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Chapter 6

Persistent Hospitals

Claire Beaudevin, Fanny Chabrol, and Claudia Lang

Global health's ethic of action is based on an assumption that functioning healthcare—public hospitals, health infrastructure, and expertise—does not exist in the spaces where global health is most active. Yet many public hospitals exist in sites of global health intervention. Thus, in the context of global health, state-run hospitals are paradoxical objects of mistrust and investment: They are bypassed and criticized on the grounds of inefficiency but are nonetheless continuously funded and invested with social and political value. They are necessary components in numerous health interventions, which ironically often include global health programs designed to make up for their shortfalls. In other words, hospitals remain important, but they are often unacknowledged loci of care, training, and research, as well as sites of larger processes of health globalization. This paradoxical status places hospitals in a central position within the field of global health and the arenas of health globalization.

In this chapter, we ask: How do novel diseases, techniques, and tools enter these hospitals, and how does global health change the hospital as a site of care, affecting—or not—its infrastructure, human resources, supply chains, and position in the health system? To answer these questions, we examine three hospitals— in East Africa, the Middle East, and Asia—in light of three globalized domains of health: medical genetics, tuberculosis, and mental health.

Recent scholarship shows how global health both reconfigures hospitals and encourages innovation within them. Novel global health targets, such as cancer in Botswana (Livingston 2012) or HIV/AIDS in Tanzania (Sullivan 2011), do indeed transform hospital spaces and infrastructures. Moreover, global health generates highly funded “enclaves” of healthcare and medical research characterized by large flows of knowledge, material, and resources, within often largely dysfunctional state hospitals (Sullivan 2011; Crane 2013; Geissler 2013b). Prestigious research universities of the Global North “scramble” for African university hospitals to accommodate their global health research and programs (Crane 2013). In doing so, they produce forms of inequality, exclusion, and unknowing (Crane 2013; Geissler 2013b). In such contexts, improvisation and experimentation prevail (Livingston 2012). Moving beyond the narrative of state hospitals as ruined buildings, decayed institutions, and playgrounds for global health actors (Street 2012), our cases show both the persistent but invisibilized presence of hospitals in the global health era and their reconfigurations when novel global health diseases and technologies enter—and sometimes tear down—their walls. After all, hospitals have been targets of international health programs long before the primary health care movement.

Debates about health equity within socialist and Third World circles in the 1960s and 1970s tended to criticize the hospital. The 1978 Alma-Ata Declaration does not mention hospitals, but the World Health Organization (WHO) report on the event shifts the hospital's dominant position within the healthcare system to that of a necessary support structure for primary health care, which should be the locus of health interventions (International Conference on Primary Health Care, World Health Organization et al. 1978). The rapid shrinking scope of primary health care policies in the decade following Alma-Ata, however, from comprehensive to selective, affected hospital-related activities by prioritizing certain targets, but it did not trigger a thorough rethinking of the role of hospitals in health systems. Several WHO reports from the 1980s bear the mark of debates that promote the district hospital as the best institution for supporting primary health care, on the grounds of its efficiency and moderate operational costs. Similarly, the World Bank's *World Development Report: Investing in Health* (World Bank 1993) balanced the presence and absence of the hospital. It advocated against *hospitalocentrism*, targeting the hospital as too expensive and not serving the needs of the poor. Nonetheless, the report acknowledged the hospital as an important part of the three-tier structure of the health system and the referral pyramid and gave the district hospital a prominent place. Again in 2008 and in 2018, while celebrating the thirtieth and fortieth Alma-Ata anniversaries, WHO reports acknowledged the limits of

hospitalocentrism—when hospitals have a prominent and organizing role within health systems—and a focus on specialist, tertiary care (World Health Organization 2008b, 2018). The most recent report states, “Hospitals can play a powerful role in supporting and amplifying the benefits of primary health care. This requires building on hospitals’ unique strengths while dissolving the walls that separate them from the rest of health systems—and from the people they exist to serve” (World Health Organization 2018, 1). The report describes hospitals as “key contributors to primary health care development” and an “essential setting for healthcare workers’ education,” but it acknowledged a need to move “from isolated institutions to . . . community and person-centred” networks (World Health Organization 2018, 2). However, few reports provide concrete alternatives to hospitalocentrism.

The debates around de-hospitalization, in the case of specific domains of global health such as tuberculosis (TB) and mental health, evolved as a reaction to this primacy of the hospital. Experts challenged the hospital as the primary locus of care and a crucial health infrastructure. De-hospitalization movements for minimizing hospital stays in order to limit costs and bring care closer to communities while maintaining access to pharmacological treatments.

In the global fight against TB, the necessity of hospitalization is a recurring question, especially since the directly observed treatment short-course (DOTS) strategy entered the picture as a first-line intervention. When chemotherapy treatment arrived in the 1950s, full hospitalization in Europe and North America was the norm. However, in developing countries, the cost of hospitalization and the lack of hospital beds were important obstacles. In Tanzania, initial hospitalization was not implemented in the 1970s, despite the prevalent WHO policies of the time. Instead, the International Union Against Tuberculosis and Lung Disease (IUATLD) helped to build the National TB and Leprosy Program, which also promoted the implementation of shorter regimens without hospitalization. Nevertheless, medical teams at Kibong’oto National TB hospital practiced hospitalization, and Tanzanian authorities proposed it in 1977 as the official policy, although it was rejected by the IUATLD (Gradmann 2019). Notwithstanding the fact that international proponents of short course treatment for Tanzania went so far as denying Kibong’oto the designation of “specialized TB hospital,” this institution played a key role in legitimizing the hospitalization of TB patients, especially in the initial phase of treatment. Recently, multidrug-resistant TB epidemics have reopened the debate on hospitalization globally. The severity of clinical cases has led to rehospitalizing patients for long periods, in order to foster recovery and prevent contagion. However, many clinical and public health experts warn about infection risks in hospitals—because they see hospitalization as more risky for patients and providers—and recommend more ambulatory and community-based care and treatment. Advocates of care outside the hospital also frequently and successfully use the argument of lower costs compared to inpatient treatment (Schnippel, Rosen et al. 2013; Loveday, Wallengren et al. 2015).

In mental healthcare, the role of the hospital has been a central question, which predates global health. In this context, the term “deinstitutionalization” refers to the process of, first, closing large psychiatric hospitals where persons with suspected mental illnesses were confined indefinitely, and second, opening clinics to offer care within communities (Brodwin 2013; Thornicroft, Deb et al. 2016). Worldwide, this double movement has been promoted as the way forward for modern mental health services (Kohrt, Asher et al. 2018; World Health Organization 2019). Such deinstitutionalization was partly political—the rejection of an “era of confinement” and the promotion of the human rights of persons with mental illness—and partly economic. In countries of the Global South, psychiatric institutions were few and institutionalization was less of a concern. Still, the WHO promotes the policy of care in the community and the delivery of mental healthcare through primary care systems (World Health Organization 1975; World Health Organization and World Family Doctors Caring for People 2008). The call for deinstitutionalization has been a feature of global mental health, gaining additional moral force from the expansion of rights-based approaches to mental health, but its implementation has been uneven (World Health Organization and World Family Doctors Caring for People 2008). A widely promoted method of strengthening the health system, endorsed by global mental health actors, concerns what is known as “task shifting.” Task shifting involves the delegation of less specialized clinical and administrative tasks to lower-level workers (World Health Organization and World Family Doctors Caring for People 2008; Maes 2015). These workers might be new cadres of personnel employed directly by the health service, but they might also be community volunteers, nongovernmental organization (NGO) staff, traditional and faith healers, and, through forms of “self-management,” patients and families themselves (Brodwin 2017; Davis 2018). Both clinicians and task shifters are engaged in various tasks that move beyond the clinic walls and into the community, in the form of community engagement, “sensitization,” “education” and “awareness raising,” distribution of pharmaceuticals, home visits, and various forms of screening and surveillance bringing coercion to the doorstep (Lang 2019).

In medical genetics, the place of hospitals in the Global South is slightly different. The highly technical environment necessary for the implementation of genetic testing and screening, combined with the tertiary-care

status of genetic expertise related to rare disorders, led to large hospitals playing a crucial role in the evolution of the discipline. Nevertheless, the WHO did attempt to open a path outside the hospital for genetic medicine through its promotion of community genetics in the 1980s and 1990s (see chapter 1, Localization in the Global).

Answering the 1978 Alma-Ata call for comprehensive primary health care and aiming to implement a population-level approach for the prevention of the genetic disorders that are most frequently inherited worldwide (namely, inherited blood disorders and cystic fibrosis), clinical geneticists and pediatricians gathered in several committees in the early 1980s (Modell and Kuliev 1998). These groups participated in the definition of guidelines and in the creation and conduct of large-scale experimental programs such as the management of beta-thalassemia in Cyprus (Angastiniotis, Kyriakidou et al. 1986; Ruault, Beaudevin et al. 2020). While the treatment of targeted disorders was mostly hospital-based (including in the Global North), these programs aimed to extend the availability of genetic counseling and screening to primary health care facilities for a small number of inherited diseases (World Health Organization 1999). However, besides Cyprus and countries like Iran, Cuba, and Oman, few countries of the Global South implemented this approach for many reasons, including politics and logistics and, of course, cost. In countries where clinical medical genetics (i.e., diagnostic expertise beyond access to screening tests) is nowadays available, it largely remains a hospital-based enterprise.

Our dual historical and anthropological investigations into the domains of TB, mental health, and genetics left us facing the ambiguous status of hospitals in our fields. Hospitals are continuously targeted by critics within public health and health systems science. As such, they are not explicit targets of global health interventions and hence are not part of what we define in the introduction as the specific field of global health. We contend, however, that the hospital, as an infrastructure and site of care, is centrally located within the larger processes of health globalization. In order to explore this centrality, we bring materialities to the fore. In contrast to the desire on the part of global health players to simply see through hospitals to the challenges and interventions beneath, we approach hospitals as infrastructures. On a first analytical level, hospitals represent major targets of referral within healthcare systems; on another level, we contend they are material, spatial, and relational infrastructures, defined and built by the people who staff, use, and need them.

The three cases stemming from our inquiries in East Africa, Asia, and the Middle East instantiate some of the manifold ways in which novel global health diseases and technologies use, affect, reconfigure, and expand the hospital and its infrastructure—notably by creating new priorities. Our first case focuses on how medical genetics as a new and globalized specialty enters the public hospital in Oman, and how it mobilizes and changes its infrastructure, with the genetic clinic becoming an important node in the training, research, and care infrastructure of the country. The case also shows the relevance of digital infrastructure as a crucial component of processes of health globalization, even as these processes are adapted to local needs. In the second case, we show how the treatment of multidrug-resistant tuberculosis (MDR-TB) builds on, as much as reconfigures, the infrastructure of a prominent TB hospital in Tanzania. Our final case shows the centrality of a state mental hospital in India in the mental health infrastructure of the country. It explores how this hospital has expanded its treatment, teaching, and research infrastructure beyond the clinic's walls to pilot and implement community mental health through shifting tides of mental healthcare in India. The advent of digital technologies has further expanded the reach of its training and care, as have novel mental health priorities such as depression as well as reconceptualization of the community as a middle-class neighborhood. These developments have taken place despite the neglect of the hospital in global mental health policies and publications. Taken together, our cases demonstrate the strong presence and “nodality” (i.e., both centrality and connectivity to other health facilities) of the hospital in states' care, training, research, and referral infrastructures. The cases also show that hospitals are open to change and that their infrastructure expands and is reconfigured as novel diseases and tools flow through them.

Crafting Medical Genetics in an Omani Hospital

The globalization of health processes we followed include growing medical genetics activities, which mostly result from the increased visibility of the millions of people affected by myriad inherited disorders. As such, this clinical practice (and its commensurate research activities) is a new feature of many healthcare systems outside of Europe and North America. In the Arabian Peninsula, the Sultanate of Oman is no exception. The following section explores how medical genetics as a recently practiced specialty enters contemporary Omani hospitals, modifies their infrastructure, initiates relations with other health facilities and the world, and participates in shaping their position in the national referral system.

There are some fifty state-funded hospitals in Oman (Ministry of Health Oman 2020). The Ministry of Higher Education administers one of them, Sultan Qaboos University Hospital (SQUH). Located in the capital area and inaugurated in 1990, it is the oldest and largest of Oman's two teaching hospitals. SQUH lies at the foot of

the Western Hajar Mountains, approximately six miles from Indian Ocean beaches, on the coastal plain that runs from the mountains next to the Strait of Hormuz to Muscat. Once remote, this area is now central, following the massive urbanization of the coast in the 2000s. SQUH's main building sits on the edge of the national university campus, adjacent to the Colleges of Medicine and Nursing. With about 650 beds and 3,000 staff members (including 450 physicians), SQUH provides the population of the capital area with secondary care and is a tertiary-care referral center for the whole country (College of Medicine and Health Sciences 2016; Ministry of Health Oman 2017). This hospital is both a massive material complex and a crucial node of Oman's healthcare system. Here we present the case of one of SQUH's newest departments, the Clinical Genetics and Developmental Medicine Clinic (hereafter, "the genetic medicine clinic," as the chapter focuses on its medical genetics activities).

A recent addition to the panel of specialized care offered by SQUH, this clinic is the university hospital's answer to the growing need for genetic diagnosis and treatment of rare as well as more common inherited disorders in a sultanate that has been undergoing a massive epidemiological transition. This unfolding of medical genetics in Oman occurred after the Ministry of Health acknowledged the need for genetic medicine in primary health care facilities targeting specific disorders. The original governmental objective dealt with screening engaged couples for common inherited blood disorders (thalassemia and sickle cell anemia). During the late 2000s, the Ministry of Health bought high-performance liquid chromatography (HPLC) machines that would allow for on-site hemoglobin analysis in many primary health care centers and governorate hospitals.¹ In line with the original aims of the 1980s WHO Human Genetics Program (see chapter 7, Provincializing the WHO) and after the 2002 visit of WHO consultant and geneticist Bernadette Modell (see chapter 7 and chapter 1, Localization in the Global) to Oman, the goal was to target the most common inherited disorders with a decentralized screening and counseling preventive program—namely, community genetics. In the decade that followed, the difficulties of implementing such a program and the need to expand clinical genetics expertise beyond commonly inherited blood disorders shaped the further unfolding of medical genetics in Oman. On the one hand, the community genetics program remained centralized until the 2016 training of several regional hospital nurses in basic genetic counseling (see chapter 3, Triage beyond the Clinic). The courses mostly deal with hemoglobinopathies and how to care for existing cases of other relatively common genetic disorders such as Down syndrome. On the other hand, since the early 2010s, young Omani doctors and biologists have come back home after having specialized in genetics abroad, thus expanding the scope of the available medical genetics expertise in the country.

The multidisciplinary expertise necessary to diagnose and manage genetic disorders, as well as the multiplicity of diagnosis tools involved, make medical genetics a mainly hospital-based specialty. In Oman, except for the community genetics approach toward hemoglobinopathies, medical genetics is centralized in SQUH and in the Royal Hospital, the country's two main public referral hospitals located in the capital. The returning doctors took positions in these two institutions. Both sites provide the necessary infrastructure for a tertiary-level combination of clinical and laboratory genetic expertise, diagnostic technologies, and genetic counseling. Their routine activities mainly pertain to rare disorders, and especially dysmorphologies and metabolic diseases—in other words, confirming diagnoses in newborns and diagnosing and genetically confirming various congenital diseases including Down syndrome, Huntington disease, and cystic fibrosis. Patients affected by potentially inherited forms of cancer attend the clinic, as do young patients of rare metabolic disorders, for follow-up. The clinic's activity is thus a combination of highly specialized diagnosis, regular treatment for chronic genetic disorders, and specific research activities related to the College of Medicine. Such activities involve complex referral trajectories and the circulation of genetic information across the country, which both necessitate specific material arrangements and the involvement of numerous individuals—staff and patients.

Opened in the summer of 2011 as a new department offering novel medical services, the genetic clinic deals with all sorts of genetic disorders, but not with the ones that community genetics is tasked with targeting throughout the country. Treatment of inherited blood disorders—the initial target of community genetics—occurs in the hematology department. The genetics clinic's medical and paramedical team gathers geneticists, pediatricians, genetic counselors, dieticians, nurses, a social worker, a psychologist, and two administrative officers. They all provide outpatient consultations, as well as some visits to patients in hospital wards, and work in close collaboration with the genetic laboratory of the College of Medicine, where all in-house tests are performed.

The clinic is located outside SQUH's main building, on the ground floor of a 4,200-square-foot structure that once housed the laundry. Reorganized to accommodate the clinic, the premises now feature a checkered layout, with a peripheral zone for offices and consultation rooms and a central windowless area with three tiny, shared physicians' offices and two counseling rooms. The site feels undersized for its intense clinical activity:

about twenty consultations per day, often involving several family members of the patient and lasting for more than thirty minutes.

The backdrop to this situation partly explains this scarcity of space: The aftermath of the 2008 global financial crisis, combined with successive drops in oil prices, has led the Omani government into unfamiliar austerities. In the past, state finances usually absorbed deficits without disclosing them. In 2016, for the first time, these shortfalls were partially offset by officially acknowledged public budget cuts, and the resulting shortages have begun to affect health-related expenditures in the public sector (Oman News Agency 2015, 2016; Reuters 2016; Valeri 2018).² For instance, the planned neighboring hematologic center at SQUH stands as a warning to any expansionist ambitions: an empty five-floor vessel in bare concrete, trapped in scaffoldings, without an official date of inauguration. As a reminder of the budget constraints, there are recurrent administrative requests from hospital management that the clinic does not increase its consultation activity. No larger building is planned, despite attendance doubling since 2012. And referrals continue to grow, with approximately twenty new referrals every week that could also trigger consultations for these patients' relatives.

Room management in the genetic clinic is a quotidian challenge that embodies these tensions. Counseling occurs in a windowless thirty-square-foot room that nevertheless contains two large faux-leather sofas, a coffee table, a small computer desk and a fridge for medications. When the schedule shows two simultaneous sessions, one of the counselors sits with her patients in the department's meeting room. The scarcity of space also has a direct impact on patients' lives, since SQUH has a limited storage capacity for medication. Thus, parents of infants affected by inherited metabolic disorders requiring specific milk can only get a few weeks' supply of it at each visit. Besides these logistic adaptations and the relative plasticity of the hospital infrastructure, improvisation skills among health professionals also emerge when dealing with the information technology (IT) elements of their daily activities.

The materialities necessary for clinical genetics go beyond cutting-edge DNA sequencing machines. They involve sufficient working space, furniture, package deliveries, machines, tools, and roads for patient transportation. Moreover, digital infrastructures matter. These can take the form of computers, software, servers, broadband Internet, smartphones and their apps, online interfaces, online databases, email clients, patient file software, backups, and storage space—of unprecedented size for hospitals' IT departments. All these tools are, of course, required for the operation of the genetics laboratory (located in the nearby College of Medicine), but they are also indispensable in the clinical area for storing and organizing personal health data, consultation schedules, and referrals; interconnecting health facilities; and exchanging results between practitioners and institutions, as well as analyzing clinical data for research purposes.

Operating under a different ministerial umbrella (the Ministry of Higher Education) than the Royal Hospital and other Ministry of Health facilities, SQUH's genetic medicine clinic also uses a different hospital information system. The lack of interoperability sheds light on the relational way in which genetic medicine operates despite such disconnectivity within official digital infrastructures. This hospital's infrastructure is the instantiation of the regulatory framework, as well as the condition of possibility of the professional practice of medical genetics. The novelty of the profession of genetic counseling in the country and the very small number of formally trained practitioners deprive this activity of a clear status in the medical hierarchy. Genetic counselors typically train locally as nurses or biologists before traveling abroad for specialized training in countries where genetic counseling is an established profession. These health workers study in places such as the United Kingdom, the United States, and South Africa, depending on their personal networks and Oman's historical connections. In their everyday practice of counseling in Oman, however, the status of their original education largely defines their professional autonomy.

The various hospital information systems mirror the fuzzy status and daily negotiations of the genetic counselors. The systems allow data access and input based on professional status. Nurses may thus not hold the necessary credentials to request further genetic tests—or, rather, the software technically prevents them from doing so. Similarly, biologists may not be granted access to add remarks in the "medical" fields of a patient's file, even if their genetics-related activities require them to do so. For all of the genetic counselors, negotiating their new status in the healthcare system directly relates to bridging infrastructural discontinuity between various parts of the system. The medical results they can access on-screen, the selected referrals they are allowed to arrange, and the field dedicated to their remarks in the patient file are all crucial matters for them to control, since they determine the precision of a patient's therapeutic itinerary.

In addition to these discontinuities, a striking, institutional disconnect takes place between SQUH and public healthcare facilities under the umbrella of the Ministry of Health. Numerous professionals try to collaborate despite this situation, which triggers improvisation, especially when dealing with intractable information systems. Interestingly, WhatsApp, a Facebook-owned smartphone messaging app, is the main tool used to bypass these obstacles. WhatsApp is the quickest way to share information between SQUH hospital

doctors and their counterparts outside—especially useful in advance of the weekly seminar where cases might be discussed. One can thus observe WhatsApp discussions about pedigrees and medical images moving from SQUH to medical professionals in other hospitals via servers in California.³ In addition to the circulation of medical data between institutions, WhatsApp also serves as a crucial link between SQUH and its patients. It can stand in for a home visit when dietitians deliver advice and follow-up instructions over the app to those patients who live too far away from Muscat to attend the clinic in person. Staff members then transcribe the contents of those online exchanges into the patient record, using vague language such as “patient contacted us.” Many nurses and administrators also find the application useful, since it allows for leaving voice messages for nonliterate patients, whereas Omani mobile phone packages do not include this service.

Other nonexplicit Oman-California connections occur on an everyday basis when it comes to ordering molecular genetic tests outside Oman. If a prescribed test is not available or is too costly to do in-house, the DNA sample travels abroad. In SQUH, genetic counselors (trained in human genetics) deal with this aspect of their work, and they have built an ad hoc digital procedure around it. The first step is exploration of the online market for medical genetic tests, a process that starts with a Google search for the online prices of the specific test needed. Out of the usual five to seven test providers (based in the United States, Germany, or France, usually), genetic counselors then select the one they deem appropriate, in terms of the current price, potential pre-negotiated discounts, and the proposed turnaround time. Then, in an Excel spreadsheet of the clinic’s patients, the counselor fills in the type of test and the chosen testing company. The next step takes place in another Google service: Gmail. Because of the unreliability of hospital email—notably in the aftermath of the massive 2017 hacking campaigns against hospitals worldwide—the clinic mostly uses Gmail accounts, which allow genetic counselors to upload patient consent forms, the companies to send results and invoices, and the accountancy manager of the clinic to launch the payments. Shipping companies such as UPS or DHL then transport the DNA, collecting samples every week from the clinic.

Once the test results arrive, in a PDF file, the improvised process continues. European and North American companies’ test results determine the potential pathogenicity of genetic sequences based on international databases,⁴ which often do not account for local variations. In several cases, Omani patients carrying a supposedly nonpathogenic mutation showed symptoms. The team is aware of these epistemic gaps and pays attention to the necessary negotiation between their own database, the test reports, and clinical information.

The noninteroperable information systems and databases strongly affect referral pathways in Oman. Looking at the Ministry of Health’s network of health facilities, one notices that its information system allows every public healthcare facility to connect to the others over a dedicated network—distinct from the Internet, for security reasons. Thus, with the proper credentials, professionals can access the medical history of any of their patients, whichever facility stores the information. As a corollary, referrals are supposed to occur exclusively through this network. A practitioner, when organizing a referral, should only need to select the right name in the facilities list on their screen and send a short message along with the referral. Once these steps are performed, the referral process automatically starts and patients get a text message on their mobile phone with an appointment date. Problems occur, however, when the referral target is wrongly coded or not listed. As one geneticist explained in 2017, “We are listed ‘Muscat Genetics’ in [another tertiary hospital system], which isn’t the official name of anything. As a result, nobody is actually referred if they don’t double ask by fax: the referral does not pop up into our appointment list.” This example shows how a digital infrastructure meant to connect providers actually blurs referral trajectories and ends up increasing the relative isolation of the newly created genetic centers.

As an outsider to the Ministry of Health’s facilities network, SQUH uses its own guidelines. One of them is theoretically iconoclastic in a system that fosters professionally oriented referral paths: The clinic accepts “self-referrals.” The clinical team knows that this policy tends to increase the patient load, even more so since many patients consider SQUH as a logical self-referral place, even after they have consulted specialists in the Ministry of Health facilities. However, it is considered a necessary workaround given the rigidity of the national referral system. The numerous trainees (medical residents, student nurses, nurses and doctors on continuing education programs), once back in their home-institutions or appointed to their first job, use their personal network to organize referrals and thus also contribute to the bypass of the official referral system.

This exploration of the everyday processes that allow a medical specialty to perform care on a national level shows the crucial role of hospitals and, more specifically, hospital staff, hospital infrastructure, and hospital expertise. It also sheds light on the interstices within governmental systems and the long-living institutional traditions left open to professional tinkering.

Providing Multidrug-Resistant Treatment in a Tuberculosis Hospital in Tanzania

It is not by chance that we work in this hospital. It was a plan, a strategy by the government to send us to Kibong'oto so that they can build skills to be able to manage MDR-TB in the country, because the country has dedicated to transform the hospital from a mere hospital to become a center for managing MDR-TB. First, [the government] strengthened its infrastructure in terms of wards, laboratory, and staff, capacitate with knowledge, and [second] they tried to link it with other partners and stakeholders, Ministry of Health, USAID, and others who support these efforts by the government.⁵

This quote from Kibong'oto hospital director introduces key issues in relation to the adaptation strategies of hospitals when confronted with a novel global health problem. In 2009, the Tanzanian Ministry of Health decided to select this long-existing hospital to be at the forefront of treating multidrug-resistant tuberculosis. The government's revitalization of Kibong'oto included training human resources, developing research skills, and expanding infrastructure. We argue that this reassignment of Kibong'oto played a key role in MDR-TB care in Tanzania because of the hospital's capacity to provide reliable infrastructure and attract international actors to support the government's goal. However, as we will show, hospital staff struggle to cope with the difficulties of long hospitalization and TB treatments, most notably with the side effects of drugs, stress, homesickness, and the inadequacy of food provision. In this hospital, we see the infrastructures, people, surveillance, and care. The multiple risks the disease poses both to life, to the senses, and the hospitals' long-standing ability to bring multiple forms of expertise in a centralized location are indeed key. Just as drug resistance is stretching the limits of global health, the hospital's overarching role as a consolidator of services becomes central.

The term MDR-TB refers to TB bacilli that have evolved to tolerate the standard pharmaceutical regimens used to treat the disease. MDR-TB treatment has been a motor of global health innovation since it entered the field as a crisis of pharmaceuticals and disease control. Worries about drug resistance have led to new funding mechanisms, new diagnostic technologies like GeneXpert (see chapter 5, Tech for All), new drugs like bedaquiline and delamanid, new forms of support, and unfortunately, new forms of resistance—extremely resistant tuberculosis, or XDR-TB, is a bacteria resistant to at least four anti-TB drugs. TB's resistance runs ahead of global health, and global health institutions that give care and work to produce knowledge have been pushed to keep up with the disease and its constant challenges to biomedicine. In short, MDR-TB as an evolving disease has caused global health, too, to be dynamic and begin to address those less cost-effective areas of disease control.

At the end of the 2000s, MDR-TB as a novel global health concern had the potential, through negotiations with international partners and decisions at a governmental level, to transform Kibong'oto hospital, a TB hospital at that time on the decline. The hospital was on the decline precisely because tuberculosis was mostly treated at home with the support of a network of health centers providing drugs in line with the DOTS strategy. When national TB experts in Tanzania decided to rehabilitate Kibong'oto for MDR-TB research and treatment, they were also deciding in favor of hospital-based TB care, despite a global trend supporting the treatment of TB "outside" the hospital. The WHO, through the 2011 guidelines on the management of multidrug-resistant tuberculosis and until the most recent 2019 consolidated guidelines, has consistently advocated for decentralized models of care stating that "patients with MDR-TB should be treated using mainly ambulatory care rather than models of care based principally on hospitalization" (World Health Organization 2014). However, for Tanzanian health officials and their partners, it was important to be able to isolate multidrug-resistant patients in a closed and secured health infrastructure where they could be treated and closely monitored. Globally, isolation and hospitalization of TB patients remains questionable, and most organizations advocate for applying DOTS or DOTS-plus, in the case of MDR-TB, because hospitalization is considered too costly and disempowering for patients. More than direct hospital expenditures, indirect economic and social costs such as loss of work and income, discrimination, and stigmatization matter (Bieh, Weigel et al. 2017). Besides, hospitalization of MDR-TB patients also increases the risk of re-infection for other patients.

The question of whether or not to hospitalize tuberculosis patients has a long history in international and global health. Hospitalization was for a long time the only treatment for TB, associated with the sanatorium infrastructure and architecture. The sanatorium provided for long (often palliative) stays in environments with fresh air and light. With the discovery of antibiotics, interventions changed and sanatoriums were either abandoned or transformed into something else. Kibong'oto in Tanzania was such a hospital. It was founded in 1926 by a British colonial doctor, on the hills of Kilimanjaro, to serve as a sanatorium and provide fresh air to patients. In 1956, Kibong'oto became the national TB hospital, and today it is Tanzania's national referral hospital for tuberculosis. The hospital was almost abandoned in the 1980s and again the 1990s, however, after

the country adopted a policy of shortening and decentralizing TB treatment. In this section, we argue that MDR-TB has provided new life to this old TB hospital by enacting a substantial rehospitalization of tuberculosis patients in Tanzania. Ultimately, the long history of a specialized TB hospital in Tanzania provided dependable infrastructure that mattered for MDR-TB care and control, such as functional and adaptable buildings with good air circulation (for isolation wards) and a team of experienced healthcare workers.

The rehabilitation of Kibong'oto actually started during the HIV epidemic. When HIV combined with TB in a co-epidemic, the government opened new HIV services in this hospital, renovated buildings, employed more staff, and garnered logistical support and drug supplies from the Global Fund against HIV, TB, and malaria. Other partners such as LHL International (a Norwegian NGO) and KNCV⁶ (a Dutch NGO) provided support for patient welfare, prevention, and diagnostic activities in the villages around the hospital. In order to start the MDR-TB program, the Global Fund provided free drugs and the University of California, San Francisco (UCSF) provided clinical expertise and training for Tanzanian experts. The Curry International TB Center at UCSF also helped to design the MDR-TB program, contributing to the development of the national drug-resistant guidelines as well as tools, policies, and programmatic quality-improvement initiatives that benefited the hospital.

During fieldwork at Kibong'oto in 2017 and 2018, prolonged hospitalization for MDR-TB patients was the norm, lasting for a period ranging from twelve to eighteen months, usually in the initial phase of treatment. From 2017, the Ministry of Health developed a decentralized approach in which patients would be transferred to health centers near their home, and several regional or district hospitals were also able to start MDR-TB treatment. Whether it is possible to treat MDR-TB without hospitalizing patients for a long period was not a question asked in Kibong'oto during our fieldwork. MDR-TB patients were generally considered to be very sick and very infectious. This dissent with global health guidelines for community-based MDR-TB treatment explains why global health actors' presence was hardly felt. The state's almost invisible support to the hospital stood in stark contrast with the highly visible, and often destabilizing, presence of global health actors in other public hospitals in the Northern Tanzania region of Arusha, hospitals that created enclaves of HIV care (Sullivan 2011). At the same time, prolonged hospitalization is problematic, and it is questioned even by the staff at Kibong'oto. Most of our interlocutors in the hospital pointed to the pitfalls of long hospitalization away from home. They worked daily to improve material and emotional conditions for their patients, for example, by trying to find ways to shorten the duration of treatment. In the meantime, however, the hospital remains a highly symbolic place for Tanzanians and a national hospital infrastructure capable of both adaptation and resilience.

When national health authorities chose Kibong'oto hospital to start MDR-TB treatment, both the long history of the site in dealing with TB and its remote location mattered. International partners and experts from the U.S. Centers for Disease Control (CDC) supported the Tanzanian government's assessment: "Their recommendation was that the place is very nice. [We] don't need mechanical mechanism⁷ of infection control—what [we] have is a natural intervention [that] we were asked to maximize in terms of opening the windows."⁸ Thus, the facility was deemed conducive, and staff simply kept all windows open to allow for the maximization of air circulation and natural light. Of course, the infectious nature of patients' disease, and by extension of the place, was a constant concern for the staff. Healthcare workers thus embodied a paradoxical relationship to the environment. Environments could be perceived as threatening if, for example, patients did not follow the rules or windows were closed, but at the same time, they were considered pivotal for the treatment of TB:

We believe that a pleasant environment can be a therapy in itself. . . . We try to ensure the environment is very clean and supportive, we target what can quickly contribute to recovery of patients: the availability of water, toilets, bathroom . . . if we notice a problem we report: the availability of trees, shade down there, if there's no trees we try to advise.⁹

Every morning before nurses make their rounds to distribute medication, several medical attendants perform a thorough cleaning of the wards, with most patients staying outside while this is being done. Then nurses distribute pills, observe patients, and document this visit with a cross in each patient's file. But doing rounds is only one of the ingredients of the daily care of MDR-TB patients. Much of the job of hospital staff revolves around maintaining the facility and fostering pleasant relationships with patients. For most of the nurses we talked to, however, securing a hygienic environment was a prerequisite for the real work of offering "standardized care for patients" or "DOTS," which was about observing and documenting: "We observe the patient while taking the drug . . . [we] check if he has swallowed and no vomiting."¹⁰

Kibong'oto hospital is characterized both by its remoteness and its exceptional status in the healthcare system, in particular its role in the management of MDR-TB. Health staff members were especially concerned about several challenges related to hospitalization of MDR-TB: the extended stay of patients with extremely limited family visits (once a month); the toxicity of drugs; and the absence of recreational activities. This

necessity for MDR-TB hospital to be a closed infrastructure can at any moment turn it into a threatening place, a situation that makes its inevitable loopholes and shortcomings fearsome.

In TB treatment, food has often been considered crucial to treatment success and to the ability to withstand long, antibiotic chemotherapy, and yet global health programs often fail to secure the provision of a good and balanced diet. In Kibong'oto, patients mostly eat *ugali* (maize porridge) and beans, and this was considered grossly insufficient. There was never enough food, and it was always the same and not appropriate for some patients—most notably Masai patients accustomed to meat and milk. It is common knowledge at the hospital that food is crucial for TB treatment (the hospital director notes it is in the literature), and many others know the importance of a good, balanced diet for patients to recover and for staff to avoid illness—especially in cases of MDR-TB. One nurse at Kibong'oto goes as far as to say, “People contracted this infection because of poor nutritional status.”¹¹

Staff views the provision of sufficient and diversified food as one of the most important reasons for the hospital's centrality in patients' recovery. As one medical attendant states:

It was . . . like three to four years now, many patients were cured. I have gone to Dar-es-Salaam two times to pick the patients. You find a patient is very weak, helpless from the health center, but when they reach here they got cured, good food was available. Nowadays patients are given porridge only. . . . That's why there are many deaths. A patient cannot withstand the medicines with low immunity.¹²

Another concern at the hospital is the toxicity of the MDR-TB drugs and the extended hospital stay for patients away from home. One nurse reports:

I [remember] a patient who developed psychosis, mental illness disturbance due to cycloserine. The patient was violent and very aggressive. He came from the ward and he wanted to go around the hospital and couldn't be stopped. We thought he might even take a stone and throw it to us.¹³

Hospitalizing MDR-TB patients allows clinicians and nurses to closely monitor side effects, especially the side effects of injectables, such as cycloserine, that often bring hearing loss and psychosis. Mental disturbance, according to nurses, can also result from being alone in a hospital far away from home for extended periods of time. Generally, a patient will stay until the sputum is converted to negative, which, in the case of MDR-TB treatment, can take up to eighteen or twenty-four months.

Thus, not only is infectious bacteria everywhere and always a threat for health workers, but patients themselves can become dangerous because of the side effects of certain drugs. This has led to some infrastructural changes, such as building a fence around the facility. According to a local resident who worked in the hospital from 1958 to 1998:

The fence has just been introduced recently, after finding out the patient[s] escape from the hospital and they go out to the village to drink alcohol and they can infect other people. They thought it was better to build fence and employ security guards to make sure patients stay inside.¹⁴

MDR-TB has also changed the infrastructure at Kibong'oto. In 2018, in response to the concerns over diet, the hospital launched a nutritional program. Staff screened all patients for their nutritional status and provided those suffering from mild or severe malnutrition with nutritional supplements. Similarly, management addressed hearing loss as a side effect of MDR-TB medication by procuring an audiometry machine and training staff to assess hearing loss among patients. The hospital also constructed an isolation room for patients who demonstrate aggressive and dangerous behaviors, as part of a new ward for MDR-TB. Finally, the head of the hospital's Community Medicine Department, with funding from a South African organization (TB in the Mining Sector in Southern Africa), opened an outpatient occupational health clinic within the hospital premises to help miners and their families who were heavily affected by TB, HIV, and other diseases. This expansion of the hospital toward the treatment of other diseases is a clear indication that despite persisting as a hospital behind closed walls, the hospital has a capacity to work on its environment, through outreach, case-finding activities, and treatment of diseases beyond TB.

Kibong'oto hospital is a key node of infrastructure for MDR-TB in Tanzania. The presence of this TB hospital infrastructure matters heavily and has influenced a national policy in Tanzania that favors hospitalization of patients as the place gathers expertise and experience about everyday, long-term management of the disease

and the drugs' side effects. At the same time, we can notice the relative invisibility of this hospital in the global health field. Global health actors, such as European TB NGOs or clinicians from UCSF, provide technical or financial support, but there is no global health program installed in the hospital or clinical trials promoted there by global actors. It is mainly the Tanzanian state that deems relevant this hospital and its MDR-TB related activities; as such, the hospital also bears the promise of the state's state-of-the-art research, geared toward global science. In Tanzania as elsewhere, the (public) hospital *is* the state, its power as well as its shortages (Kehr and Chabrol 2018).

The Mental Hospital and Community Mental Health in India

Global mental health largely neglects psychiatric hospitals (Thornicroft and Tansella 2004; Cohen, Chatterjee et al. 2016; Cohen and Minas 2017). This is particularly relevant not only since they are often the sole sites of care for the mentally ill in many low-and middle-income countries but also, as Alex Cohen and Harry Minas (2017) have discussed, because they are often sites of neglect and abuse. As we suggest in the case of the National Institute of Mental Health and Neuroscience (NIMHANS) in the South Indian metropolis of Bengaluru, however, the psychiatric hospital can be a site of progress and innovation, albeit largely outside the interventions of global mental health. Our discussion poses questions about global mental health's ethics of action—an ethics that is based on the assumption that mental healthcare is somehow absent in places where psychiatric hospitals, mental health infrastructure, and expertise are present. In other words, the case of NIMHANS challenges the idea in global mental health of a blank space—a therapeutic gap—into which global mental health interventions are rolled out.

In India, deinstitutionalization of mental healthcare did not mean dismantling large mental hospitals. Rather, efforts at modernizing the mental health infrastructure have aimed at transforming the mental hospital from a site of care to a site of specialist training and research, while promoting psychiatric care in general hospitals and primary health centers. By focusing on shortened stays and outpatient treatment, former mental hospitals have become vibrant sites of treatment, research, and training. Despite an overt commitment to community care, however, confinement of severely and chronically ill long-term patients continues, though in the less visible spaces of public and private institutions (Pinto 2014; Varma 2016).

NIMHANS is a prominent site of specialist care, training, and research that has been emblematic and formative of India's mental health infrastructure and the transformation of mental health in India in collaboration with the WHO. The twenty-five-acre campus, with its extensive gardens, exists as a calm and cool oasis in the middle of bustling and smoggy Bengaluru. Located on a congested arterial road, NIMHANS is a prominent center of care for the mentally ill, with patients hailing from all parts of India and families queuing for hours in the crowded outpatient department, waiting for a short consultation for one or more suffering family members before heading back to their homes hours and sometimes days away. Although designated as a tertiary-care hospital, its reputation and the long-term bonds between doctors and families have made it a site of primary and secondary healthcare for many. As compared to images of the asylum as a total institution—a site “where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life” (Goffman 1961, xiii)—NIMHANS is a permeable space. Its open walls have enabled flows of ideas, knowledge, experts, policies, and patients, and it has also been a nodal point in India's community mental health infrastructure, as it has expanded and shifted in the moving seas of mental health modernization. Moreover, NIMHANS has been deeply involved in the national and global production and dissemination of knowledge. While the clinic's walls came down, this hospital has remained a monument in the shifting tides of knowing and treating mental illness in India. By focusing on this institution as a key node in the infrastructure of mental health knowledge, training, care, and policy in India, we show how global mental health's priorities and targets have affected and reconfigured the infrastructure of both the mental hospital and wider mental healthcare in India.

While actors, targets, tools, and priorities have shifted, NIMHANS has adapted and continues to be an iconic site and a lived and acting infrastructure of mental healthcare in India (Murthy, Isaac et al. 2017). A strong symbol of progress, development, and modernity, NIMHANS makes material the state that supports it (Amin 2014). The history of NIMHANS as a successful hospital differs from other accounts of “failed hospitals,” “unstable places” (Street 2014), and sites of “improvising medicine” (Livingston 2012) that in other places represent fragile postcolonial states. Contrary to a global health depiction of the hospital as decaying, in crisis, ruined, or inefficient, NIMHANS is a case of fulfilled promises in the Indian postcolonial state. As a node in the mental health infrastructure that connects Bengaluru with Delhi and Geneva, on the one hand, and that enables South-South circulation of experts and expertise on the other, NIMHANS has been key in developing and

implementing community mental health in India and beyond. At a time when the Indian state is working to reorient asylums as centers of excellence, with a focus on research, training, and outpatient or short-term treatment, NIMHANS has long been the emblematic institution that unites this double movement of decentralization of treatment and centralization of expertise, training, and research (Varma 2016).

Although innovation routinely occurs at NIMHANS, and the center has closely collaborated with the WHO in building community mental health in India, the hospital is largely invisible in global mental health publications and programs, as a result of the shifting epistemes and networks that have guided mental health innovations in the twentieth and twenty-first century. By ignoring India's infrastructure of community mental health, in which NIMHANS has been centrally involved, global mental health activists portray novel, foreign-financed research and intervention projects that create enclaves of community mental healthcare as populating a wasteland of mental healthcare in India (Ecks 2016; Lang 2019; Lovell, Read et al. 2019).¹⁵ We will further use the emergence and transformation of NIMHANS in producing, disseminating, advocating, and researching community mental healthcare as a lens on the transition from international public health to global health. In doing so, we will demonstrate the shifting mental health infrastructure and assemblage of actors, targets, and tools as they manifest in India. While NIMHANS is not a "global mental health site," it has always been and continues to be affected by processes of mental health globalization.

Historians date the origins of NIMHANS to 1838, when Charles Smith, colonial doctor at the Hospital for Soldiers, Peons, and Paupers, established a separate ward for the insane (Radhika, Murthy, Jain 2015; Radhika, Murthy, Sarin et al. 2015). The clientele was largely poor; the affluent preferred traditional Indian medicine (Radhika, Murthy et al. 2015a). Twelve years later, the Lunatic Asylum, a separate large and airy hospital, was built with extensive gardens on the banks of a lake, in the vicinity of a jail, a TB hospital, and a leper's asylum. Treatment was largely "moral"—that is, aiming at strengthening reason and character, it focused on regimenting daily life but also the administration of sedatives and baths, and patients were engaged in occupations such as gardening or tailoring (Mills 2001). Diagnoses and care corresponded to practices in Britain, and changes in one location quickly followed suit into the other (Ernst 2007; Radhika, Murthy, Sarin et al. 2015).

In 1936, when the city of Bengaluru began to overrun the asylum, the renamed Mysore Government Mental Hospital moved to a quiet and salubrious environment at its present location on a hillock at what was then the outskirts of the city. While segregation between British and Indian elite patients, on the one hand, and "native" patients, on the other, was protocol at other mental hospitals, at NIMHANS social distinction in the wards was rare (Jain and Murthy 2006). Inspired by the architecture of Bethlem hospital in London, architects and horticulturalists planned the new hospital grounds as a therapeutic environment, with several pavilions in the midst of vibrant gardens. The often-told story that Bangaloreans once used the hospital gardens as a picnic spot testifies to the absence of hospital walls and the permeability of hospital space for patients and nonpatients, even in its early years. Like most hospitals, the institution kept pace with medical innovations over the decades, watching state-of-the-art treatments, like cardiazol shocks or leucotomies, become failures and barbarisms as new tools and methods were developed.

WHO involvement in the hospital began in the mid-1950s, with a program of postgraduate, psychiatric training at the newly founded All India Institute of Mental Health (AIIMH)—which later became NIMHANS. Under its director M. V. Govindaswamy, the institute set up the first psychiatry degree in postindependence India. The program was broadly modeled after the Institute of Psychiatry in London, where many Indian psychiatrists had themselves been trained. The WHO supported the establishment of AIIMH as a training institution by bringing in consultants. From the start, psychiatric training at AIIMH included psychiatry, psychology, Western and Indian philosophy, and literature, as well as the basic sciences, and research included religious and anthropological aspects of mental health along with classical science fields, at least until the mid-1980s, when the focus was redirected toward biological psychiatry. NIMHANS currently has a number of departments, including psychiatry, neuroscience, epidemiology, psychology, nursing, social work, and others.

From the 1960s onward, psychiatrists who were trained at NIMHANS, and shaped by emerging discourses of deinstitutionalization, staffed the new psychiatric units in general hospitals, leading to an expansion of services in India. With the advent and growing availability of psychopharmaceuticals, outpatient and short-term hospital stays became more possible. Reform experiments in India since the 1950s have not questioned the hospital, as such, as a locus of care, but rather the exclusion of families and the focus on custodial rather than recovery-oriented care. In response, NIMHANS opened family wards to involve kin in the care of their hospitalized relatives. The first wave of deinstitutionalization in India in the 1960s did not yet aim at moving mental health out of the hospital, but rather at shifting care out of the asylums and into general hospitals. Throughout all of these changes, NIMHANS has not only been on the forefront of psychiatry, neuroscience and psychological treatment, training and research, but it has also housed and shaped a series of

debates on and experiments with yoga, Ayurveda, and what is called “Indian psychiatry and psychology” in the hospital and the community.

The NIMHANS Community Psychiatry Unit, established in 1975, continued moving mental healthcare beyond the hospital walls. Around the same time, the community mental health movement was beginning to gain steam. Psychiatrists at NIMHANS felt that they wanted to take advantage of the moment, Dr. Srinivasa Murthy, one of the pioneering figures of community psychiatry at NIMHANS, explained.¹⁶ According to Murthy, NIMHANS started the Community Psychiatry Unit to operationalize the recommendations of a WHO report (World Health Organization 1975) that urged member states to carry out pilot programs testing the feasibility of community mental health (Isaac 1986). NIMHANS set up a Rural Mental Health Center to train general physicians and community health workers in rural areas and develop models of mental healthcare delivery outside the hospital. The psychiatry unit soon became a nodal point of community mental healthcare in the country. It was key in initiating and implementing the National Mental Health Program in 1982 in collaboration with the WHO, a program that envisioned extending mental health infrastructure and integrating mental health into primary health care. From 1985 to 1990, the unit piloted a district-level community mental health project in the Bellary district and trained primary health care general physicians, community health workers, and mental health professionals from several Indian states to organize and deliver mental health services within the primary health infrastructure. The Bellary pilot project later became well known as the prototype of the District Mental Health Program, which India launched in 1996 in order to shift the identification and treatment of mental health problems from the hospital to primary health centers in all districts in India (Sarin and Jain 2013; van Ginneken, Jain et al. 2014).

In 1986, NIMHANS became a WHO-collaborating center for research and training in mental health, and the development of community mental health programs and services was a shared priority. As the designation document states: “During the past . . . decade, the broad policies, aims and objectives and commitment of the Institute [NIMHANS] have been fairly similar to the objectives of the WHO’s global medium term programme in mental health.”¹⁷ The document also includes plans to develop NIMHANS as a node in the mental health infrastructure of Southeast Asia and other WHO regions, to be implemented in the following years.

This original state-based, NIMHANS-centered community mental health infrastructure has connected community mental health pioneers, the Ministry of Health in Delhi, India’s primary health infrastructure, the WHO in Geneva, and mental health professionals in other South and Southeast Asian countries and beyond. The main collaboration between NIMHANS and the WHO in mental health until the early 1990s involved training mental health professionals in organizing services using the primary health care infrastructure, but also in social psychiatry and epidemiology. This infrastructure allows for the production and circulation of knowledge, experts, and policies and reaches hundreds of thousands of patients, mainly with severe mental disabilities. As a WHO-collaborating center, NIMHANS has frequently followed WHO guidance for the modernization of mental health systems.

More recently, NIMHANS has further expanded the community mental health infrastructure in India through the creation of a digital infrastructure in collaboration with the Indian Space Organization. Using technologies like e-learning and tele-clinics to expand India’s community mental health infrastructure, the renamed Telemedicine and Community Psychiatry Unit has created a digital academy to conduct courses in community mental health and counseling and grant degrees. This academy connects general physicians, psychologists, nurses, social workers, and volunteers to mental health professionals at NIMHANS. Digital training and care expands community psychiatry to areas barely covered by India’s District Mental Health Program. Moreover, recently piloted “tele after-care services,” which follow one-month inpatient treatments, save patients the long and expensive journey for an outpatient follow-up at NIMHANS. Tele-trainings and tele-assisted consultations significantly expand the NIMHANS training and clinical infrastructure and move the psychiatric gaze further out of the hospital space.

A more recent, parallel community mental health research and intervention infrastructure has emerged in India since the 2010s as part of the Movement for Global Mental Health. This movement assembles agencies, research funding bodies, philanthropies, NGOs, advocacy groups and prominent academic journals engaged in the production and circulation of technologies, principles, and practices. In India, as elsewhere, research trials of mental health interventions that are based on “task shifting” and “task sharing” provide mental health services, with a focus on counseling and common mental disorders, as part of randomized and controlled intervention trials. The results appear in high-profile global health journals, notably in *The Lancet*.¹⁸ These trials are built into the existing primary health infrastructure, even while the provision of care largely resembles enclaves or islands of global health interventions. Nonetheless, both NIMHANS as a nodal site for the production and dissemination of knowledge and training in community psychiatry and the state-based community mental health infrastructure it helped to build remain largely invisible in the Movement for Global Mental Health and its publications. It is no

surprise, then, that some of the psychiatrists who have built India's community mental health infrastructure, while sympathetic and supportive of the aims of the Movement for Global Mental Health, are skeptical of short-term and highly transient global mental health interventions and their capacity to strengthen health systems.

In the 2010s, NIMHANS has expanded its infrastructure to target novel forms of suffering in urban and middle-class contexts by establishing the NIMHANS Centre for Wellbeing. According to the website, NIMHANS launched this "innovative mental health promotion initiative by stepping out of the institution and locating itself within the community."¹⁹ While India's community mental health infrastructure, with its roots in pre-Alma-Ata WHO imperatives to integrate mental health within rural primary health care, has targeted severe forms of mental disorder, this new form of community mental health targets the more common mental health challenges of urbanized middle-class youth and expands community mental health to include urban middle-class neighborhoods. The center is located a few miles away from the hospital in a double-story house with a quiet garden in a middle-class residential area, and NIMHANS psychiatrists and psychologists emphasize that in this "youth-friendly" mental health space anyone can just drop in and talk to a practitioner without waiting in long lines as at the NIMHANS outpatient department. The center offers counseling and psychiatric services mainly for teenagers and young adults and focuses on well-being and positive psychology, stress management, marital problems, and the use of technology. Doctors hope the idea will be replicated in other parts of Bengaluru, as well as in other states. This shift toward "common mental disorders" is indicative of how global mental health's novel targets and techniques enter the expanded hospital and reconfigure hospital spaces, practices, targets, and tools. At the same time, it speaks to the issues that concern India's growing urban middle class. With a shift of target came a shift in clinical actors and techniques. A majority of the staff of the Centre for Well Being are psychologists (along with some psychiatrists and social workers) and treatment is largely based on psychotherapy and counseling—as compared to NIMHANS outpatient clinic, where treatment focuses on psychiatrists prescribing psychopharmaceuticals.

The center is a friendly and informal space that people experience as pleasant rather than stigmatizing and threatening—a frequent complaint about NIMHANS. Instead of talking about mental disorders, staff and promotion material talk about "mental health challenges" and "difficult life situations." Rather than bringing together mental disorders and physical diseases in the realm of primary health care, with the Centre for Well Being, NIMHANS expands its infrastructure toward everyday challenges—tension and stress in modern metropolitan life. This change is illustrative of a larger turn from severe mental disorders toward well-being and the common stresses and tensions of daily life, especially in cities (Fitzgerald, Rose et al. 2016), and an increased demand for preventive mental health services among India's middle class. This integral yet outsourced turn toward well-being by NIMHANS thus illustrates the impact of larger health globalization forces on the Indian mental health infrastructure.

Combining innovative targets and tools, NIMHANS has further expanded its infrastructure to reach young, tech-savvy individuals with novel apps. The "Push-D" (Practice and Use Self-Help for Depression) app is a digital tool that offers information, psychological self-management based on evidence-based psychotherapeutic techniques, and monitoring by NIMHANS experts for users dealing with symptoms of mild depression. The "Digital Detox" app tracks smartphone usage and offers advice for unplugging. With these new mental health tools, the NIMHANS digital psychiatric and psychological infrastructure merges novel ideas of self-care and self-responsibility with state-based forms of care, thus expanding its reach.

Clearly, NIMHANS has shaped India's mental health infrastructure through training, treatment, and research innovations. At the same time, the new targets and tools of global health—some of them are part of global mental health yet overflow the field in that they are part of larger processes of the globalization of health and sciences targeting the psyche—have also impacted the NIMHANS infrastructure of knowledge production and distribution and of care. NIMHANS has not only been a node in mental health infrastructure in India, but it has also incorporated—and partly shaped—larger trends in international and, later, global health, such as community mental health, human rights, the turn toward common mental disorders and well-being, and the use of digital mental health technologies. While these changes have further strengthened the relevance of NIMHANS as a site of care and knowledge in India, its expanded infrastructure and its key position in the mental health infrastructure of India has largely been invisible in global mental health publications and debates. Similar to Kibong'oto TB hospital and Sultan Qaboos University Hospital, NIMHANS is not an avowed target of global health interventions, and yet new global health targets and larger health globalization processes affect and change it.

Conclusion

This chapter explored the ways in which state-run hospitals, in spite of their apparent invisibility to global health, remain central to global health interventions by focusing on their daily operational presence in national

healthcare systems. The cases show how global health does not target hospitals as sites of intervention and yet works through them as loci of care, training, and research.

These hospitals are complex infrastructures, both in the sense that they remain crucial nodes in the health system and material organizations whose activity implies multiple layers of logistics. Buildings and their environments, personnel, equipment, and digital infrastructures are key to both hospitalized and de-hospitalized care. The three hospitals we discussed are tightly woven into their local social environments and respond to specific national health needs. As specialized hospitals, they persist in the era of global health, echoing both global health's vertical approach and states' investments in prestigious hospitals that are imbued with symbolic power.

Hospitals thus figure prominently in arenas of health globalization and are strongly impacted by these processes. They incorporate novel targets, techniques, and tools originating in, or associated with, global health, and these incorporations mobilize and change their infrastructures. In Oman, the field of medical genetics builds on and expands the infrastructure of two specialized state hospitals through new spaces of diagnostics and care, equipment, expertise, and digital infrastructures. In Tanzania, MDR-TB triggered the transformation of a historic hospital from a declining facility to a center of treatment, care, training, and research. It was precisely the hospital's material and relational infrastructure that enabled the rehospitalization of MDR-TB, following decades of TB deinstitutionalization. In India, policies of task shifting and care in the community in the realm of mental health have built on and expanded the infrastructure of a prestigious mental hospital. More recently, increased attention to common mental disorders, urban and middle-class youth, and digital, therapeutic technologies have further expanded its material and relational infrastructure. Indeed diagnosis, treatment, and training increasingly incorporate private, globalized digital infrastructures and applications for the circulation of knowledge and information and therapeutic techniques of self-care that build on and expand the hospital infrastructure. The Omani case shows, for instance, how Gmail can sometimes help bridge the gaps in state-run digital infrastructures, as well as the importance of WhatsApp and UPS for the (trans)national circulation of genetic information and the building of genetic knowledge.

In other words, global health as we know it would not exist without hospitals as nodes of dissemination and adaptation. What has, however, not radically changed in the three decades of health globalization is that public hospitals—plugged into global health or not—face multiple forms of scarcity and must constantly engage in local, clinical triage in order to manage their outcomes, often by filling in the gaps of global health standards.