prefer to pay the penalty fee rather than opt for compulsory service. Data for two years between 2007 and 2008 provided by BEC shows that only about one in five (285 under-graduates out of 1654 MBBS students) joined compulsory service. Over two-thirds (1102 doctors) chose the pay the penalty fine of Rs. 1 lakh instead. Though 116 doctors later opted for compulsory service as they could not pay the penalty fee, eventually only a quarter of all under-graduates joined compulsory service. Like most other states, doctors from the All India quota were exempt from the bond.

Post-graduates: Bond enforcement among this group is very poor – more than nine out of every ten are defaulters. The vast majority did not enroll for compulsory service and only 87 out of about 1000 post-graduates paid the Rs. 5 lakh penalty fee in the two years between 2007 and 2008. The department has made an attempt to track them and issues notices for payment of outstanding fines.

There is a severe shortage of medical officers and specialists especially in the northern districts of Karnataka. Compulsory service has been ineffective in addressing this shortage.

Madhya Pradesh

A systematic mechanism has been set up in the State to ensure compulsory rural service, but bond implementation, enforcement and monitoring is weak. Consequently, very few doctors actually undertake compulsory service.

Despite repeated attempts, only partial data on details of bonded doctors was made available to the review team. This was partly due to the fact that most doctors do not honour their bond contract, but this information is not readily available. A scrutiny of available records for the four years between 2009 and 2013 revealed that posting orders had been issued to 1916 under-graduate and 1148 post-graduate doctors, but information on their joining, completing or defaulting on the requirements of the bond was not maintained by the Directorate of Health Services. While a small proportion of doctors are no doubt undertaking

compulsory service, there is a significant issue with absenteeism.

Interviews with many of these doctors revealed that the majority had not gone to their place of posting despite orders. There were others who had either paid the penalty fee or joined a post-graduation course. Medical colleges could not provide a list of doctors who had paid the penalty fee.

The review team compiled data from various documents received by the Directorate of Health Services for the vacancy situation of doctors across 20 districts in the State in 2011. This revealed that about half the posts were vacant (3772 doctors in position against 7687 sanctioned posts). One out of every ten doctors in position was a doctor under bond (337 doctors), but the view from key informants was that a proportion of these doctors had either not joined their place of posting or had moved on to do a post-graduate course.

It is also worth noting that the Directorate of Health Services has permitted a significant proportion of doctors under bond to join regular or contractual state services mid-way and included this service in their bond tenure.

Maharashtra

Data provided by the Directorate of Medical Education and Research (DMER) shows that the vast majority of doctors default their bond. The review team was given access to data for under-graduates, post-graduates and super-specialists:

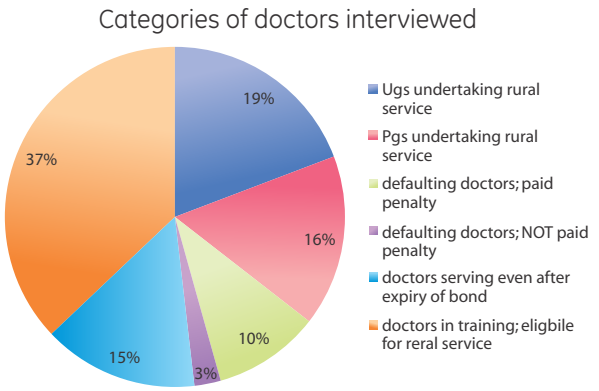
Under-graduates and post-graduates: Even though the data provided is not fully complete, it clearly shows that for the last 15 years more, four out of every five MBBS doctors under bond neither joined compulsory service nor paid the penalty fee. For example, 1566 doctors completed MBBS from the 13 government colleges in Maharashtra in 2011-12. Of these, 1084 students neither undertook compulsory service nor paid the penalty, 52 paid the penalty and only 227 completed the bond. Information on the remaining under-graduates is not provided. The situation is similar for post-graduates too and this trend is repeated in the other years from 1998 to 2013.

Super-specialists: This data is slightly different and shows an interesting change before and after 2010. There are about 15 super-specialists graduating from one government medical college in Maharashtra for which data was provided by DMER. It shows that prior to 2010, almost every super-specialist did not fulfill the compulsory service requirement and did not pay the mandated penalty either. Post 2010, the majority of doctors completed the requirements of the bond by joining compulsory service. For example, 13 out of 14 super-specialists completed the bond in 2011-12, while all 15 completed the bond in 2012-13. The reason for this significant change since 2010 has not been provided, but would be interesting to explore in a future review.

3. Perspectives of doctors affected by compulsory rural service

Summary

Semi-structured questionnaires were administered to 564 doctors from various categories to elicit their views on compulsory rural service (Chart 2):



A range of issues were raised - both about (1) conditions of the bond and also the (2) constraints of rural service.

Issues about conditions of the bond

Interestingly across all states, while most undergraduates felt that any bond, if compulsory, was best implemented after post-graduation - as it interfered with preparation for post-graduate entrance exams and higher study, the majority of post-graduates felt compulsory service should only be mandatory for under-graduates as specialist skills could not be effectively used in the generalist settings of rural areas. This was made worse by irrational deployment of specialists in low-resource settings with poor infrastructure.

The majority of graduate doctors chose to opt out of compulsory service. While some of them paid the penalty fee for exemption, most did not. The lack of effective mechanisms for pro-active tracking and monitoring encouraged this trend.

Doctors raised concerns about various aspects of the bond. They had issues with its compulsory nature and many felt the duration of rural service was too long. While some felt one year was adequate, others preferred a shorter duration of six months or less. Respondents from all states felt the bond needed to be binding on graduates from the All India central quota and private medical colleges too. There were concerns about deploying non-clinical post-graduates in primary and secondary care as they did not possess the necessary clinical skills.

Issues with regard to rural postings

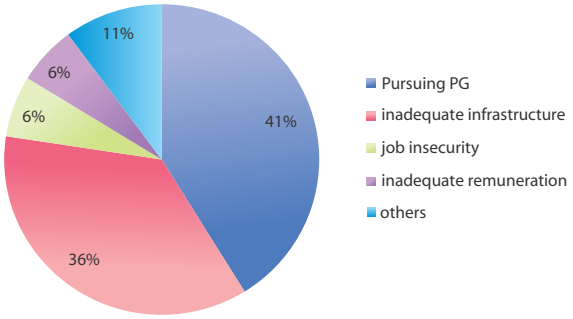
This included both professional and personal factors and impacted under-graduates and post-graduates alike:

Professional factors

- Inadequate infra-structure such as lack of drugs, equipment and operating facilities
- Lack of appropriate support staff, both in terms of capacity and quality
- Irrational deployment, e.g. specialists posted in settings where there was little scope to use their specialist skills and knowledge
- Job insecurity - Doctors felt staff completing compulsory rural service should be absorbed in to the regular state cadre to make this regulatory measure more attractive
- Professional isolation – with inadequate support mechanisms
- Potential for external pressures and influence during postings, management, finance and high profile medico-legal cases and post-mortems
- Excessive workload, especially administrative work as this was not considered a core part of service delivery by many doctors
- Lack of opportunities for professional support, mentoring for junior doctors and continuing professional development
- Undergraduates mentioned a governance issue regarding the performance of post mortems and medico-legal cases as the Medical Council of India does not permit this without registration
- Inadequate remuneration, both in comparison with the private sector and also with other public service doctors. The latter includes both regular staff employed by the state and contractual staff under the National Health Mission
- Concerns over instances of aggressive patients and their attendants was cited by some doctors
- Lack of clarity whether doctors under bond were eligible for other financial and non-financial incentives (which are available for regular and contractual staff)

The main professional barriers identified are shown below (Chart 3):

Doctors' perspectives: professional barriers to rural services



N.B.: Data available for selected states only

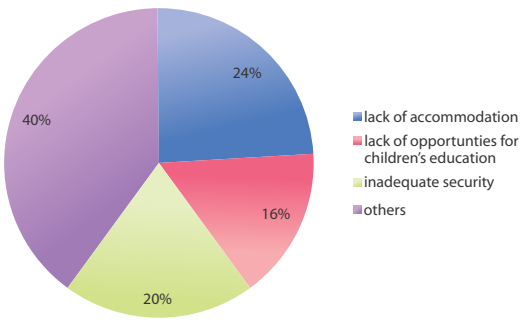
Personal/socio-cultural factors

- Lack of proper accommodation and basic facilities like electricity, water and proper sanitation
- Lack of adequate social and recreational opportunities in rural settings
- Absence of high quality educational opportunities for staff children
- Inadequate security measures, especially for female members of staff
- Postings far away from home
- Poor transport links

Of the small percentage of doctors who opted for compulsory rural service, only a few chose to continue beyond the tenure of their bond. Interestingly, some doctors in this group reported high levels of job satisfaction derived from an opportunity to serve the less privileged and an appreciation of their contribution from the local community.

The main personal barriers identified are shown below (Chart 4):

Doctors' perspectives: professional barriers to rural services



Highlights for each state

Assam

96 under- and post-graduate doctors undertaking compulsory service were interviewed in two selected districts of Assam - Kamrup rural and Nagaon.

An encouraging two-thirds of those interviewed suggested that they would be willing to join public service even in the absence of a bond. This included 11 out of 12 doctors whose bond had lapsed and were still in service. Willingness to serve without a bond was higher among under- graduates as compared to post-graduates. Reasons for willingness included an opportunity to gain experience and knowledge about health issues among the rural population and the security of a job. About a third of interviewees were less enthusiastic about working in rural settings – this proportion was greater among post-graduates. The main barrier for compulsory rural service cited by under-graduates was the hindrance in pursuing higher studies and preparing for post-graduate examinations. The main impediment for post-graduate doctors was the lack of facilities, inadequate security and the limited scope to develop and use their medical knowledge and skills in a rural set-up.

Interestingly, the overall experience of doctors adhering to the bond was positive among 60 of the 96 interviewed doctors. This was highest among those whose bond had expired but had preferred to continue rural service (92%) followed by undergraduate doctors (70%). A little less than half (47%) post-graduate doctors had a positive experience. Primary reasons for dissatisfaction included a lack of medicines, equipment and infrastructure at facilities and inadequate communication and security arrangements.

Chhattisgarh

85 doctors were interviewed. The majority of these were either interns awaiting compulsory service appointments or doctors on a post-graduate course (66 out of the 85 interviewees), 15 who had opted out of rural service and forfeited their penalty fee and 3 doctors whose bond tenure had lapsed but had continued rural service.

The overwhelming response from interviewees was that the bond was not taken seriously by doctors.

As the penalty fee was not prohibitive, doctors chose to forego the bond amount rather then opt for compulsory service. They confirmed that implementation and monitoring of this regulatory measure was weak across the medical colleges and concerned health Directorates across the state.

A variety of reasons were offered for an unwillingness to opt for compulsory service. The lack of proper facilities and a modern lifestyle was mentioned by about a third of respondents. Other professional reasons included a lower remuneration for public service and no assured guarantee of regular posts after completion of the bond tenure. Socio-cultural barriers included a lack of security, satisfactory educational opportunities for children and inadequate accommodation.

Karnataka

The majority of doctors from all the categories interviewed had issues with bond enforcement and adherence. Like other states, many undergraduates felt the bond came in way of higher post-graduate study while post-graduates felt that highly specialist skills could not be effectively used in generalist settings in rural areas and was therefore not a good use of scarce resources. As the current bond penalty is not exorbitant, the vast majority chose to pay penalty rather than serve the bond.

Some of the factors leading to reluctance towards compulsory service included unattractive remuneration, lack of basic amenities, social isolation and lack of motivation. Undue interference by politicians and Panchayati Raj Institution members in administration and fund management caused considerable consternation. Deficient infrastructure in terms of drugs, equipment and support staff was made worse due to staff being over-burdened with medico-legal, out-patient and casualty duties. Irrational deployment resulted in poor use of specialist skills.

Madhya Pradesh

Responses provided by the 104 interviewees were captured comprehensively by the review team. Respondents included a range of doctors including those having completed MBBS and either serving or awaiting compulsory service (35), post-graduates either studying or serving the bond (45), doctors who were in service even beyond the bond tenure (21) and 3 defaulters who had paid the required penalty fee. None of the doctors who had defaulted and not paid penalty could be contacted.

While there was some support for compulsory rural service among under-graduates, a strong theme coming across was their unwillingness to opt before completing post-graduation. The majority of under-graduates stated that they would prefer to complete their post-graduate studies and pursue higher education before undertaking rural service. This was in line with undergraduates from other states too. A proportion of defaulters who did not pay the penalty fee suggested they would join rural service after completion of post-graduation.

Post-graduates serving the bond had various concerns too. Poor infrastructure was a major issue – this included a lack of medicines, equipment, support staff and appropriate operating facilities. Another was the fact that specialists were often placed in postings without facilities to use their skills – this irrational deployment led to frustration among those specialists having to predominantly do generalist work. The attraction of private practice was a strong disincentive for compulsory service. Other socio-cultural issues included political pressures, especially around postings, high profile medico-legal cases and post-mortems, limited scope for skill enhancement, poor salaries, unsatisfactory accommodation and educational opportunities and the occasionally aggressive behavior of patients and their families towards staff. Professionally, doctors mentioned a strong disinclination to do administrative work and raised concerns about the absence of opportunities for continued professional development.

Like other states, respondents felt the bond should also be compulsory for doctors from the All India quota and those from private medical colleges, remuneration scales increased and job security enhanced by offering regular jobs after completion of the bond tenure. There was concern regarding the posting of post-graduates from non-clinical specialities (e.g Anatomy, Bio-chemistry) to facilities requiring clinical skills such as Medical Officer of a Primary Health Centre.

Maharashtra

The 201 doctors interviewed covered the range of under- and post-graduates waiting for or serving the bond, defaulters who had or had not paid the

penalty fee and also doctors who had continued in rural service even after expiry of the bond tenure.

Most undergraduates serving the bond were not convinced about its usefulness - apart from the grace marks it offered bonded doctors for post-graduate entrance examinations. They felt compulsory service should not be mandatory, should not be of more than one year and should be administered only after completion of post-graduation. Doctors across all grades had grave concerns about the political inference and pressure around postings and transfers.

Post-graduate doctors on the other hand felt that compulsory rural service should be mandatory after MBBS. Post-graduates should only be obliged to do rural service if there was specific specialist work available. Most voiced concerns around poor infrastructural and support facilities, lack of appropriate social and recreational opportunities and low pay. There was uneasiness around political interference and the inconsistent and frequently changing rules and regulations around compulsory service. Some suggested that the bond should be served in medical colleges for those from non-clinical branches.

Doctors gave a variety of reasons for continuing in rural service after expiry of bond tenure. This included factors such as an opportunity to serve the less privileged, job satisfaction and grace marks for post-graduate entrance examinations though many were unhappy with the poor infrastructure and support facilities. Respondents reiterated that the bond should be mandatory for graduates from the All India quota and private medical colleges too.

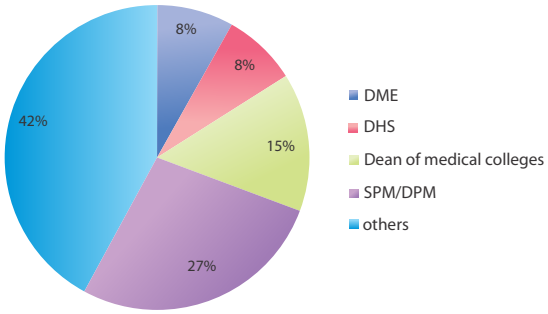
The primary reason given by under-graduates opting out of compulsory service was to prepare for post-graduate entrance examinations. Others factors included posting in a remote or unsuitable place (especially for women), inadequate professional and personal facilities, overload of administrative work, low salaries and excessive political interference. A subset from this group had not paid the penalty fee either. A few respondents from this latter group said they would serve the bond after post-graduation. Others reasons offered for non-payment included factors such as the bond amount being too high or the fact that even though they would like to work in a rural setting, the lack of infrastructure and adequate amenities precluded this.

4. Perspectives from key informants and stakeholders

Summary

A broad range of stakeholders and key informants were interviewed. These included officials from the Directorate of Health Services (DHS), Directorate of Medical Education (DME), Deans of medical colleges, State and District Programme Managers (SPM/DPM) and Bond Enforcement Cell (BEC) officials in states where these exist. 62 stakeholders were formally interviewed (Chart 5):

Proportion of different stakeholders interviewed



The majority of stakeholders confirmed that compulsory rural service was being poorly implemented across states. A primary reason was the lack of a robust mechanism to monitor the roll out of compulsory service. Mechanisms to monitor, track and follow-up defaulters is universally weak across all states. Therefore the compliance with compulsory service is low; drop out rates are higher where the bond penalty fees are low. The long delay between completion of graduation and the issuance of posting orders contributes to the high attrition from compulsory service.

Stakeholders mentioned absenteeism as a significant concern among the minority of doctors who do enroll for compulsory service.

Stakeholders felt that an improvement in professional circumstances and personal incentives would encourage adherence with compulsory service. Adequate infrastructure, drugs and diagnostics was essential as was the need for appropriate accommodation, children's education and adequate security.

They reiterated the importance of transparent policies free from political interference.

Stakeholders mentioned the importance of establishing Bond Enforcement Cells in states with appropriate authority, guidelines and capacity to monitor compulsory service to improve adherence with compulsory rural service.

Highlights for each state

Assam

Information was gathered through informal discussions with key informants; structured interviews could not be conducted.

As in other states, they confirmed that implementation of the bond is weak. In addition, a delay in the issuance of rural posting orders is not unusual - this delay adds to the attrition rate of compulsory rural service. There is also anecdotal evidence of doctors leaving rural service mid-way. Lack of immediate action against defaulters encourages this tendency.

Some stakeholders viewed the five year (under-graduates) and ten year (post-graduates) compulsory service period as excessive. A rural service of one year for both was seen as reasonable by these key informants. The revised rules since 2009 reducing compulsory service to one year has been implemented through the NHM and has been more successful.

Stakeholders expressed concerns around security issues, especially for lady doctors on night duties.

They stressed the need for adequate infrastructure, drugs and diagnostics for appropriate service delivery, especially for specialist doctors.

Chhattisgarh

While agreeing to the principle of enforcing compulsory service, stakeholders were of the view that specialists should not be posted below the level of community health centres.

They stressed the importance of transparent transfer policies free of political interference – and standardized norms for deployment and rotation. The delay in issuance of posting notices post completion of study needed correction.

In its current form, compulsory rural service had a high attrition rate among doctors who were willing to pay the penalty and break the bond. The lack of social amenities such as suitable accommodation, opportunities for high quality education for children and the lack of security in rural areas were significant dis-incentives.

Stakeholders felt the small financial penalty encouraged non-adherence with compulsory service. They advocated significantly higher penalty fees and a mandatory two year rural service for under-graduates to be eligible for post-graduate examinations.

There were suggestions of political interference leading to selective bond implementation.

Lack of coordination between medical colleges, the Directorate of Medical Education and the Directorate of Health Services added unhelpful delays in the process of issuing posting orders.

Karnataka

The state has a separate Bond Enforcement Cell (BEC) for enforcement of compulsory rural service. The majority of key informants were of the opinion that this cell was not very effective and needed strengthening in terms of its human resource capacity and more robust mechanisms for monitoring and accountability with clearer guidelines and procedures. The cell collects penalties and issues No-Objection certificates to those who pay the penalty fee, but lacks a robust mechanism to track defaulters.

The majority of graduates do not fulfill the requirements of compulsory service. The lack of clear guidelines and the lengthy process till posting contributes to the lack of success of this intervention. Stakeholders expressed the need for greater political will and commitment to ensure proper execution of compulsory service.

Some of the challenges mentioned included the difficulty in sustaining this intervention, the lack of clear guidelines and mechanisms to enforce compulsory service, poor governance, difficulties in tracking and following-up defaulters and the lack of workplace infrastructure and basic facilities leading to diminished enthusiasm for compulsory service. Addressing these concerns was likely to improve the acceptance for compulsory service.

Though compulsory service helps fill vacancies as a stopgap arrangement, stakeholders expressed concerns about continuity of care due to the high turnover as this did not assure a permanent workforce for rural areas.

Madhya Pradesh

As in other states, the primary reason of disinclination for rural service among under-graduates is the distraction from pursuing post-graduate study. The lack of appropriate

working/living conditions and job security after completion of compulsory service are other important factors. There is a low threshold for breaking the bond among under-graduates as the penalty fee is not considered onerous.

Absenteeism is a significant issue among the minority of doctors joining rural service. Tracking them is difficult both due to a weak monitoring process and also because contact details are often incorrect. They advocated a separate Bond Enforcement Cell (BEC) for effective monitoring and tracking of doctors under bond.

Maharashtra

The structures and processes for compulsory rural service are in place - with clear roles and responsibilities for the Dean of medical colleges, the Directorate of Medical Education and Research (DMER) and the Directorate of Health Sevices (DHS), but as in other states the implementation and monitoring of doctors under compulsory service is inadequate. Consequently, the majority of under- and post-graduates do not enroll and the penalty amount is only collected when doctors voluntarily pay this at the time of collecting their original documents at the end of their course. There is no active mechanism for tracking defaulters.

The state has adopted certain criteria for offering appropriate postings e.g. post-graduates not to be posted below CHC level; there are special considerations for graduates with a handicap and married or pregnant female doctors.

The conditions of the bond including the penalty have been adjusted by the state to reflect the workforce capacity e.g. the conditionalities of the bond were made more stringent in 2004 and again in 2009 when there was a severe shortage of Medical Officers. Graduates from the 25 private medical colleges in the state are exempt from compulsory service.

The state has introduced financial and non-financial incentives to improve recruitment in compulsory service. Various financial incentives such as an extra allowance for working in left wing extremist, tribal and hilly areas and further incentives based on qualifications are offered, but stakeholders are not convinced about the effectiveness of these financial benefits. More successful in their opinion is the career development opportunities offered e.g. extra weightage for post-graduate exams – these increase with increased years in rural service. The response to this incentive is more positive and has contributed to both the recruitment and retention of doctors in rural and underserved areas.

5. Emerging Themes

A review of the information collected from the states selected for this study shows only a limited impact of this regulatory measure. At most, it has made a modest contribution towards improving the shortage of skilled health workers in rural and underserved areas. The number of doctors enrolling for compulsory service is small; among the minority of doctors enrolling there are significant drop-outs and high levels of absenteeism.

Both doctors and key informants have provided various reasons for the limited success of compulsory service:

(a) Poor implementation of compulsory service bonds

While states have well documented processes for compulsory rural service, the implementation of this regulatory measure is inadequate. States lack a robust mechanism, infra-structure and human resource capacity to monitor the enforcement of compulsory service. Consequently, the majority of doctors opt out and many of them do not pay the penalty fee either as there are no effective mechanisms to track and follow-up defaulters. In states, where the penalty fee for opting out of compulsory service is low, graduates prefer to pay the fee rather than opt for compulsory service. The lack of coordination between medical colleges, the Directorate of Medical Education and the Directorate of Health services results in long delays before graduates receive their posting orders and this further compromises the success of compulsory service. The follow-up of absenteeism requires effective coordination between the district administration and the Directorate of Health Services – this is generally lacking.

(b) Professional factors

The single most important disincentive for under-graduate doctors is the adverse effect on admission to post graduate education. There is a strong inclination to use the post MBBS period to prepare for post graduate exams; time devoted to compulsory service is viewed as a distraction from this goal.

Many under-graduates stated that they would be happy to do rural service after post-graduation, while post-graduates were less enthusiastic about compulsory service as they felt they could only

make limited use of their specialist skills in a rural setting.

The lack of appropriate infra-structure, drugs and diagnostics in remote and underserved public health facilities was an important factor cited by doctors as a disincentive for compulsory service.

Another is the issue of irrational deployment – where specialist post-graduates are posted in health facilities with limited scope to practice their specialism. There was general resentment about post-graduates from non-clinical specialties being posted in clinical settings in primary and secondary care. Some states are moving to policies where post post-graduates are posted to facilities at the level of a CHC or above.

Some doctors were comfortable with the idea of compulsory service for a limited period e.g. six months to a year. Duration of compulsory service longer than this was viewed unfavourably.

The absence of job security post compulsory rural service diminished the enthusiasm of some doctors who were prepared to work in rural areas. A significant number felt the remuneration for undertaking compulsory service was not attractive.

Doctors currently undertaking compulsory service felt over-burdened – not only was the clinical workload heavy; they were less enthusiastic about the performance of administrative duties.

A number of doctors interviewed were keen that compulsory service was made mandatory for candidates from the All-India quota and private medical colleges too, though stakeholders and key informants raised queries about the legality of this intervention, particularly for candidates from private colleges. Under-graduate doctors raised legal concerns about undertaking post-mortems and medico-legal cases as they were not registered with a medical council – a mandatory prerequisite for performing these duties.

There were also concerns about political pressures and interference around exemption from compulsory rural service for selected candidates and the performance of post-mortems and medico-legal implications of high profile local cases.

(c) Personal/social issues

The doctors interviewed cited various personal and social barriers that made compulsory service less attractive. Prominent among these were the lack of appropriate accommodation, limited opportunities of high quality education for their children and the feeling of insecurity in rural and remote settings, especially for women. The lack of efficient transport links and a sense of social isolation were also mentioned.

6. Limitations of the study

Despite repeated attempts, study partners in some states found it difficult to collect data on (a) the specific numbers – and proportion – of eligible doctors complying with compulsory rural service and (b) the number of vacancies filled by doctors under regulatory bond. This has limited some of the quantitative analysis on the degree of implementation of this regulatory measure.

In addition, reliance had to be placed on informal, verbal discussions where key informants were unwilling to participate in written interviews.

Study partners in states generally found it difficult to track and interview bond defaulters, especially those who had not paid their penalty fee. This information was either not readily available and where it was, contact details were out-dated, so it was only possible to make contact with a minority of defaulters. This has resulted in an inadequate review of this important group of stakeholders.

7. Recommendations

All the states reviewed in this evaluation had well developed policies and procedures for compulsory service. Yet their common experience was that the uptake of compulsory service among graduates was poor. The primary reason was the weak implementation of these well crafted policies. Unless the deficiencies in implementation raised in this review are strengthened, the uptake of compulsory service is unlikely to improve. Some of these considerations are discussed below.

1. Adequately resourced and effective Bond Enforcement Cells (BEC)

Stakeholders advocated the need for BECs with adequate human resource capacity and appropriate authority to monitor, track, follow-up and enforce compulsory service. States with a BEC mentioned the lack of authority and capacity to track and follow-up defaulters. The BEC will have well developed communication systems with medical colleges, DME, DHS and district authorities to monitor and police compliance of compulsory service.

2. Terms and conditions of compulsory service

A common complaint among doctors was the lengthy duration of rural service in certain states - both for under- and post-graduates. Under-graduates felt that this diminished their opportunity and ability to pursue post-graduation whereas post-graduate doctors raised concerns about the erosion of recently acquired specialist skills. States that had reduced the period of compulsory service reported better compliance and uptake following reduction in duration of the bond. In light of these observations the option of reducing the period of compulsory service (e.g. one to two years) should be seriously considered. While this will have an adverse effect on continuity of care, the improved compliance will ensure a regular through put of doctors in rural service. In addition, the introduction of high penalty fees will act as a financial deterrent against opting out of compulsory service, especially if this is robustly implemented and monitored.

3. Career progression incentives for under-graduates

One of the most important disincentives for under-graduates is the time commitment of compulsory service adversely impacting their opportunity for successfully pursuing post-graduate education. Compulsory service can be made more attractive by the provision of generous grace marks for those undertaking compulsory service. Where the increase in grace marks is not significant, as is the case in some states, consideration should be given to increasing the weightage of these extra marks – this is likely to be successful as evidence has shown that extra grace marks for post-graduate education is more successful at improving compliance than the offer of financial incentives[xiii].

4. Rational deployment of post-graduates

Irrational deployment constitutes a waste of scarce resources and any compulsory service measure should have a rational deployment policy. Some states have recently adopted a policy which mandates that post-graduates are only posted at the level of a CHC or above. Mention was also made of the inappropriateness of posting non-clinical staff (e.g. post-graduates in anatomy and physiology) in clinical facilities – they would be better placed in teaching medical colleges and hospitals.

5. Financial incentives

Compulsory rural service can be made more attractive by offering financial incentives for working in remote, rural and underserved areas. Some states have developed criteria for this (e.g. 'difficult', 'most difficult' and 'inaccessible') and offer differentially weighted financial incentives for working in these areas. Evidence has shown that financial incentives only work when these are substantial rather than a token amount.[xi]

6. Non-financial incentives

Financial incentives alone have a limited effect on improving compliance with compulsory service. These are more effective when combined with other non-financial incentives such as suitable accommodation, opportunities for education of children, social support and transport links. Evidence shows that strategies to ensure and secure health worker welfare and workplace entitlements can contribute to long term retention and higher levels of performance[xiv].

7. Enhancing job security

It is recommended that there should be a systematic and transparent process to absorb

doctors completing compulsory service in to the state regular health cadre. This would not only help mitigate the shortage of doctors in the public health service, but the additional job security provided would enhance both recruitment and retention of the health workforce for rural service.

8. Monitoring absenteeism

This can be mitigated by putting in stringent mechanisms and procedures to monitor absenteeism. This could include procedures such as the use of bio-metric attendance, effective monitoring of attendance and prominently displaying the timings of health care staff in the citizen's charter in a prominent place at the facility. Equally important is the need for effective and close communication between the district authorities (e.g. Block Medical Officer) and the DHS/DME to provide an effective platform to monitor absenteeism and enforce compulsory service.

9. Transparent policies for compulsory service

There was resentment against political interference in the process of postings for rural service. A fair and transparent policy for compulsory postings is necessary to restore confidence in this regulatory measure. This could be based on the basis of merit and allocated against available vacancies – such a process would help build confidence in the integrity of compulsory service allocation by reducing political interference.

10. Coordination between agencies implementing compulsory service

The long delays between completion of graduation and the issue of posting orders led to high attrition in compulsory service. Delays in communication between the office of the dean of medical colleges, the Directorate of Medical Education and the Directorate of Health Services contributed to this. Communication channels between these organizations will have to improve to reduce drop-outs from compulsory service – the use of technology enabled information exchange systems will be crucial here.

11. Awareness raising about incentives of compulsory service

Many of the graduates interviewed were not fully informed about the substantial benefits offered by states for compulsory service, especially the added incentive of extra grace marks for post graduate exams. Raising awareness among candidates at the time of admission when the bonds are signed is likely to improve compliance with compulsory service.

12. Increasing the penalty fee

The penalty fee is insignificant in many states; many doctors therefore have a low threshold for paying the penalty and avoiding compulsory service. If properly enforced, higher penalty fees will encourage a better uptake of rural service.

13. Legal considerations

Under-graduates raised concerns about performing post-mortems and under taking medico-legal cases before they had obtained formal registration from a professional council. The legal implications of this need to be considered and addressed.

14. Increasing the capacity of specialists

The acute shortage of specialists in the public health delivery system calls for a substantial increase in the number of post graduate seats in selected specialisms, e.g. Obstetrics, Anaesthesia, Paediatrics.

15. Eligibility criteria for compulsory service

Demands for the inclusion of graduates from the All-India quota and private medical colleges in compulsory service were made by both doctors and key informants. While the inclusion of doctors from private medical colleges may have legal implications, it could certainly be considered for doctors in government medical colleges under the All-India quota.

16. Political, professional and administrative commitment

Above all, pro-active intervention by the political and administrative establishment is necessary to ensure the success of this regulatory measure. Professional councils like the Medical Council of India and state medical councils have a critical role in strengthening the policy and implementation framework for effective compliance with compulsory rural service. This will go a long way in reducing the shortage of skilled health professionals in remote, rural and underserved areas while providing graduates with a rich learning experience.

Conclusion

This study illustrates the limited impact of compulsory rural service as a regulatory measure to address the shortage of skilled health professionals in remote, rural and underserved areas in the states currently reviewed. A review of the regulatory mechanisms in these states shows that, at most, compulsory service has made only a modest contribution towards improving the human resource shortage in rural settings. The number of doctors enrolling for rural service is minimal – and even amongst these doctors, there are high levels of absenteeism and drop-outs.

It is clearly evident from this review that ensuring robust implementation of the compulsory service policies already in place across these states is critical to improving compliance and ensuring adequate numbers of trained health professionals in remote and rural areas.

But it is also evident that this alone is neither desirable nor sufficient to address the human resource shortage. Inferences drawn from the evidence base and past experiences of designing and implementing strategies to address the lack of human resource capacity have proved that no single strategy is sufficient to address this shortfall. It is important to design policies incorporating a mix of strategies – both financial and non- financial as mentioned in the recommendations above - to provide an enabling professional environment for health workers. Addressing the human resource crisis in remote, rural and underserved settings will go a long way in realising the vision of universal access to equitable health care responsive to people's needs and help safeguard the health of the poor, vulnerable and often disadvantaged sections of society.

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