India is training 'quacks' to do real medicine. This is why

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Aditya Bandopadhyay has treated the sick for more than twenty years. He works in the village of Salbadra, in the state of West Bengal, India. He has no degree in medicine.

Bandopadhyay was trained in the rudiments of clinical medicine by a homeopath who also happened to practise modern medicine on the side. Bandopadhyay charges every patient just 10 rupees (15 US cents) per visit, notching it up to 20 rupees for house calls. His arsenal includes antibiotics, intravenous saline and chloroquine phosphate for the viral fevers, dysentery and malaria common in the region. But he doesn't always give his patients medicines; sometimes he just advises them on personal cleanliness. "Tribal people are not very hygienic," Bandopadhyay says. So he teaches them how to purify water, sprinkle DDT during outbreaks of mosquito-borne disease and use clean sanitary towels during menstruation. "If they come to my chamber, I first give them a dose of hygiene, and then give them a dose of medicine," he smiles.

Bandopadhyay is a rural medical practitioner, one of an estimated 2.5 million in India who practise medicine without formal training. Among his ilk are people who have worked as assistants to doctors, those who inherited the use of traditional systems of medicine such as Ayurveda and homeopathy from their parents, and graduate lab technicians who switched to healthcare. None of them are doctors by any definition. They are entrepreneurs who have picked up bits and pieces of medicine through informal apprenticeships and built up large practices on their

own. Or, in the words of the Indian Medical Association, they are 'quacks'.

Yet their popularity remains steadfast in their communities. They fill a void in India's healthcare system that cannot be ignored. And rather than mocking, berating and clamping down on them, at least one organisation is planning to harness them.

For the past couple of months, Bandopadhyay has attended a training programme that may transform the way he goes about his work. It teaches rural practitioners the basics of medicine, from human anatomy to pharmacology, giving them the theoretical knowledge that they lack. Run by the West Bengal-based nongovernmental organisation Liver Foundation, it aims to equip people like Bandopadhyay with the skills to treat acute cases of common illnesses, and, crucially, help them judge when their patients need to see real doctors.

When he graduates, in about seven months' time, Bandopadhyay will receive a title showing his new paramedic status: Rural Healthcare Provider. But there are also two forfeits. He will have to stop prescribing most Schedule H and Schedule X drugs, medicines that only doctors are allowed to prescribe in India. While he will be allowed limited use of a few antibiotics, such as amoxicillin and doxycycline, in life-threatening conditions, stronger antibiotics such as ceftriaxone will be out of his reach. He will also have to drop the prefix 'Dr' from his name, a title currently enjoyed by many rural practitioners. In effect, Liver Foundation's controversial programme will demote its students, from self-styled and self-taught doctors to health workers who can only treat the simplest of illnesses.

The idea of training rural medical practitioners ignites acrimonious debate in India. On one side are the Indian doctors, and more importantly the associations that represent them, such as the Indian

Medical Association. The Association's official stand is that training such 'quacks' is tantamount to legitimising them. It says rural practitioners and their half-baked medical training have caused enormous harm to patients and public health as a whole. The blame for many ills – whether irrational prescriptions of antibiotics, botched surgeries or corrupt practices, such as demanding bribes from qualified doctors to refer patients to them – is laid squarely at the doors of these self-styled doctors. According to Gurinder Singh Grewal, president of the Punjab Medical Council, the state's hepatitis C epidemic is down to the unhygienic practices of 'quacks'. "This is courtesy of the usage of bad needles. Blood that is not tested is transfused to people in remote areas," he says. But others believe that training these rural practitioners is the only way out of India's healthcare woes.

Fifty-six-year-old Abhijit Chowdhury, professor of hepatology at Kolkata's Institute of Post Graduate Medical Education and Research and a member of Liver Foundation, is one of the biggest champions of this idea. Chowdhury insists that rural medical practitioners have delivered essential healthcare to patients in remote parts of India, which qualified doctors have abandoned in pursuit of high-paying urban jobs. "On the other hand, there is this group of people, untrained and unemployed before they got into this profession. But, in the dead of the night, they are by the side of the people of the village when they are in trouble."

Since India's independence in 1947, its government has tended to overlook rural practitioners. They are illegal, but continue to exist and thrive. State medical councils regularly organise drives to round up 'quacks' and file complaints against them. But the police rarely take action, and the sheer numbers of these practitioners ensure they won't disappear anytime soon. Then there's the biggest reason of all for their continued survival – rural India doesn't have enough doctors.

Picture this: you're in Birbhum, rural India. You're riding in a toto, a three-wheeled, open-air auto rickshaw, the only mode of public transport besides buses. Rattling past emerald rice fields, people washing buffaloes in tiny ponds, and minstrels carrying all their worldly possessions wrapped in little bundles of cloth, the toto rarely exceeds 30 kph. Whenever it approaches one of the many treacherous potholes on Birbhum's roads, it almost slows to a stop.

Now imagine your toto is your ambulance. This is the journey that many in Salbadra must make if they happen to feel ill enough to need a doctor. Salbadra is a small village in western Birbhum, inhabited mainly by members of the Santhal tribe, one of the largest indigenous tribes in India. It doesn't have a primary healthcare centre – the mid-level government hospital with a qualified doctor that is the cornerstone of the public medical system in India. The nearest such centre is 16 km away in Mollarpur, and the nearest hospital that can admit patients is 35 km off in Rampurhat, approachable only by ill-maintained and potholed roads. So, when they fall sick, the villagers of Salbadra consult Aditya Bandopadhyay – the man who isn't a doctor.

The World Health Organization specifies an ideal ratio of one doctor to every 1,000 people in low-income countries: India has one for every 1,700. It is even worse if you aren't in a city, as only 20 per cent of them work in rural areas. Rural India has a pyramidal network of government health centres: sub-centres manned by assistant nurse practitioners at the base, primary health centres with one or two general physicians in the middle, and community health centres with four specialists at the top. According to 2015 numbers from the health ministry, it needs one primary healthcare centre for every 30,000 rural residents, but in reality 32,944 people have to share each of them. In primary centres, 11.9 per cent of the doctor positions are vacant. And at community health centres, a staggering 81.2 per cent of specialist positions are not yet filled.

A few states, including West Bengal, have the lion's share of these vacancies. West Bengal has only 909 primary healthcare centres (against a norm of 2,000 centres for its population of 90 million people). Birbhum, one of the poorest districts of West Bengal, has 58 of them, with 40 doctor vacancies. This means it has one primary healthcare centre for around 60,000 people, a ratio that gets even worse in tribal regions such as Murarai. And worryingly, at the bottom level of the network, most sub-centres lack critical infrastructure, such as electricity, toilets or water supply. "Doctors don't like to stay in rural stations," says Himadri Kumar Ari, Birbhum's chief medical and health officer. "The facilities they have in Kolkata and other cities are not there in rural areas."

The final blow to India's rural healthcare system is the rampant absenteeism among its doctors. A 2011 working paper by a team of US-based researchers found that almost 40 per cent of health workers were absent from their clinics on a typical day. While the excuses they gave were varied, the absences were strongly linked to poor infrastructure in hospitals and the economic status of the districts where the hospitals were located. And doctors who faced long commutes to impoverished areas were more likely to go AWOL.

This is the vacuum in government health infrastructure filled by the 'quacks'.

Pramod Verma, a 35-year-old sales manager with a marketing firm in Mumbai, approached his family homeopath with a fever in July 1992. The homeopath, who had never been trained in modern medicine, prescribed antibiotics for what he thought was viral fever as it was "very much prevalent in the locality". When the fever refused to abate, he gave Verma antibiotics to treat typhoid fever, again believing this was prevalent. Six days later, when the homeopath examined Verma again and noticed a large drop in his blood pressure, he transferred him to the

care of a qualified modern medicine practitioner. But Verma's condition rapidly deteriorated, and by the tenth day of treatment he was dead.

This case, judged in 1996, marks one of the earliest Indian Supreme Court judgements penalising rural practitioners. The judgement noted that the homeopath had been negligent in practising modern medicine, in which he had no training, and in not prescribing diagnostic tests to determine the cause of Verma's fever. "A person who does not have knowledge of a particular System of Medicine but practices in that System is a Quack and a mere pretender to medical knowledge or skill, or to put it differently, a Charlatan," the judgement noted.

But if you believe Abhijit Chowdhury, these practitioners have done as much good as harm.

He insists that Liver Foundation's training programme is in keeping with the Supreme Court verdict because it converts these self-proclaimed doctors into a legitimate group of health workers. "If I can reduce the negative attributes [of 'quacks'] by 10 per cent and increase the positive by 12 per cent, it is a net societal benefit."

Chowdhury envisages a system of all rural healthcare practitioners in an area enlisting with its district medical and health officer, enabling the officer to take action during cases of malpractice. This will make them more accountable, and visible to the regulatory system. "Right now, everybody has closed their eyes to them. If this training programme is given, they will become visible," he says.

These practitioners remain the go-to people for medical care in rural India, despite clear legal provisions and judicial precedents for prosecuting them. And not just in rural areas – purveyors of 'quackery' boast thriving practices in poorer urban regions with an adequate public health infrastructure. Meenakshi Gautham, a public health researcher at

the London School of Hygiene & Tropical Medicine, cites Tamil Nadu, a southern Indian state with very few vacancies in its primary healthcare centres. "But you still have rural medical practitioners. Why is that? The obvious reason is that people's health needs aren't being met."

Even government hospitals with the resources to reach out to poor patients aren't as responsive as rural practitioners. Doctors in primary healthcare centres call it a day by 14.00, but a 'quack' will still be making house-calls in the small hours. Unlike short-term government doctors, for whom village postings are a temporary nuisance, they are available 24/7. And their client bases are smaller than those of government doctors, who typically treat patients from villages spread across large areas. This makes rural practitioners much more accountable to their clients and, as they well know, more likely to be punished when they screw up. "They are entrepreneurial workers in a consumer-driven health market," says Chowdhury. "They do not do bad things consciously. They do bad things unconsciously."

That's why there are so many of them. It is also why they must be trained, argues Gautham.

Liver Foundation's training programme in Birbhum takes place twice a week. It draws around sixty rural medical practitioners from the various corners of the district, and some from over the state border in Jharkhand.

One such class is taking place on a hot August Sunday in a meeting hall at the heart of Suri, Birbhum's capital. A motley group of people, mostly young, but with some grey heads among them, sit in the high-ceilinged hall with fans spinning futilely above. They all wear grey coats, their uniforms, and listen intently, pens poised over notepads. The subject is tuberculosis, a major health problem in Birbhum, and the teacher is Kajal Chatterji, a doctor at Suri's government district hospital. He is

discussing the differential diagnosis of tuberculosis, or how to tell if a patient with symptoms of tuberculosis really has the disease or some other ailment that looks like it. A chest X-ray can't always diagnose tuberculosis, Chatterji is saying, because tuberculosis-afflicted lungs can often look like silicosis- or pneumonia-afflicted lungs in an X-ray image. Only a sputum test can confirm the disease. The next bullet on his slide is about tuberculosis of the lymph nodes. The laboratory diagnostic test for this, Chatterji tells his students, is "fine aspersion cytology".

After his final slide, Chatterji pauses. Sixty heads bow, and minutes of complete silence go by as the students scribble on their notepads. Suddenly one of them stands up. He has a question: where in the human body are the lymph nodes located?

The knowledge gaps of rural medical practitioners are huge, which makes them very capable of harming their patients, according to Saibal Mazumdar, another doctor at Suri's district hospital who is delivering training. "Our motto is harm reduction," he says, warning about the rural practitioners who inject pregnant women experiencing delayed labour with oxytocin. This can be dangerous when done too quickly, sometimes leading to rupture of the uterus. "We tell them: there are so many factors which you don't know. If you cannot assess the situation, you should not give this injection."

The message seems to be getting through. Students of Liver Foundation have eager words of praise for their curriculum. Radha Binod Das, who works in Shikaripara, a village in Jharkhand, says he does lots of things differently after only a couple of months' training. "I used to give the wrong dose," he laughs. "I used to give azithromycin 500 [an antibiotic] two times a day for fever and cold. Now I give the medicine according to body weight."

In August 2015, the West Bengal government said it would consider

supporting Liver Foundation's programme in order to help meet the rural doctor shortfall. But the Indian Medical Association, one of the programme's most persistent critics, is set to contest it.

"These politicians don't understand that modern medicine is practised after six or six and a half years of training", says Ram Dayal Dubey, the president of the Indian Medical Association's Kolkata branch. "How can a person practise with two to three months of training?" Dubey is scathing about what he sees as the legitimisation of a criminal activity, comparing the programme to teaching burglars how to steal more effectively. "They are doing illegal things," he says of the practitioners, "and Liver Foundation is training them to do illegal things more scientifically."

Opposition to healthcare providers without a proper medical degree goes back a long way in India, particularly in West Bengal. During the 19th century, medical colleges produced two grades of doctors to meet the exploding healthcare demand in pre-independence India. The first was the fully-fledged doctor, after five years of education and training, while the second was similar to Russian Feldshers – professionals trained for three or four years who could handle acute and uncomplicated diseases. They were called Licentiate Medical Practitioners, and by the early 1940s they outnumbered doctors by a ratio of 1.7 to 1.

All this changed when, in 1943, the British government appointed a committee headed by Sir Joseph Bhore to chart a path for public healthcare in India. The resulting 1946 report, a landmark document that forms the basis of India's system today, was the harbinger of doom for the Licentiates. Describing practitioners trained for less than five years as "hastily manufactured", the report argued that they would put India on a very slippery slope. These "imperfectly trained" types would be tempted to exceed their brief and would also suffer from a lack of confidence, the report said.

So in 1956, ignoring dissent from six of its members, the Bhore Committee recommended a halt to the training of Licentiate Medical Practitioners. This was taken up by the government of the newly independent India and the Licentiate Medical Practitioner was eventually abolished entirely in favour of a single grade of doctor – the idea being that they would train so many new doctors that the country wouldn't need a lower grade professional.

Things didn't really go to plan, as 2015's rural health statistics show. Yet the Indian Medical Association has repeatedly condemned the mid-level practitioner idea. When the West Bengal government introduced a three-year training programme for rural practitioners in the mid-1980s, the Association mounted an attack. "We had several demonstrations and rallies. Ultimately, because of the IMA's strong opposition, the government had to stop it," says Dubey.

In 2005, an Indian government task force recommended a new three-year Bachelor of Science course for healthcare professionals to meet the physician shortfall in rural areas. The plan was approved by the Indian cabinet, but hasn't yet been implemented by the Medical Council of India, the country's top medical regulatory body.

Chowdhury is exasperated. "The Indian Medical Association is a clan of Brahmans," he says, referring to the most elite caste in ancient Indian society, who considered themselves intellectually and spiritually superior to others. "They never listen to any argument, any reasoning, any justification."

The Indian Medical Association may continue its campaign against rural practitioners, but others have bought into Chowdhury's ideas. Not least Jishnu Das, an economist at the World Bank, whom Chowdhury approached in 2012 to help assess the impact of Liver Foundation's training. According to Das, Chowdhury, unusually, wants to use research

to understand the efficacy of his own programme, rather than merely prove it to others. "I still remember him telling me that they wanted the evaluation protocols firewalled from implementation, so that there was no chance of contamination. He was very clear: 'We don't know whether this programme is doing harm or good, and we need to know. Once we have the results, we can see whether it's an improvement or whether we should just shut it down.'"

Das has since run a randomised controlled trial comparing the quality of care of rural medical practitioners trained by Liver Foundation with care from qualified doctors. The results are not yet available. But Das's previously published research does show the rural practitioners in a good light.

A 2015 study found that, contrary to popular belief, unqualified doctors weren't the sole source of unnecessary treatment. Das and his team sent 22 patients coached to present symptoms of three diseases to qualified and unqualified rural doctors. The team then graded their abilities to accurately diagnose and treat the diseases. They found, not surprisingly, that qualified doctors provided correct treatment about 30.9 percentage points more often than unqualified ones. But there was a bombshell: qualified doctors were 26.7 points more likely than unqualified providers to prescribe needless antibiotics to patients. Unqualified doctors indulged in overtreatment too (several other studies confirmed that over-prescription was indeed a big problem among rural practitioners), but the unnecessary medicines they prescribed were typically over-the-counter drugs such as vitamins. During interviews, Das says, the rural practitioners seemed wary of prescribing strong antibiotics, whereas qualified doctors showed lesser caution.

It is the overtreatment by qualified doctors that Indian medical councils should crack down on, says Das. They are, after all, responsible for regulating them. "Instead of doing that, which they know is very hard,

the thing seems to be to construct a narrative that informal practitioners are creating all the problems. No, the informal practitioners are not creating all the problems. They are there because there is no option."

There is growing evidence from other low-income countries with unqualified medical practitioners, such as Uganda, Peru and Bangladesh, that training can greatly boost their competence. In 1983, a study carried out in Valle Del Cauca, a state in Colombia, found that over 70 per cent of surgeries in rural regions could be handled by health workers with less than six months' training. These included hernia repairs, circumcisions and caesarean deliveries. More recently, a 2013 review of research on informal providers found that 14 out of 16 studies on the impact of training reported positive outcomes. The providers tested in the studies included midwives, general practitioners, and pharmacists who dispensed prescription drugs to their customers for sexually transmitted diseases. Apart from two studies, which saw mixed outcomes, training helped them to give better care to their patients.

There was a significant victory for the rural practitioner camp in June 2015. Officials in the newly formed state of Telangana approved statewide training – the 1,000-hour programme, unconnected with Liver Foundation's scheme, will be run by Telangana paramedical board, which regulates paramedical education and practice. This is the second time it has been run in the region since an unsuccessful launch in 2009, when it ceased due to dwindling political support.

Choppari Shankar Mudiraj, a rural medical practitioner of 30 years and the head of an association of others like him, effusively praises the decision. "This is a revolutionary change. It is the first time such a thing is happening in India. Across the world, there is only one other country that has a concept such as barefoot doctors. That is China," he says, referring to a 50-year-long phenomenon in China in which peasants trained in basic medicine later became vital to public healthcare in the

mid-20th century. They focused on preventive healthcare, such as immunisation and sanitation, but many eventually studied to become qualified doctors. China's success in reducing infectious diseases such as polio is partly down to these peasants, who would dispense medicine from village to village.

Mudiraj believes the Telangana training programme will equip him to provide high-quality medical care to his patients, just as China's barefoot doctors did. Ordinary people find it hard to go to hospitals, he says. "We leave the villages where our families are and go to the remotest, hilliest of areas. We have treated people who have been bitten by snakes and attacked by bears. We go to their houses and treat them because they can't come to us."

For Mudiraj and his colleagues, treating patients comes before any monetary gain. This is why they are happy to accept small amounts of food grains or vegetables as a fee, if the patient has nothing else to give. "There are times when I have given service for two rotis," says Choleti Balabrahmachari, a rural practitioner from the Nalagonda district of Telangana. "When he doesn't have two rotis, I forgo even that."

They say they have contributed greatly to the country's public health programmes too. When the Pulse Polio infant immunisation scheme was launched in 1995, district collectors asked influential rural practitioners for their help. "They said, 'We will send our sisters [nurses] to you'," says S Venkat Reddy, the president of another association of rural practitioners. "These sisters don't know the people in villages like we do. They don't know which households have small kids, but we do, because we go there."

Reddy says he and his colleagues ensured that countless children received vaccines, driving India's success in eradicating polio. Many vaccination camps were located next to rural practitioner clinics, to reach

as many people as possible. Rural practitioners have also participated in family planning, tuberculosis control and AIDS awareness programmes over the years.

This kind of influence means they also enjoy much political patronage. According to K V Narayana, a health economics researcher at Hyderabad's Centre for Economic and Social Studies, village leaders support rural medical practitioners because they receive free treatment from them. This makes them influential in shaping public opinion. "[The rural medical practitioner training course] basically started as a populist policy. Because they matter a lot in rural areas to political parties," he says.

But this motive rankles several doctors, who think the rural healthcare system has suffered terrible neglect. They believe doctors avoid rural areas because the government has done precious little to keep them there. The infrastructure in primary centres is bad, they say; the recruitment process is long-winded; salaries are poor, and medical interns are not even recognised as genuine doctors. Last but far from least, government monitoring of absenteeism in village hospitals is sparse.

Shyam Sunder Kasapa, the Telangana branch president of the Indian Medical Association, says everyone – doctors and the government included – should reflect on this. Turning to rural practitioners instead of fixing the huge problems in India's healthcare system is just a political gimmick, he says. "The government's idea itself is discriminatory," he argues. "So paramedics can treat rural people, but you need specialists and super specialists for [urban residents]. Is it justified? Don't [rural people] have equal rights?"

Good question. Gautham envisages a two-phase strategy: training the rural practitioners to address the immediate gap in healthcare, while also

training more doctors so that gradually the need for the practitioners decreases. "The long-term strategy cannot be to keep training informal healthcare providers. This market cannot remain informal forever," she says. But she insists that some kind of mid-level practitioner must be trained. That is something both the Medical Council of India and the Indian Medical Association stubbornly resist.

These disagreements do not bother Chowdhury. When rural health practitioners like Aditya Bandopadhyay graduate from Liver Foundation's programme, the medical councils will have no power over them – as long as they don't call themselves doctors.

Chowdhury will plough on: creating doctors is not his priority. The system doesn't produce medical professionals who can solve the problems of rural India, he says; it rewards specialists who treat the diseases of the minority. "I wish for thousands of villages to have health workers who are capable of taking care of fever, malaria, and identifying high-risk mothers and sick children to be referred to a health centre with trained doctors." He doesn't need the regulators' approval for that.

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