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Under the regulatory radar: Unregulated rural healthcare in Bangladesh and Australia

Pratima Durga MBA[1] | Lisa A. Caffery PhD[2] | Olav T. Muurlink PhD[1] |
Andrew W. Taylor-Robinson PhD[3,4]

[1]School of Business & Law, Central Queensland University, Brisbane, Australia

[2]School of Business & Law, Central Queensland University, Emerald, Australia

[3]College of Health Sciences, Vin University, Hanoi, Vietnam

[4]Center for Global Health, University of Pennsylvania, Philadelphia, USA

Correspondence
Pratima Durga, School of Business & Law, Central Queensland University, Brisbane, Australia.
Email: pratima.durga@cqumail.com

Abstract

This study examines health regulation under conditions of geographical constraint in two strikingly different settings, one on a remote island in Bangladesh and the other in an impoverished rural region in Australia. Both suffer from an absence of medically qualified professionals, which means that in the resultant vacuum, patients access alternative healthcare. The concept of regulation (or lack of regulation) is explored in terms of unconventional new responses to rural health deficits. The two cases show unexpected commonality, with policymakers facing shared challenges beyond physical remoteness. The difference in the degree of enforcement of regulation offers the greatest point of difference. This comparative study revealed a weak health regulatory system in the remote Bangladesh area of Bhola Island where 'alternatives' to formal clinical approaches have become the default choice. Brazen stop-gap servicing is commonplace on Bhola Island, but in The Gemfields such practices only occur in the shadows or as a last resort. Each isolated location, one in a developing country and the other in a developed setting, exemplifies how geographical remoteness can present an opportunity for innovations in supply to emerge. Surprisingly, it is the developing world case that better leverages a regulatory void to respond to local healthcare needs.

KEYWORDS
Australia, Bangladesh, deregulation, regulation, remote region, rural health

1 | INTRODUCTION

Regulation is a prominent government function of formal healthcare systems worldwide. Such administrative and bureaucratic controls entail governments setting, monitoring and enforcing national rules with the aim of protecting human health and ensuring provision of safe, efficient and effective healthcare (Bloom, 2014). This paper examines regulation in two highly contrasting cases, both rural and remote, but one in a developed world context, Australia, and the other in the developing world, Bangladesh. We propose that there is significant overlap in the experiences of the poor non-indigenous (Australian) population of The Gemfields in Central Queensland and of the impoverished indigenous population of Bhola Island, in the Ganges Delta region. Both study areas suffer from an absence of medically qualified professionals. In the resultant vacuum, patients seek alternative and potentially unregulated healthcare. By comparing and contrasting these two distinct cases, we aim to go beyond the descriptive to illuminate the unregulated but open informal

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health system in Bangladesh and a shadow health system supplementing unmet need in The Gemfields. This analysis takes advantage of two regions that are similar in terms of their geographical remoteness and relative impoverishment, but have significant differences in regulatory and sociocultural contexts, exploring novel responses to health access possible due to gaps in regulation.

In developed countries, the state's traditional 'command and control' regulatory approach is generally viewed as an effective method to protect patients from risky medical treatments (Bloom, 2014). For example, in Australia, regulation is the default setting; clinical standards are policed closely, and medical hegemony is contested actively and protected (Harvey, 2011). Contrastingly, in Bangladesh, a largely deregulated sector of informal healthcare providers has emerged as the primary healthcare system, at least in rural and remote areas where it is more difficult for authorities to enforce national regulations. Pezzola and Sweet (2016), working in the pharmaceutical sector, have noted that international norms on regulation show remarkably little diffusion to the developing world. Although national health standards are in place, Bangladesh struggles to regulate its way to an orderly formal health system. In fact, the informal health sector thrives on Bhola Island where we found regulations regularly stretched and frequently broken. In The Gemfields, a skeletal formal sector is compelled to push boundaries and at times works in the shadows to meet local needs.

With over 1000 people per km^2, Bangladesh is one of the most densely populated countries in the world (Trading Economics, 2020), offering service efficiencies that lightly populated countries like Australia (3.22 people per km^2) cannot achieve. With the density, however, comes a greater public health burden (Jones et al., 2008): with around one-tenth of the total expenditure on health as a proportion of GDP and a smaller absolute budget, Bangladesh relies heavily on public health measures rather than medicine to manage its health burden. These initiatives have resulted in remarkable improvements in health outcomes, notably sharp declines in birth and mortality rates, and life expectancy rising by a ratio of more than one full year for every two years elapsed since the nation was founded in 1971 (Chowdhury et al., 2013; Muurlink et al., 2022; WHO, 2017). Despite a higher expenditure on healthcare services, rural Australians are still at an objective health disadvantage: they experience worse health outcomes than do residents of metropolitan areas (Australian Institute of Health and Welfare 2018). In Bangladesh, a community situated a mere 50 km from Dhaka may be considered functionally 'remote', with distance per se a poor measure of physical accessibility due to inadequate transport infrastructure. This difficulty of access is compounded by economic disparities. When the WHO identifies Bangladesh as a 'crisis country' in respect to Human Resources for Health (Ahmed & Hossain, 2007), its reasoning is not simply one of expenditure or the productivity of the nation's medical training sector. In fact, around 10 000 new medical graduates emerge from private and public medical schools every year into the health sector (Islam et al., 2014), but this large cohort resists assignments to rural postings, a problem matched in Australia (McGrail et al., 2017) (see Figure 1 for an overview of contrasts between the two contexts).

What is known about this topic

- There is an acute shortage of primary healthcare services in rural and remote areas globally.
- The level of government health regulation varies between developed and developing countries.
- Approaches to health regulation include the certification of health providers, health products, pharmaceuticals and services.

What this paper adds

- While the Bangladeshi and Australian rural and remote contexts appear vastly different, they show unexpected commonality.
- On Bhola Island, Bangladesh, an unregulated health system thrives overtly, whereas in The Gemfields, Australia, an informal system operating in the shadows supplements unmet health needs.
- The developing world case surprisingly better leverages the regulatory void to respond to healthcare needs.

Both sites were chosen for their high level of remoteness to health services. Bhola is less than 200 km by air from the national capital, but there is no scheduled air service. Access is by bus and ferry, a transit of 12 h assuming no delays. The Gemfields region is geographically more remote: around 1600 km to Canberra, the federal capital of Australia.

1.1 | Bhola Island, Bangladesh

In the south-western part of Bangladesh lies Bhola Island, the largest island in the Ganges Delta, with a 'district' capital in the north and a southern urban hub, Char Fasson, that was the base for the study. The island population is estimated at 1.8 million, comprising 49.76% males and 50.24% females (Bangladesh Bureau of Statistics, 2013). With a surface area of 1441 km^2, the population density on the island is high – 1346 per km^2 (above the national mean). The region is functionally remote. In fact, *Bhola* means '*forgotten place*' (Hasan, 2016), and because of its location in the Bay of Bengal estuary, it is vulnerable to tidal incursions and natural disasters, and particularly to the consequent subsistence crises unleashed on the impoverished population (Hossain, 2018). The region is also one of the most cyclone-prone on the planet (Islam et al., 2015) and was hit in 1970 by the deadliest cyclone ever recorded, and which left a trail of devastation (Biswas & Daly, 2021; Muurlink, 2022; Rohde, 2014). The magnitude of the disaster drew international attention to the region which lost almost half of its then population (Rohde, 2014).

Since the economy of the island is founded on agriculture, land erosion is a major concern, imposing a cycle of dire plights on the subsistence-level society, heavily reliant on farming and fishing for its sustenance. Poverty is widespread, and high maternal, infant and childhood mortality rates each exceeds the national average

TWO COUNTRIES COMPARISON
BANGLADESH VS AUSTRALIA

Source : https://databank.worldbank.org/

POPULATION

Bangladesh has six times more people than Australia

Bangladesh 161.4 million **Australia 24.99 million**

SURFACE AREA

Australia's surface area is 52.5 times larger than Bangladesh

Bangladesh 147.6 (sq. km) **Australia 7,741.2 (sq. km)**

POPULATION DENSITY

People per square km of land area

Bangladesh 1,240 **Australia 3.2**

GROSS NATIONAL INCOME

Australian income per capita 30 times greater than Bangladesh

Bangladesh USD $1,750 **Australia USD $53,230**

HEALTH EXPENDITURE PER CAPITA

Bangladesh one of the lowest health spends in the world

Bangladesh USD $34 **Australia USD $5,002**

HEALTH EXPENDITURE % GDP

Australia spends nearly 4 times more on health than Bangladesh

Bangladesh 2.37% **Australia 9.25%**

OUT-OF-POCKET HEALTH EXPENDITURE %

Bangladeshis pay 3.7 times more than Australia

Bangladesh 72% **Australia 19%**

PHYSICIANS PER 1,000 PEOPLE

Australia has 7 times more physicians than Bangladesh

Bangladesh 0.5 **Australia 3.6**

FIGURE 1 Contrast in contexts between Bangladesh and Australia

(Cash et al., 2013; Chowdhury et al., 2013). Housing conditions are cramped, while access to mainstream healthcare services is restricted (Akter & Mallick, 2013). The island itself provides limited tertiary healthcare; only Bhola District Hospital offers basic emergency obstetric facilities, with patients referred elsewhere for more advanced care. Recent figures indicate the following governmental health infrastructure: three hospitals, six sub-district health complexes, 224 community clinics, two mother and child welfare centres, 55 union health centres and seven union sub-centres (MoHFW, 2020).

1.2 | The Gemfields, Australia

Located in Queensland, The Gemfields is a four-hour drive from the nearest major regional city of Rockhampton and its associated health services, or an hour and a half flight to the state capital of Brisbane. Based on the latest census, The Gemfields has a population of 1450 permanent residents sparsely distributed (1.2 people/km^2) across a moderately arid landscape (ABS, 2016). By Australian standards the population is socio-economically highly disadvantaged, with mean wealth ranking in the lowest 10th percentile (ABS, 2016). The resident population is predominantly white, poor, aged and with complex health needs. Sixty percent of residents are aged from 55 to 75 years old. Men (55%) outnumber women (45%), with a high number of males living alone (32%). Poverty is a significant factor, with at least 15% of permanent residents living in improvised or temporary dwellings such as a 'humpy' (tin shack) or caravan (ABS, 2016). The nature of housing is determined partly by the region's unusual status as the last remaining site of a Miners' Common in Queensland, a unique land title that allows people to mine, build temporary dwellings and keep livestock. A typical 'mine shack' lacks running water, electricity and sewerage, and features an open fire outdoor kitchen. 'Living rough' in the manner that is common in The Gemfields is an outlier in terms of Australian home life and is, in many aspects, similar to the domestic conditions of the rural poor on Bhola Island. However, the region is a tourist destination during winter months. For a short period (between April and September) the population can triple due to an influx of amateur miners searching for sapphires. This transient surge in population places a significant strain on local health services. It also briefly changes the health risk profile of the region, with the newcomers often older, wealthier and more health-literate than are the permanent residents. At the time of the study, the Queensland Government operated a small rural outpatient clinic (ROC) and an ambulance station. A single dispensing pharmacy reliant on a single qualified pharmacist is open five days a week, while mental health counsellors and allied health practitioners visit sporadically. Only the Queensland Ambulance Service, staffed by highly trained and qualified paramedics, operates its station every day of the year.

With both regions suffering from significant poverty relative to their national context, how do these communities push regulatory boundaries to meet their health needs?

2 | METHODS

Two distinct studies, one on Bhola Island, Bangladesh, and the other in The Gemfields, Australia, were designed and undertaken separately under the supervision of the third and fourth authors, who are a health psychologist and an infectious diseases specialist, respectively. At the time of data collection, authors 1 and 2 were Masters-qualified PhD students from policy and social research backgrounds. All qualitative data were collected directly from healthcare practitioners (formal and informal). In the Bangladeshi case, the first and third authors were accompanied by an experienced local language translator-interpreter with extensive cultural understanding of the region. Data for The Gemfields component were collected by the second author, a resident social researcher with an intimate knowledge of the unique local and regional health sector.

A total of 51 health practitioners – both formally qualified and otherwise – were interviewed for these two research projects. Sampling for the Bangladeshi interviews was systematic: the researchers visited over 30 remote villages of Bhola Island, serviced by unpaved roads (and, in some cases, villages accessible only by ferry or motorbike) to speak with practitioners identified by residents at roadside teashops. In addition to 28 'amateur' rural medical practitioners (RMPs; so-called village doctors, *palli chikitshok*, not holding a formal medical qualification), the majority (eight) of locally based medically qualified practitioners (MQPs; holding an MBBS, MBChB or MD degree) including Chief Medical Officers were interviewed for this project. In the less densely populated The Gemfields, the process was more exhaustive: research participants included almost all trained and qualified health workers with a professional association to the study area (a total sample size of 15). In both studies, the approach involved semi-structured interviews conducted with the participants in situ as this method is considered more appropriate for complex situations and provides an effective way to scope human experience and to gain insights in a subjective manner (Kumar, 2019). Prior to interviewing, a detailed written or oral project description and the consent process were given to participants in English (Australia) and Bangla (Bangladesh). In both settings, questioning focused on examining gaps in the provision of healthcare services, orientation towards service, and approaches to optimising service provision. Participants were asked the same open-ended guiding questions about service provision (relating to the 'how' and 'what' of services delivered) as a starting point for the interview before progressing to the characteristics they identified as strengths and weaknesses, and the potential for change.

3 | FINDINGS

There is a formal healthcare vacuum at both study sites. In southern Bhola, we encountered formal clinics stretched to capacity due to the absence of the allocated quota of formally qualified staff. Despite determined attempts by the Bangladeshi government to

regulate distribution of new medical graduate placements to include rural areas (Rawal et al., 2015), rural assignments are generally resisted – and even when they are accepted the rate of absenteeism is alarmingly high:

> They (new graduates) want to work in a good place. Those who come from [decent] medical colleges, they want to work in a good place because in the rural areas there is not appropriate accommodation and status or place for their families. *(MQP 01, Bhola)*

Explaining the formal health gap in The Gemfields is more complex. On superficial analysis, the ratio of MQPs to patients is adequate: there is one physician for the population of 1500 (outside of tourist season), plus two nurses. However, this quotient worsens considerably during the peak internal migration period (autumn and winter) when the population can triple to 4500 people without additional medical staff assigned to the area. While the nurses are resident in the region (along with an ambulance paramedic and pharmacist), the solo general practitioner (GP) is available to see patients for a total of only 24 h each week. For the balance of the time, the region has no doctor. In peak periods, staffing of The Gemfields ROC is not adequate to meet demand: residents often wait up to four weeks to secure an appointment with the non-resident GP. The determinants impacting the availability of MQPs are similar to Bangladesh – Australia also struggles to place medical staff in remote regions. However, part of the problem in The Gemfields is an invisible barrier: the full-time population is quite suspicious of societal conventions, including governmental providers of health services. This is particularly true if the service provider is considered an 'outsider'. In contrast to Bhola Island, where external status adds to the aura of a medical provider, in The Gemfields the outsider is seen as an 'invader'.

While governments in both study sites 'encourage' the MQPs to take rural postings using a combination of incentives and penalties, the government takes a firmer hand in Bangladesh. Each region has a set quota of staff allocated to it, with these quotas enforced by penalties for failure to comply. These controls include a requirement that all newly recruited doctors be posted to a rural *upazilla* health facility for at least two years. However, the staffing of health facilities in hard-to-reach areas has proved problematic for the government (Rawal et al., 2015); hence, rural and remote clinics (including community health clinics staffed by public health nurses) remain underserviced and understaffed.

Our finding that informal health practitioners are the primary contact for health services is not unique. Previous studies have indicated that more than 80% of the Bangladeshi population turn to private health practitioners, with unregulated informal providers offering a first recourse for poor and remote villagers (Bangladesh Health Watch, 2007). However, on the fringes of Bhola Island, the 'alternative' has become the default choice. Every village, even those without paved roads or electricity, is served by RMPs usually working out of roadside stalls ranging in size upwards from 4 m^2. Villages with permanent populations of less than 200 were observed to have multiple shops staffed by RMPs. These practitioners do not need to

advertise their trade: an array of largely white pharmaceutical packets loaded onto wooden shelves makes the nature of their business abundantly clear. Nor do they need to hide their practice, despite the practitioners selling regulated drugs that should be dispensed only on the prescription of MQPs. In practical terms, what we observed was supply restricted only by the purchasing capacity of the client. Unlike in The Gemfields, these practitioners are permanently embedded in the community.

However, these roadside practitioners of both medicine and pharmacy possess only a very limited understanding of evidence-based medical science. Some have little more than high school education but have sought to fill the gap in their knowledge by following the Bangladesh Rural Medical Practitioner (BRMP) training course or 'refresher' courses offered by village doctors' associations or NGOs. RMPs are *not*, however, traditional healers: while some do sell homeopathic medicine, most tend to prescribe and provide allopathic medicine (Ahmed & Hossain, 2007; Ahmed et al., 2011). Our research showed that 95% of the RMPs also run pharmacies where, in the absence of adequate supervision, incorrect diagnoses and inaccurate prescription and supply of drugs proliferate. Moreover, isolated from formal training or institutional support, the RMPs are vulnerable to the persuasive influence of representatives of pharmaceutical companies who provide a de facto primary source of medical knowledge (Rahman et al., 2015).

There is a perception among the skeleton staff of MQPs on Bhola Island that the unqualified RMPs are 'hoarding' patients for themselves:

> When the patient is out of control only then he is referred... suppose there is one thousand *palli chikitshok*, maybe two, three or at the best ten doctors refer patients to us. The others, they try their own, and they "*destroy*" the patients. *(MQP 01, Bhola)*

Another MQP noted on the issues of pharmaceutical prescriptions that the roadside practitioners were overstepping the mark wildly: "There is a law that they can prescribe only 23 medicines... but they prescribe almost all [well beyond the restricted list]".

Not all MQPs, however, shared this negative view of unregulated practices. Indeed, the perception that patients would be transferred to the formal system only when the situation was 'out of control' did not accord with what we observed in the field. Despite operating outside government regulations, almost all RMPs had a regular 'consultancy' pipeline (by mobile phone) to a qualified doctor, and escalated cases to the formal healthcare system rapidly. It was clear the RMPs and formal healthcare providers are complicit in this unregulated arrangement. On occasion, ad hoc training of RMPs was conducted by MQPs via mobile phone, especially in cases of emergency.

This provided a self-installed safety net as the RMPs with whom we spoke tended to hesitate before handling more serious cases, instead transferring patients to the Char Fasson hospital relatively early (1–2 days) after they presented to their roadside clinic. One of the MQPs voiced a much more pragmatic view of the situation:

There is a lot of talk about village doctors, some is positive and some negative. In my point of view, I only appreciate them… they are doing the service for mankind. We should not try to limit the problem… it is impossible for any MBBS doctors to give a service at 3am in any rural area in Bangladesh… even if he lives in the rural area, it is impossible that he will give the service. But they [the village doctors] do that… (MQP 02, Bhola)

In The Gemfields, there was some evidence that residents also turn to unregistered or retired health practitioners for medical assistance, but purely as first responders in emergencies while awaiting an ambulance. Such stop-gap servicing was not undertaken brazenly, as on Bhola Island, but rather only *in extremis*. Despite the physical remoteness of The Gemfields, legal restrictions on medical practice are enforced much more heavily than on Bhola Island, regardless of attempts by locals to live unobtrusive and unregulated lives. Consequently, no informal medical system has developed, instead merely isolated and hidden incidents. Unlike on Bhola Island, where regulations are stretched by the informal sector, in The Gemfields, heavily under-resourced and with a high burden of health needs, the skeletal formal sector pushes boundaries or operates 'in the shadows' in order to meet community needs. For example, a resident health provider described one serious local case in which the patient declined transfer out of the region and into the formal healthcare system:

One resident who died recently, they had end stage oesophageal cancer and was pal [palliative] care. So, for the last three weeks of their life it was basically just us popping in. No job generated, but just going in and maybe topping up some fluid or just sort of holding a hand for an hour a day and that sort of stuff. (HW01)

By 'no job generated', the practitioner was referring to the fact that the individual was being serviced without their formal registration as a patient or, in other words, was being provided a 'grey market' service. Additionally, the same practitioner referred explicitly to 'the system' requirements:

It's the stuff that happens at a human level, I think works quite well… despite the system. It's only because of the individuals, the people on the ground… otherwise there would just be a roadblock. But because we're in a small town, you know that those relationships will happen. (HW01)

The idea of 'clocked-off healthcare' was also apparent when it comes to treating malnutrition within the community. Health professionals fill the service void in their own time, with their own money and food once they have 'clocked off' work. For example, consider this real-life scenario:

He lives under bits of tin and someone helped him put a floor in it. So, he's got like a three-wall sort of hut and he lives in there. No power, no running water.… He's got really severe schizophrenia… he's lost so much weight… we take him water and we cook food at our home and deliver it to him on our days off. (HW12)

In a case that illustrates how this level of dedication extends to actual medical care, a formally trained but retired provider of healthcare described how they had worked on a large ('plate-size') ulcer on a patient:

It took me five years to heal that bloke's ulcer by being persistent, five years, because he kept mucking it up and start again and whatever, but we're gradually got it. (HW11)

In addition to the formal healthcare system, the chronic gap in service provision is filled by grassroots community intervention, whereby the local community works together to enable patients to manage their disabilities, injuries or illnesses at home. At one humpy, for example, a boat winch was installed to ensure that a patient could get in and out of an outdoor bath. The patient lacked the means to buy or install professional medical lifting equipment, so the community innovated to achieve a practicable solution.

Telehealth has emerged as a viable alternative healthcare option in The Gemfields but not on Bhola Island, other than the informal instances referred to earlier. There is a dedicated 'telehealth room' at the ROC in The Gemfields where patients communicate with their treating physician via a video conference call with a nurse in attendance to assist with technology. During the ongoing COVID-19 pandemic, regulation of formal healthcare channels loosened perceptibly, with face-to-face specialist services suspended and telehealth emerging as a default option. Yet again, we observed a distinction in healthcare provision between the two locations. In Australia, regulation is prominent and formal healthcare is the default setting; even within medicine, boundaries are policed closely and the hegemony of the healthcare professions over a particular domain of specialist practice is contested and protected (Harvey, 2011). In contrast, in Bangladesh, the largely deregulated sector of informal healthcare providers constitutes the *primary* healthcare system.

4 | DISCUSSION

The two study areas represent regions with high health needs that are compounded by problems in the regulated supply chain delivering a health service response. The socio-political and geophysical contexts are very different, but each case shows how remoteness offers an opportunity for innovations in supply to emerge, albeit in distinctly different ways. The regulatory contexts governing the provision of medical care in Bangladesh and Australia are superficially similar: the authorities in both countries attempt to exercise

pressure on MQPs to respond to need in remote regions. In each case this is met by reluctance of MQPs to relocate to remote regions. In both places, medical practice is governed by national regulation and certain disciplines are restricted to registered practitioners who hold medical degrees. In Australia the regulation is structured sufficiently to largely retain control, even over the provision of healthcare in remote regions. In Bangladesh any semblance of control breaks down almost entirely in remote regions: on Bhola Island, we found little attempt at regulation. When providers and patients seek to innovate to fill the health provision vacuums that emerge in remote Bangladesh, they have greater scope to do so without restriction.

Unlike The Gemfields, what we found in remote Bangladesh was not simply a proliferation of informal providers of healthcare but an informal healthcare *system* that attempts to mimic closely and integrate with the formal healthcare system. There is no formal framework for RMPs to gain a level of training in allopathic medicine that would enable them to respond to the needs of their patients in safe and appropriate ways, or to tap into referral networks that would address their skill and knowledge gaps. Instead, through a combination of 'doctors association' meetings held at a local level and training courses curated opportunistically, the RMPs actively seek to train themselves, and, more superficially, to mimic MQPs, occasionally even to the extent of donning a white coat and very frequently to including wearing a stethoscope. They do not turn to allopathic medicine when there is a perceived gap in traditional treatment options but instead show (along with their clientele) a *preference* for what in Australia would be considered prescription medicines. Some have the benefit of an ad hoc referral system, connecting them to MQPs. It is worth emphasising that in remote Bangladesh, the tendency towards allopathic rather than traditional options are partly consumer-driven. Whereas in The Gemfields there is a broad distrust of authority among the permanent residents, on Bhola Island there is a correspondingly high trust in those with perceived authority – including medical authority, even though MQPs are absent.

5 | CONCLUSION

As pointed out by Pezzola and Sweet (2016), there is an abundance of publications on access to healthcare, but relatively scant information on regulation. The literature on regulation tends to focus on the notion of 'the profession' (which is largely regulated by professional bodies) and intellectual property. It could be argued that Bangladesh's informal healthcare network takes advantage of a largely deregulated system of pharmaceutical supply in the country (Mahmood et al., 2010). However, pharmaceuticals *are* regulated by law, yet informal providers continue to operate without reprisals because geographical remoteness also means detachment from the control of central authorities. The vacuum created by this remoteness allows another kind of regulation to spring up. With the position of RMP generally filled by a person well known in the village, and who lives locally, there is a natural check on the service provider over-servicing his (all the RMPs were male) clients. The blame for

cases of apparent iatrogenesis will land at the door of the village doctor, who has little legal protection in remote regions: just as medicine is poorly regulated in these remote regions, so is the law. Rough justice can be meted out to those who make easily identifiable mistakes in high stakes cases. Hence, the tendency of RMPs to whom we spoke to be quick to refer to an MQP those cases they regarded as risky or challenging.

In The Gemfields, distance means more than just a disadvantage: residents chose to live here to avoid the reach of regulation. In some cases, it is clear that residents chose that vacuum in full knowledge that it reduced healthcare access. The trust of authority on Bhola Island and the corresponding distrust of it in The Gemfields are part of the ecosystem into which health innovations emerge. Hence, the relative level of trust helps to determine the unique character of each response. In The Gemfields, no true equivalent of the village doctor has sprung up, even though in the relative obscurity that comes with living in this region it might be possible for such a practice to emerge unobserved and thus unmonitored. The character of the community militates against it: locals live in remote housing, often alone and do not attempt to integrate closely into a communal lifestyle.

Healthcare professionals based in The Gemfields to whom we spoke believe that less regulation has the potential to improve workforce flexibility and better integrate local health services. From The Gemfields study, there was general consensus that a modest extension in scopes of practice for auxiliary health professionals in rural settings would fill service gaps, especially for coverage after hours, on weekends and when there is no doctor in the local vicinity. These findings are in keeping with those of previous studies that suggest a relaxation of regulations in rural and remote areas would enable qualified pharmacists, paramedics and nurses to expand their scopes of practice. Such a move would enhance direct patient care and thereby improve health outcomes for rural populations (O'Meara et al. 2012, Schindel et al., 2017, Taylor et al., 2019). In the absence of regulatory flexibility to allow local providers to respond to need, patients are forced to do without. For example, pharmacists in Australia, despite possessing vastly more substantive medical training than a *palli chikitshok* in Bangladesh, are not permitted to prescribe antibiotics, and, until very recently, could not even perform vaccinations.

In Bhola Island's informal health system, attempts to promote patient safety and to raise standards of professionalism will face the same hurdles of poverty and remoteness that prevent the delivery of formal healthcare in the first place. The lack of regulation on Bhola Island is also fostered by a factor not mentioned by our interviewees: systemic corruption. In rural regions of Bangladesh such as Bhola, corruption is integral to the system of governance, whereby both the 'legal' (MQPs) and the 'illegal' (RMPs) operate under a form of alternative regulation. This has stabilised over decades, allowing relatively predictable *modi operandi*. Government inspectors seeking to force, for example, new MBBS graduates to spend their allocated time in rural and remote areas have long since encountered resistance, and, as a previous Bhola-focused study indicates (Muurlink & Macht, 2020), these points of resistance become foci for the emergence of corruption.

In the absence of regulation, in Bangladesh lay practitioners take on perhaps too much responsibility and overstep professional standards in ways that endanger patient care. By contrast, in heavily regulated Australia this study reveals a desire for less regulation in remote locations, allowing greater innovation. Here, qualified health professionals (pharmacists, paramedics and nurses) have potential to expand their roles to take on more responsibilities. Ultimately, for both study regions, healthcare structures are shaped by need: situated between an absence of formal medical infrastructure and personnel, and high health needs, both cases represent contexts in which innovation can – and, so we observe, does – emerge.

ETHICS AND INTEGRITY STATEMENT

This research project has been conducted in an ethical and responsible manner and complies with all relevant legislation. The results are presented honestly and without fabrication, falsification or inappropriate data manipulation.

PATIENT CONSENT STATEMENT

No patients were involved in this research project.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

Not applicable.

ETHICS APPROVAL STATEMENT

Ethical clearance for the collection of primary data was obtained from the Human Research Ethics Committee of Central Queensland University (application nos. 21297: Village doctors qualitative interview study and 21425: Health in The Gemfields study).

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CONFLICT OF INTEREST DISCLOSURE

None.

AUTHOR CONTRIBUTIONS

PD led the project and handled the Bangladeshi data collection with OM. LC performed the Australian data collection. PD and LC prepared the first draft of the manuscript. OM and ATR supervised the findings of the project. All authors contributed to writing and reviewing the final submission.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to privacy or ethical restrictions.

ORCID

Pratima Durga https://orcid.org/0000-0001-9394-7102
Lisa A. Caffery https://orcid.org/0000-0001-6325-337X
Olav T. Muurlink https://orcid.org/0000-0002-8251-9521
Andrew W. Taylor-Robinson https://orcid.org/0000-0001-7342-8348

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