



# Success and Its Consequences: Bangladesh's Health Report Card at 50

*Olav Muurlink, Pratima Durga, Nabil Awan,  
and Andrew Taylor-Robinson*

## STARTLING PROGRESS

The only accurate snapshot we had of Bangladesh's demographics at the point of the nation's birth was already almost a decade old: the census of 1961. The turmoil of the coming years meant that the next census would not take place until well after the Liberation War, in 1974. The picture in

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O. Muurlink (✉) • P. Durga  
School of Business and Law, Central Queensland University,  
Brisbane, QLD, Australia  
e-mail: [o.muurlink@cqu.edu.au](mailto:o.muurlink@cqu.edu.au); [pratima.durga@cqumail.com](mailto:pratima.durga@cqumail.com)

N. Awan  
Institute of Statistical Research and Training, University of Dhaka,  
Dhaka, Bangladesh  
e-mail: [nawan@isrt.ac.bd](mailto:nawan@isrt.ac.bd)

A. Taylor-Robinson  
College of Health Sciences, VIN University, Hanoi, Vietnam  
e-mail: [andrew.tr@vinuni.edu.vn](mailto:andrew.tr@vinuni.edu.vn)

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1974 in the census was grim: Bangladesh was among the poorest nations in the world, with poor capacity to spend where it needed the most, on building its health infrastructure. With per capita income of roughly \$US144 (in 1985 dollars, according to World Bank figures) and a population density of around 1400 per square mile (i.e. 2.6 square kilometres) and 90% of the nation's economy propped up by a system of subsistence agriculture, survival rather than health was the question occupying the minds of administrators. Half the nation was undernourished, life expectancy was estimated at 40 for men and 45 for women (World Bank figures), and 15% of Bangladeshi children died in their first five years (Quddus & Becker, 2000).

This level of uncertainty in Bangladeshi demographics has not entirely disappeared, despite the British imperial legacy of painstaking bureaucracy and record-keeping. Tracking what happened over the following 50 years is at times an exercise that combines guesswork and stretching credibility. Guesswork because a decade separates each formal census, and in the crucial decade following 1961, the gap was stretched by circumstances, meaning numbers were arrived at by statistical imposition rather than from population surveys. In addition, with age limits set on entry to coveted public service positions, parents engaged in the deliberate misrecording of birth dates to ensure their offspring had a 'longer youth' in which to try for public service exams. Even the records that are kept regarding something as definite as population thus need to be taken with a grain of salt.

Equally, the relatively reliable figures that *do* emerge from careful record-keeping and research stretch credibility—such is the collective success the nation has achieved on the health front. In five decades, Bangladesh's health system has undergone a wide range of reforms, achieving remarkable improvements in population health status by meeting several targets of the Millennium Development Goals, notably the reduction in the under-five mortality rate, containment of HIV infection, and detection and treatment rate of tuberculosis. The country has also made impressive advancements in decreasing the prevalence of underweight children, reducing the infant mortality rate and maternal mortality ratio, improving coverage of immunisation and lowering the rate of communicable diseases (UNDP, 2021).

During the mid-1970s, the Total Fertility Rate (TFR) for Bangladesh hovered very close to 6 (Sirageldin et al., 1975); the latest figures from the Bangladesh Bureau of Statistics suggest that TFR has fallen to 2.1 (Lutz, 2013). However, other estimates put the value of TFR at 2.3 (NIPORT,

2013). Notwithstanding the question mark about the exact values of the summary fertility estimates, the consensus is that Bangladesh has reached close to replacement-level fertility in a remarkable rush, dropping by approximately a single child per family per decade. Life expectancy has gone almost as rapidly in the opposite direction, rising from around 45 years of age when the nation was founded. These remarkable numbers are both an important symptom and a source of economic growth—and of structural strain. Dhaka division's population had been growing at a healthy rate—around a million a decade in the years prior to 1961—but suddenly accelerated to around six million a decade (BBS, 2015).

These numbers also make Bangladesh a remarkable case study of what can be achieved by the parallel implementation of public health interventions, the broad embrace of modern medicine including contraceptives, improvements in nutrition, food security and the education of women, as well as the education of the population in general. Despite these striking improvements in health outcomes, diseases of poverty, including malaria, diarrhoea, dengue and tuberculosis, persist, along with malnutrition and neonatal mortality (Bangladesh Planning Commission, 2015).

#### A FLEXIBLE HEALTH SYSTEM WITH AN INFLEXIBLE PROBLEM: HUMAN RESOURCES

The Bangladeshi health system has expanded rapidly to cope with rapid change: in 1973, 308 hospitals with just 10,449 beds could be counted, and 40 years later, the number of hospitals more than doubled to 678, and just short of 50,000 beds were available (WHO, 2015), more than keeping pace with population growth. The Bangladeshi public health system is highly centralised, with planning components handled by the Ministry of Health and Family Welfare, like all other ministries based in Dhaka—and with little real authority delegated to district let alone local level. The Health Information System includes the Directorate General of Health Services and the Directorate General of Family Planning. There is a division of power when it comes to registration of doctors, dentists and nurses, but their real authority over the destinies of medical providers is quite weak (WHO, 2015). Real formal power is relatively difficult to exercise in Bangladesh, and, as we shall see, one striking aspect of the nation's medical care services is the chaotic informality with which they are delivered.

The exponential improvements of the past 50 years drive ambition looking forward. In view of their commitment to achieving universal health coverage (UHC) by 2032, policymakers in Bangladesh are considering options to increase coverage and enhance service quality by reforming service delivery systems and governmental systems. One of the crucial systemic hurdles to achieving UHC is the critical shortage of health workforce, and thus human resource management, including retention of talent inside Bangladesh, is a focus of any initiative to achieve UHC (El-Saharty et al., 2015). Around 10,000 new medical students enter medical school each year (Islam et al., 2014), but graduates do not spread evenly throughout the system to meet health needs. Instead, they cluster in the cities, and service the middle class and wealthy to a disproportionate degree.

The funding of medicine partially explains the puzzle, with a rapidly emerging private healthcare sector, with its performance sensitive to financial incentives. According to the most recent Bangladesh National Health Accounts, total spend on health stands at around US\$ 2.3 billion, or US\$ 16.20 per person per year, of which almost two-thirds (64%) is drawn from out-of-pocket expenses (WHO, 2015). Despite the great poverty of the majority of the population, user-pay is thus a significant element of Bangladeshi health. Uptake of health insurance is very low, with our research showing that this is in part because health insurance providers are not trusted to deliver at a time of personal health crisis.

### UNORTHODOX HEALTHCARE INNOVATION

The chronic shortage of qualified healthcare providers at point of need thus presents a major challenge for the lower socioeconomic groups in their capacity to prevent ill health and to seek appropriate healthcare (Ahmed et al., 2013). The shortage to some degree drives the cost of accessing the formal healthcare system. Furthermore, the World Bank (2014) has underlined the critical impact of the lack of qualified and trained medical personnel in rural areas—which, considering that Bangladesh remains predominantly rural, is of particular concern. Our research shows that for the health consumer, ‘remote’, if not ‘rural’, may mean as little as a few kilometres between the consumer and the health service they need to access. For those living close to a subsistence level, even short distances offer a serious hurdle to access.

The Bangladeshi health system suffers from medical pluralism (Bhardwaj & Paul, 1986; Mahmood et al., 2010; WHO, 2015), with four main participants defining the structure and function of the system: the government, private sector, nongovernmental organisations (NGOs) and donor agencies (WHO, 2015). In this system, a formal health sector comprising professionally trained healthcare providers such as doctors, nurses, midwives, dentists and allied professionals such as chemists and physiotherapists (World Health Organization, 2010) coexists with an informal health sector consisting of a significant cadre of providers comprising semi-qualified practitioners (e.g. community health workers, medical assistants and midwives), unqualified allopathic practitioners (i.e. those using conventional medicines or surgery) medical providers (e.g. chemist shops retailers, village doctors) and traditional healers (providers of homeopathic and Ayurvedic treatment).

The formal health force crisis is characterised not just by acute shortage, but also issues of unbalanced skill mix and inequitable distribution (WHO, 2015). Proposed interventions and strategies to increase attraction and retention of health workers in remote and rural areas have lacked effectiveness and viability in the long run (Dolea et al., 2010).

Despite the inflow of 10,000 new graduates to practise medicine each year (Islam et al., 2014), this cohort often resists assignments to rural postings. In cases where rural assignments are accepted, absenteeism is rife (Chaudhury & Hammer, 2004; Joarder et al., 2018; Sadiq & Ahmed, 2020). Rural and remote locations are therefore underserved by qualified healthcare practitioners despite strong government intervention, control and even incentives in conducting graduate geographical assignments. The dearth of qualified medical professionals, including allied health professionals and nurses, creates a major challenge for the lower socio-economic groups to seek appropriate healthcare (Ahmed et al., 2013).

The low retention of qualified medical professionals coupled with high levels of absenteeism in rural clinics and health centres exacerbates the challenges of accessing regulated health services in the underserved regions (Darkwa et al., 2015). While the national vacancy rate for doctor-level positions is 39%, the rate climbs to 58.5% in rural health facilities. This problem is aggravated by the high rate of absenteeism—58.75% country-wide (Sadiq & Ahmed, 2020). Monitoring of doctors' activities at the rural level is difficult, and the policing of postings is often circumvented by corruption, and monitoring and enforcement is patchy (Rawal et al., 2015).

In response to the inadequate provision of formal health services, the ‘village doctor’ or *palli chikitschok* fills the vacuum. These are not a minority group of healthcare practitioners, but a veritable army serving on the front line of healthcare in rural and remote regions. It is difficult to establish the exact numbers of Rural Medical Practitioners (RMPs) dispensing their services, diagnosing patients, prescribing and selling prescription medicine in unlicensed and unregistered pharmacies, but research (2013) suggests the figure is around 185,000. These unregistered medical practitioners represent 95% of the country’s health workforce (Billah et al., 2018) and this situation is unlikely to change in the near future as the RMPs have become culturally entrenched in the rural communities and are increasingly gaining in popularity (Ahmed et al., 2013; Billah et al., 2018; Mahmood, 2012; Mahmood et al., 2010).

While formally Bangladesh has a strict regulatory structure not unlike the developed world, it is clear that in remote regions, where doctors, let alone regulators, are rare, the regulations are simply ignored, with little fear of retribution. The country has a comprehensive set of strategies to promote UHC; however, there are barriers on the ground to the implementation of the policies, namely human resources issues, health systems governance, political interference, and lack of monitoring and supervision (Joarder et al., 2019). These shortfalls on the supply side of healthcare services are coupled with issues on the consumer demand side as well: social and cultural mores, the legacy of traditional care systems, and the high trust of the rural population in the unqualified but entrepreneurial village doctor (Ahmed et al., 2013; Joarder et al., 2019; Mahmood et al., 2010). Results from a previous study show that RMPs are the first choice of treatment in most cases and, in some cases, the only choice for the rural people irrespective of socioeconomic status (Mahmood et al., 2010).

In addition to science-based medicine being dispensed by these RMPs, homeopathy, Ayurvedic/Unani, herbal medicine and spiritual healing are also common, not only in rural areas where access is a driver of consumer preference (Karmakar et al., 2012), with patients often seeking alternative medicines in addition to pharmaceuticals (Hasan et al., 2019). Studies which analyse the reasons behind the satisfaction of the community with village doctors reported the round-the-clock availability of the rural doctors as the main reason for their choice, followed by the provision of home visits, lower or no consultation fees, and the convenience of “one-stop service for treatment and medicine”, among others (Cockcroft et al., 2007).

This is a remarkable result, considering that our research shows that these practitioners have no more than a few weeks of medical training, but find themselves armed with a significant arsenal of modern medical tools—namely pharmaceuticals. ‘Western’ medicine is being exercised by amateurs working in an almost entirely unregulated market. That they are able to ‘safely’ do so, year after year, often in the poor rural and remote communities where they were born and reside, is testament to the background patterns of ill health that their clientele suffer from. Patients in poor communities generally have a fatalistic attitude, which allows RMPS to be rarely blamed or held accountable for their low standards of care (Ahmed et al., 2009).

### POTENTIAL DIRE CONSEQUENCES OF DEREGULATION

The lack of enforcement may stimulate growth and innovation in the provision of healthcare services inasmuch as the regulatory authorities are turning a blind eye to practices in remote regions, thereby passively conferring a degree of acceptability. A village doctor’s practice in rural Bangladesh does not take place behind closed doors, but is positioned in public, literally in the market streets of villages.

Although the importance of unqualified informal practice in meeting market needs is recognised (Ahmed et al., 2009; El Arifeen et al., 2013; Parkhurst et al., 2006; Salim et al., 2006), researchers have identified real health risks in this *laissez faire* system. Research conducted by the authors and additionally by Rasu et al. (2014) raises questions of quality of care provided by unqualified practitioners and the potential for iatrogenesis.

While village doctors are ready to ‘refer’ patients presenting with more serious symptoms to the formal medical sector, their income and status seem to depend on their willingness to prescribe allopathic medicine, including controlled or restricted prescription medicines, and, perhaps most importantly, antibiotics. The risky practices include overprescribing, multidrug prescribing, use of unnecessary drugs and misuse of antibiotics (WHO, 2015). A majority of RMPs carry the dual role of prescriber and dispenser of allopathic medicine and they have almost unlimited access to prescribing and selling medicine, including antibiotics (Ahmed & Hossain, 2007). Our research shows that the majority are dependent on the sale of drugs for their income: they offer their ‘professional’ services for free. WHO numbers suggest that there are approximately 70,000 unlicensed ‘pharmacies’ enabling irrational drug use, for example the

overprescription of medication and misuse of antibiotics (WHO, 2015). However, our research and research conducted in partnership with the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) shows that in rural and remote areas, over 90% of RMPs sell pharmaceuticals—and indeed draw on pharmaceutical sales representatives for their ‘training’.

Antibiotics are a particular focal point for concern, with prescribing or overprescribing problems exacerbated by patients completing only a partial course of antibiotics. Ninety-five per cent of the RMPs we interviewed admitted to prescribing antibiotics but dispensing only a few tablets or capsules instead of a whole course because of consumers’ limited ability to pay. A pair of scissors is often one of the most visible tools of trade in an RMP’s ‘clinic’, used to cut off whatever quantity of pills the consumer can afford to buy. Previous studies have drawn attention to the dire consequences of the overuse and misuse of antibiotics (Afari-Asiedu et al., 2020; Ahmed et al., 2019; Ahmed & Hossain, 2007; Ahmed & Islam, 2012; Mahmood et al., 2010).

### THE TRIUMPH OF PUBLIC HEALTH IN BANGLADESH

With life expectancy now at highly respectable levels thought to be in excess of 70 years of age for men and women, the question becomes *how* Bangladesh has managed to achieve such remarkable improvements. Our research (Khan et al., 2018, 2020a, 2020b) matches the work done by many other teams showing the interlinked power of education and socio-economic status in determining health outcomes, and as the economy strengthens, the ability to access better health in what is a remarkably unregulated market will improve.

It is arguable, however, that targeted public health expenditure, less glamorous than building either new hospitals or new schools, has been the real driver of change. Public health expenditure is often used as a marker of the resolve of policymakers in their goal to reduce health disparities (Barlow, 2020). Considering the distance the nation has come, the spending patterns then sound a note of concern. Between 1997 and 2007, public spending on medicines and medical goods out of the public purse increased almost seven-fold in absolute terms, and relative to total public expenditure on health more than doubled from 5% in 1997 to 14% during that period, while the figures on public health merely doubled as an absolute amount, and as a share of total public health expenditure *decreased* by



8% (WHO, 2015). Considering that the platform of the nation's success was built not through medical practitioners or grand hospitals but through a revolution in sanitation and the provision of safe and arsenic-free (Brinkel et al., 2009) water, this trend is worrying.

The tragic conditions suffered by Bangladeshi refugees expelled during the Liberation War ended up being a turning point in the nation's public health triumph. Oral rehydration therapy, developed by the ICDDR,B, was used in the worst cases observed in the 350,000 refugees living in the camp in West Bengal. When the medical team led by Dr Dilip Mahalanabis ran out of intravenous fluids, oral glucose-salt packets were substituted, with dramatic, life-saving results. Cholera, driven by faecal-oral infections—still a key vector of disease burden in low-income contexts—is no longer a death sentence in Bangladesh, but this is not to say the work of ensuring access to good sanitation is complete. A recent study conducted in Bangladesh (Foster et al., 2021) shows the potential for further improvement and the need to maintain this most basic of public health infrastructure. Foster and his team estimate that comprehensive coverage of septic tanks reduces the disease burden in disability-adjusted life years (DALYs) by 48–72%, while ensuring that septic systems are anaerobic and completely covered reduces DALYs by 67–81% (Foster et al., 2021). The COVID crisis reinforced the importance of improving in another very basic form of preventative health, handwashing, which is still less common amongst the very population most vulnerable to diarrheal disease (Luby et al., 2009). Bangladesh is not free of the threat of diseases such as typhoid or leprosy that are almost considered diseases of another century in the developed world. Food shortages continue to be linked to the outbreak of clinical manifestations of leprosy in the nation's northwest, and these populations would benefit from targeted nutritional supplements (Feenstra et al., 2011). These are the 'easy wins' of public health, where low levels of investment can be leveraged into significant achievement in wealth.

Even the rise of non-communicable diseases (NCDs) associated with wealth (such as diabetes and heart disease) may on the surface mask the value of public health investment in achieving further improvements in health outcomes, but chronic non-communicable diseases are increasingly beginning to undermine social and economic development in much of the developing world, including Bangladesh, and increasingly, lower socioeconomic groups are implicated in NCD statistics. The lower socioeconomic status community experience greater prevalence of comorbidities compared to wealthier communities (Biswas et al., 2016).

## THE FUTURE: GROWTH IN PRIVATE HEALTH AND A CONTINUING SHORTFALL IN PUBLIC INVESTMENT

In the background of Bangladesh's dynamic healthcare sector another revolution is taking place, less dramatic than those that characterised the first 50 years, but with major implications nonetheless. Private healthcare expenditure has been increasing while public healthcare expenditure (in proportional terms) has been decreasing. Private healthcare expenditure in Bangladesh, measured as a proportion of GDP, is positively correlated with total healthcare expenditure and healthcare expenditure per capita (Mahumud et al., 2015), so the growth of the sector has positive implications for the overall strength of the sector. The United Nations in its resolution adopted by the General Assembly (2015) declares that it is essential that governments in developing countries increase the national health budget in order to tackle major health issues; however, this is not happening in Bangladesh. Furthermore, in a study on the impact of health spending on life expectancy, Obrizan and Wehby (2018) established that increasing government spending on health budget expenditure has significant effects on reducing inequalities. To actualise inclusive social development, it is necessary to safeguard people's rights to health access. It is therefore imperative for governments to invest adequately in healthcare systems in order to "close the gaps in human capabilities that help perpetuate inequalities and poverty across generations" (UN System Task Team on the Post-2015 UN Development Agenda, 2012, p.32).

The COVID crisis illustrated the strengths and weaknesses of Bangladesh's health system, showing that strong government control over the population in times of crisis can serve to moderate the impact of public health catastrophes. There are a range of reasons, including cultural and social ones, as to why Bangladesh appeared to be shielded from the worst of the first and second waves of the virus (Muurlink & Taylor-Robinson, 2020), but Bangladesh's strong public health system, and the high degree of trust that individuals, even in rural and remote regions, display in modern medicine has reaped rewards during this crisis. The other ongoing health challenge is likely to be the Rohingya crisis. The Rohingya peoples are the world's largest displaced population. The crisis is in some senses a health snapshot of Bangladesh compressed into less than five years, with hunger, funding shortfalls, communicable diseases and high population density combining to create a significant human tragedy. Bangladesh has a relatively skeletal mental health system, although increasingly one can

observe counsellors and psychologists assigned to district hospitals to deal with acute mental health challenges. The Bangladeshi system is not set up to deal with mental health trauma on the scale presented by the Rohingya catastrophe. The experience in the camps appears to be amplifying the residual trauma caused by displacement, with PTSD, depression and functional impairment higher than at comparative camps in Malaysia (Khan & Haque, 2021). The camps are characterised by lack of access to safe water, sanitation (UNCF, 2017) and hygiene, clearly a set of challenges the host country has faced before, but not one it was previously asked to tackle on behalf of the global community. Children make up a disproportionate percentage of the camp population, with the associated challenges of vaccines, nutritional support and even education not being adequately met. The camps lack the capacity to deal with the challenges of maternal health, sexual violence and health (Islam & Nuzhath, 2018) despite an outpouring of international aid and attention. In a sense, then, the Rohingya crisis and the associated health challenges represent a return to the challenges that characterised the early years of Bangladesh, as recorded elsewhere in this volume.

These challenges need to be added to the structural challenges that remain in Bangladesh despite the startling success embedded in the 'headline numbers' of life expectancy, infant mortality and fertility rates remarked on earlier. In fact, the kernel of potential catastrophes lies buried inside these successes. We have touched on the threat of antibiotic abuse, for example. In addition, due to the success in extending life expectancy, population growth or decline in Bangladesh will continue well beyond the time at which replacement-level fertility has been achieved, a phenomenon referred to as *population momentum*. The simplest explanation for why population momentum occurs is that adults commonly live beyond their child-bearing years. Bongaarts (1994) has estimated that momentum accounts for nearly one-half of the projected future population growth in the developing world over the next century, but the two key components of population momentum, age composition and fertility rate, are in rapid flux in Bangladesh, representing an extreme case of demographic transition (Coale, 1989) in the world's seventh most populous nation.

Our research suggests that the age profile of Bangladesh will be dramatically restructured as the country achieves stationarity in population. Current higher density in younger age groups will contribute to a long-term substantial growth in raw numbers of Bangladeshis despite achievements in reducing fertility.

As a result, in proportional terms the number of females in Bangladesh in the 0–14 category, for example, will decrease sharply, and those over 65 will *rise* even more sharply—in fact this sector will rise in proportional terms by almost five-fold. The increase in retirees will greatly outstrip the increase in the population of those who are typically thought to support them—those of ‘working age’—by around 4.25 times. While ‘working age’ according to labour law in Bangladesh is set at 14, around 1.3 million children between the age of 5 and 14 are estimated to be working in Bangladesh (USDOL, 2012). The population of those in this extended ‘working’ category is also not going to expand rapidly, and thus the burden on those working will undoubtedly substantially increase, adding pressure on Bangladesh to improve labour productivity, address social security and reorder its tax system, which currently relies on a very narrow base of taxpayers both amongst SMEs (Faridy, 2012) and individual taxpayers, with less than 1% of the population paying income tax (Karim, 2013). This has clear and serious implications for the provision of the kind of health care system that Bangladesh is aspiring to as it moves out of Least Developed Country status. Bangladesh will need to be agile and innovative in bringing its army of informal health care providers into the fold, by offering flexible training to those already showing remarkable aptitude and willingness to work with science-based medical systems. The informal health care system is the first port of call for the majority. The minority can hope to access a new breed of ambitious, well-equipped hospitals following the Indian model, emerging in key centres like Dhaka and Chittagong. These hospitals are designed to attract and serve wealthy Bangladeshi patients/clients currently choosing offshore options in India, Singapore and Thailand. They are staffed by internationally trained specialists, and equipped with all the paraphernalia of modern medicine. Their business models are partly shaped around attracting international clientele, but they may well form a more important part of Bangladesh’s economic success than its remarkable health care story.

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