Chapter 7
Who's in Charge of Social Determinants of Health? Understanding the Office of the Municipal Health Officer in Urban Areas

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Abstract The need to address Social Determinants of Health (SDH) for a healthy society is uncontested, even though we have less of a sense of how to operationalize this action, or of what institutional structures exist and may be needed for this purpose. We undertook to describe one institutional structure required for action on SDH in urban areas as part of a 31-city appraisal carried out by the Technical Resource Group (TRG) of the National Urban Health Mission (NUHM), supplemented with a purposive review of the literature. We identified the institution of the Municipal Health Officer (MHO), which was particularly designed in the colonial period to address health and its determinants. Limited finances and privatization have led to a non-uniform decline in the powers of the MHO across cities. In metropolitan areas with substantial municipal financial capacity, the office of the MHO has survived along with both clinical and SDH functions. In second tier cities with a lack of financial capacity, State Health Departments have taken over health and clinical services, resulting in an overemphasis on these services and a shift away from SDH. In third tier cities, the office of the MHO was under threat due to the takeover of health facilities by State Health Department along with heavy financial and technical capacity constraints. Notwithstanding this, we conclude that the office of the MHO is an existing and important institutional structure through which to address SDH in an integrated fashion. We argue that this office must be sustained, and efforts redoubled to augment necessary technical support, infrastructure and finance, particularly in second and third tier cities.

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D. Nambiar and A. Muralidharan (eds.), *The Social Determinants of Health in India*, https://doi.org/10.1007/978-981-10-5999-5_7

Keywords Urban health · National urban health mission technical resource group Municipal health officer

Introduction

The health of urban populations is primarily determined by the physical and social environment of cities and towns. Disease outbreaks are common and are characterized by the interplay of myriad factors including high population density, contamination of drinking water sources, breeding of insect and animal carriers of disease, solid waste management, relative inattention and structural barriers to the maintenance of hygiene and sanitation [1]. Non-communicable diseases are common due to high levels of exposure to air pollution, excessive stress, and the sedentary nature of work [2, 3]. Injuries from road traffic accidents, industrial accidents, domestic accidents, accidents in construction sites, and violence are also much higher in urban areas than in rural areas [4]. The social environment—by way of urban poverty, migration and its attendant problems of illegal status and denial of entitlements, group norms, customs and peer pressures,—also play a major role in impacting health [5]. Broadly, all these factors fall under the umbrella of Social Determinants of Health (SDH). Drawing from 2008 Commission on Social Determinants of Health (CSDH), SDH in this paper refers to the structural, social and environmental factors that determine the overall well-being of a population, including the health system [6]. The thrust of the paper is on the functions typically outside the purview of clinical or medical aspects of the health system in urban areas.

Historically, the science of public health has grown around establishing the interconnections between epidemic disease and its determinants in the urban context. The development of public health systems in the colonial period in India was focused on keeping cities and barracks, where the elite and military lived respectively, safe from raging contagions [7]. This meant that the development of urban health institutions was geared to epidemic prevention. The key institutional structure was the office of the Municipal Health Officer (MHO). Post-independence, these institutions were retained across Indian cities and replicated for new cities. However, Gupta argues that the 'capacity to prevent outbreaks from occurring has atrophied' over the years [8].

A recent appraisal of these institutions was undertaken in 2013, by the Ministry of Health and Family Welfare and the Technical Resource Group (TRG) of the National Urban Health Mission.[1] The TRG was charged with examining the health problems of the urban poor and their match with the design of urban health systems and then with recommending the institutional reforms needed to address these

[1]This TRG was chaired by Mr. Harsh Mander, a former civil servant, known for his work amongst the urban poor.

health needs. The TRG commissioned teams of public health experts to visit a sample of 30 towns and cities to study both the conditions of health and the design and functioning of institutions. One subcommittee of the TRG focused its attention primarily on SDH and the structure and functioning of institutions addressing these issues. In large cities—notably Chennai, Kolkata and Mumbai—the office of the city health officer has retained considerable powers with respect to SDH. This is closely related to the fact that these cities are governed by autonomous corporations which are relatively better financed. Furthermore, insulated as they are from the mainstream state health sector reform processes, there have been relatively few efforts to restructure institutions.

Drawing from the experiences of the TRG as well as the existing secondary literature on urbanism and public health, this paper attempts to understand the institutional structures responsible for the social determinants of urban health. We take a historical view, attempting to chart the history of public health administration in urban areas, tracing how these features serve as a kind of colonial footprint over which subsequent post-independence institutions have been established. Following this, we describe what our latest appraisal under NUHM-TRG revealed to us about these institutions.

The History of Institutions Addressing Social Determinants of Health in India

In India, municipal administration and public health began developing in the colonial era and were, in fact, inseparable. As Table 7.1 shows, public health related developments were either formulated and implemented by the British government, or were developed in the provinces and then expanded.

Table 7.1 shows the nature of colonial public health interventions. Major interventions were in the form of legislation/acts or by instituting public health departments and structures like the establishment of a Justice of the Peace and a MHO etc. The 1857 revolt was a turning point in the history of public health administration and SDH in India. The Royal Commission of 1859 observed a link between epidemics and the sanitation of the city and recommended improvements in sanitation. The colonial administration responded by 'physically separating the army and the British officials from the indigenous city by building new cantonments and civil lines (residential enclaves). The army was provided with new well ventilated barracks while officials built spacious bungalows on wide streets that were serviced by piped water and underground sewers' [7].

In fact, early urban planning in colonial India was premised mostly on keeping cities and barracks (where the elite lived) a safe distance from the raging contagions that periodically affected the rest of the urban denizens—often indicated by a 'cordon sanitaire'. This affected the urbanization process in India spatially by

Table 7.1 Timeline of the history of public health administration

Year	Public health interventions	Description
1764	First Medical Department by English East India Company in Bengal [9]	The medical department was introduced to provide medical services to army troops and civil servants
–	Appointment of Justice of Peace (JP) [10]	JP was entrusted with addressing public concerns by providing local amenities through imposition of taxes on urban dwellers
1842	Bengal Act X	Under this act residents of Bengal if required could approach the government for public services like repairing, cleaning, draining and watching public streets, roads, and drains etc. The services would be provided through appointment of a committee which oversees the functions and assesses tax [11]
1848	General Board of Health (GBH) by British Government	GBH oversees the local boards of provinces and looks after water and sanitation either on demand or when death rate exceeds 23/1000 persons [9]
1859	Royal Commission on the Sanitary State of the Army	This was formed after the 1857 revolt to look into the epidemics and health of army troops [12]
1864	Military Cantonment Act	Under the Military Cantonment Act, Sanitary Police were formed to improve hygiene in the Cantonment area [12]
1868	Civil Medical Department	This department was formed as a result of growing discontent from the general public due to spreading diseases and neglect of commons by the empire [9]
1869	Appointment of Public Health Commissioner (PHC), Statistician, Sanitary Commissioners	PHC was responsible for the Report on Health for the Government of India and consolidation of vital statistical information collected by the Statistician. Sanitary commissioners were responsible for the overall sanitation of districts and control of epidemics, inspection of dispensaries and hospitals etc. [13]
1880	Deployment of Sanitary engineers [9]	Sanitary engineers were entrusted with the disposal of human waste and the supply of potable drinking water
1897	The Epidemic Act [14].	This act conferred special powers upon ULBs to implement necessary measures for control of epidemics
1919	Montague Chelmsford Act	Under this act transfer of Local Government and public services to Indian control was ensured [7]
1920–21	District Municipality Act, Local Boards Act	Local bodies were conferred with legal provisions for advancement of public health
1939	Madras Public Health Act [15]	Addresses various aspects of public health in urban areas

Sources Various; indicated above

creating a divided city. The remnants of this spatial division are still observed in Indian cities in terms of uneven development [16].

After a century of neglect, in the year 1868 a Civil Medical Department was formed in Bengal Province motivated by expressions of widespread discontent among the indigenous population. Changes in municipal administration and services with greater attention to public health services in cities also emerged. Over time, the colonial authorities came to terms with the fact that some diseases were endemic and programmes of research began to be pursued on 'tropical diseases' followed by the formation of various commissions on plague, cholera, and others to look into the causation of epidemics. In most cases, these commissions suggested improvements to hygiene and sanitation. Improvement Trusts were formed in the cities under the United Provinces Improvement Act of 1919 to address the epidemic situation. Some of these Improvement Trusts evolved into Municipal Corporations over time, while others became Development Authorities. This was followed by the Epidemic Act of 1887, whereby urban local governments were conferred special powers to implement the necessary measures for the control of epidemics. These measures included 'forceful segregation of the infected persons, disinfection, evacuation and even demolition of infected places' [9].

A key example of this is the Madras Public Health Act (MPHA), a 1939 piece of legislation that supported the municipal administration and services with a focus on various SDH functions. As per the Act, a Public Health Board, Director of Health Services and a Health Officer were given powers to perform and discharge various public health activities. The Act entrusted local government institutions with the management of health. Provincial medical departments came under the control of local government. Likewise, district-level rural, medical, and sanitary arrangements were carried out under the charge of a medical officer called the Civil Surgeon, who was to superintend district medical institutions as well.

Although such changes were meant to happen in both rural and urban areas, cities had the institutional capacity to address the SDH through the dedicated office of the MHO. The MPHA, for instance, stipulates that

> [...] the Health Officer of a local authority shall perform such of the functions and discharge such of the duties, of its executive authority in regard to public health matters [...] [15].

This office had the powers of imposing quarantine if need be, forcibly disposing of bodies, ensuring sewers were cleaned, waste collected and disposed, and of whatever additional measures it took to avert or abort an epidemic. These powers were so rigorously invoked that they could lead to considerable public resistance—in one case the Plague Commissioner of Pune, W.C. Rand, was assassinated in 1897 allegedly because he ordered highly intrusive sanitary surveillance and oversight of native neighborhoods and private residences [17].

The institutional structures for public health and sanitation were retained across urban centres post-Independence. However, immediately after Independence, there was a popular demand to reverse the British policy of an almost exclusive focus on urban elites, and the government began an ambitious scheme of developing a network of public health facilities across rural India. In urban areas, a large number

of public hospitals mostly attached to medical colleges sprang up, but with little public investment in primary health care [18]. This gap in urban primary health care services was largely closed by a growing private sector, which unlike public facilities, focused exclusively on curative services [19, 20].

Starting in the nineties, a process of neoliberal institutional reform with respect to urban public services across cities began, and this has accelerated in the last decade. This included the *Nagar Palika Act* 1993, a constitutional amendment mandating local governance for urban areas. Strapped for resources, reluctant to raise funds from the rich and allocate them to the health of the poor, urban bodies reduced their spending on health with an expectation that State Departments of Health would take up the slack. Reduced spending on health coupled with the declining role of local governments lead to State line Departments taking over many urban public health institutions. However, in the nineties, State Departments were themselves facing financial constraints. As a result, urban areas, with a thriving private sector, could hardly be seen as a priority for investment in health, especially with so many rural health care demands calling for attention. Though the office of the health officer survived, it lost importance relative to other dimensions of health governance (which was focused on large hospitals and rural primary care) and of urban governance. The powers of MHO were limited to the provision of public services and supervising reforms therein, rather than taking into account determinants.

The two-pronged strategy undergirding neoliberal reforms was to first make public services operate in a more market-driven mode and second, to shift provisioning to corporate entities. The trend therefore began of running these services on commercial lines as cost recovery propositions and increasingly outsourcing them where suitable contracting arrangements were possible [21]. In particular, this approach has been used for the provision of drinking water and water for domestic use, solid waste management, sewage disposal, sanitation facilities, parks, and recreation sites [21].

At this time, institutional arrangements for outsourcing were again subject to civil servant-led initiatives and few efforts therefore emerged to develop the knowledge resources needed within urban bodies. Contracting arrangements have been weak. The community has seldom been consulted, nor has there been much space for participation or contribution in such contracting arrangements [22]. This has resulted in the emergence of a new set of tensions between service providers and the public, and between the employees and the management of these service providers.[2]

The legacy of economic liberalization has been the privatization of many social determinants such that, across cities, the burden of cost recovery through user fees falls disproportionately on the poor [19–21]. Focus group discussions (FGDs)

[2]The information is compiled from interviews conducted with Municipal Health officers from Chennai, Viluppuram, for the Technical Resource Group, and Health of Thrissur Corporation in 2011 in the aftermath of resistance from the people of Lalur where the municipal waste was dumped.

conducted among the vulnerable groups during the TRG process confirm this. Social sector reforms are usually guided by technical assistance from international donor agencies, which hire commercial corporate consultancy agencies to do the task, and many of these consultancies also have potential vendors of these services as clients. In such a context, the challenge is often seen as designing viable business models that can provide these services, rather than approaches that ensure equity in access and affordability for the poor. With regard to the urban institutions addressing the social determinants of health and the organization of primary health services, in the years after independence we see the following trends:

(a) Declining finance, weak governance of urban local bodies and weaker institutional capacity to deliver services across urban local bodies.
(b) An increasing separation of management of curative care services and even public health care facilities away from the office/purview of the MHO.
(c) Declining prestige, powers and scope of the health officer and lack of technical support to address the challenges of SDH.

This decline is far from uniform and in our work we have seen wide variations in the role and responsibilities of the health officer which seemed largely related to the size of the urban unit. But this variation also acts as evidence and illustration of the potential of this office and the determinants of its effectiveness, as we discuss in the following section.

Contemporary Urban Health Administration: Lessons from the National Urban Health Mission Policy Recommendation Process (2000–2014)

Through the course of our 30 city visits, we found that neither the extent of urban growth nor the institutional structures for urban health were similar everywhere. The cities could be classified into a triptych typology based roughly on size: Tier 1 cities like Mumbai, Delhi, Chennai, Kolkata etc.; Tier 2 cities like Pune, Kochi, Ambala, Bhopal, and Bhubaneswar etc. with populations over a million, and Tier 3 cities with a population between 100,000 and one million like Villupuram, Tumkur, Gangtok etc.

Almost all the large cities with active and effective public health systems had a long history of urban administration, including an office of the MHO or Commissioner. The office of the Health Officer or Commissioner was in charge of the primary and secondary public health institutions, supported by Sanitary Officers and Inspectors working in areas like vector control, food safety, waste collection, transportation coordination, and so on.

Take, for example, the case of Chennai. The Chennai Municipal Corporation has a 360-year history with specific emphasis on public health management. Even now, the legal framework is of pre-independence vintage—the Madras Public Health

Table 7.2 Roles of the municipal health officer in Chennai

Retained from colonial period	Diverted to other authorities (authority now responsible)	Added to the purview of the municipal health officer
Cleaning, protection and examination of water supply Construction and maintenance of public sanitary conveniences Regulation of 'offensive trades'—industrial waste, sewage, air pollution etc. 'Abatement of nuisance' carcass disposal, accumulation of refuse, chimney smoke monitoring, water (sewage) pollution monitoring Disease prevention, surveillance, notification and treatment Food safety regulation including inspection and licensing of slaughterhouses Sanitary arrangements for public gatherings or festivals, including removal and disposal of garbage Mosquito and disease vector control Upkeep and maintenance of lodging houses Management of public health staff (N = 4746, comprising 200 sanitary Inspectors and 300 basic health workers, 4200 mosquito control workers and 46 sanitary officers)	Solid waste management (Engineering Department) Drainage construction (Chennai Metro Water Supply and Sewerage Board) Monitoring air pollution (State Pollution Control Board)	Immunization School health Programme (for municipal government schools) Management of sheltered homes

Source Compiled from the Madras Public Health Act 1939 [15], Report of the Technical Resource Group to National Urban Health Mission, 2014, Interview with Chief Health Officer (CHO), Chennai Municipal Commissioner (CMC)

(MPH) Act of 1939. The public health department under the MHO has a number of functions, which include environmental sanitation and regulation of what are called 'offensive trades'.[3] It was observed that most of the activities stipulated in the 1939 Act remain under the purview of the MHO (see Table 7.2). The exceptions are solid waste management, water supply, and air pollution monitoring. In 1978 the first two of these were shifted to the Engineering Department and Chennai Metro Water Supply and Sewerage Board (CMWSSB), respectively. In 1981, air pollution monitoring in the city was entrusted to the State Pollution Control Board. Notwithstanding this, the scope of the activities was subject to the purse of the city

[3]According to the Madras Public Health Act 1939, Offensive trade means 'trade in which substances dealt with are or are likely to become, a nuisance'. Examples include industries that cause land, water, and air pollution that is physically manifest.

and municipal authorities. Under the 'abatement of nuisance' provision, the MHO also monitors chimney smoke levels, pollution levels in cinemas as well as sewage effluent. The degree of coordination and triangulation across linked roles and activities was indeterminate in the course of our TRG work. We noted further that other major functions of this office include immunization (done every Wednesday through Health Posts), the school health programme and management of sheltered homes for the destitute.

Various configurations and collaborations marked the actual dispensation of these roles and duties. In larger cities, ways have been developed to address epidemics through collaboration between local bodies and health departments and usage of Information and Communication Technologies (ICT). For example, in Chennai, the notification of 22 diseases and action response to the diseases was carried out by all government facilities, and also 650 private nursing homes across the state. This also included the network of facilities under the supervision of the Chennai Municipal Commissioner. Information received was transmitted to the local health post and Urban Health Centre, alerting them to the possibility of more cases. Further, an SMS would also go to the sanitary inspector for necessary action of a preventive nature, and to the MHO to assess the need for additional action/monitoring. Since the city health office was also in charge of vector control and of sanitation, there was the possibility of a wide sense of ownership and accountability.

Kolkata and Mumbai also had similar practices to what was observed in Chennai. Kolkata in fact had an even more robust disease surveillance-notification-response system in place. The Kolkata Municipal Corporation had set up laboratories to test for Dengue and Malaria in the city and each time positive cases were found, SMS alerts were sent to all health officials. The alerts help in identification of the locality for mosquito control activities [20]. Furthermore, one of its abattoirs (located in Tangra) has been modernized using technology and is arguably one of the most modern, safe and hygienic in the country. These are large corporations, which have strong precedents of action on SDH, which in turn has resulted in the existence of dedicated public health cadres, relatively large funding allocations, and ready access to technical know-how in the diverse disciplines required to carry out roles effectively.

Latter day corporations like Bangalore, Hyderabad and Ahmedabad had some components—but not all of these. Their spending on health as a proportion of corporation funds was much lower and there was a greater expectation that the state government would take the lead financially and programmatically in addressing health and its determinants in these cities.

The situation in second tier cities, however, varies. In many cities—Bhubaneswar was an example—the office of the MHO was exclusively for addressing social and environmental determinants, and it remains important. There was usually a separate officer who looked at the clinical services. However, there was no exclusive corporation service nor a public health cadre and the officer in charge—usually a clinician—seldom had the training, interest, or incentive to take the SDH functions seriously. Even where such an officer was conscientious, s/he

would seldom have adequate knowledge of the modern technologies now available for the monitoring and management of air pollution, ensuring food safety, organizing efficient solid waste management and carcass disposal, scientific abattoir management, reducing road traffic accidents, and the like.

Worse, as many interviews across cities show, awareness was often lacking that these were areas requiring technical know-how. For example, solid waste management is an obligatory function of local government. Over time, the composition of waste has changed such that its management requires segregation and differential treatment, employing myriad technologies. However, technical expertise is required to determine what technology is suited for which kinds of waste and in which context or scale. Often the health officers in the second and third tier cities lacked of expertise, their action further exacerbated by underfunding. Thrissur Municipal Corporation (TMC) in Kerala demonstrated this problem. TMC was in the limelight for ineffective waste management—a matter raised by the citizenry. And yet, there was no-one answerable to these complaints. At the time of the TRG visit to TMC, the MHO post lay vacant and was unlikely to be filled given this running controversy. In the interim, a Sanitary Officer had charge of solid waste management, a role that was both misallocated and underperformed.

In smaller cities like Gangtok and Raipur, the post of MHO was an entry level posting into government services. It therefore tended to be relatively less sought after or respected. Unsurprisingly, in many cities, this post was found to be lying vacant. To boot, there was contestation between departments of health and municipalities regarding who should govern this office, which in turn led to neglect of the actual duties supposed to be discharged by it.

Findings and Way Forward

The above sections reveal the historical centrality of the determinants of health in the evolution of urban public health services. The office of MHO was a colonial, convergent effort where SDH were linked to health services in urban areas. Various legislations historically have entrusted Urban Local Bodies (ULBs) with the implementation of many key SDH functions. This includes public services such as the provision of safe drinking water, sanitation, sewage and solid waste management, nutrition, management of homelessness, support of vulnerable sections, occupational safety, and epidemic prevention. This office survived into the post-independence period, though with a considerable loss of its role in health care service provisioning —the latter largely due to the gross neglect of the urban primary health sector.

The neoliberal era saw a further sharp but non-uniform decline of the powers of office of the MHO across different cities—this time affecting both clinical and SDH functions. The TRG study brought out other determinants of this decline in the role, such as the type of cities, the financial status of the cities, the privatization of other public Health Officer services, and lack of technical know-how on addressing various SDH.

Despite these overall trends, in large metropolitan areas and second tier cities with substantial municipal financial capacity, the office of MHO survived with both clinical and SDH functions. Even privatization of some of the SDH services has not impaired the importance of the office of MHO. In second tier cities with a lack of financial capacity, a clear separation of the clinical and SDH functions could be observed, where health departments took over the clinical functions. Added to this was the lack of technical know-how, the controversial nature and diminished stature of the office of MHO leading to a situation where there are no takers for the post of MHO. Particularly in third tier cities, the office of MHO was under threat of extinction due to (1) the takeover of clinical functions by the health department and (2) neglect of SDH functions due to severe financial constraints of the ULBs or privatization of the services.

Often when state departments took over the urban health functions, given their vertical disease-specific orientation, attention was given mainly—but not only—to universalizing the subcenter functions of immunization, antenatal care, and some national disease control programmes. The attention shifted away from SDH functions. This is a major challenge to urban health because there is no institutional structure in place other than the office of the MHO that currently incorporates SDH into public health in urban areas. This is substantiated by the findings of the TRG that wherever the office of the health officer was active, innovative steps for addressing the social determinants of health have been initiated, while in others the SDH functions are falling apart.

An immediate after effect of such development is that the urban poor with less purchasing power were found to be disproportionately affected in accessing public service delivery—even essentials such as the daily toilet and bathing [20]. The complexities in service delivery further increased where compartmentalization of service delivery in the institutional design was prominent. For instance, in Ambala, some SDH functions were vested with the Public Health Engineering Department and the office of the MHO was absent. Factors like the illegality of slums have added to the woes of the urban poor as the existing SDH services not only fail to reach these urban spaces, but are also legitimized in their failure to provide these services [23]. Where popular pressures are unable to force a legal status, administration finds it advantageous to maintain the status quo.

Our analysis suggests that the existing institutional design for SDH in the form of the office of the MHO has shown value and needs to be sustained and provided with the necessary technical support, infrastructure and finance. Our analysis also emphasizes the urgency of providing technical guidance for managing SDH-related functions such as scientific management of solid waste, hazardous bio-medical waste, abattoirs, services like a crematorium or a cinema theatre, air pollution, and approaches to managing and considering the needs of vulnerable groups. All these place demands for technological, technical, and domain-specific knowledge that are greater than those possessed by an entry level or medical officer. Some cities have built up such skills in an urban public health cadre, but these are the exceptions. It is conceivable that in each city, functions could be managed through collaboration, common sense and the occasional consultancy.

Our reiteration of the importance of the MHO implies not a mere resurrection of the past, but also a reimagination and restructuring of this office, and an understanding of the potential and the challenges of playing this role in modern times. It includes the creation of technical assistance institutions to play a supportive role. Particular regard in supporting the institution should be given to the second and third tier cities where the fiscal powers of ULBs are not favorable and where all the necessary technical requirements may never be possible as an in-house arrangement. The mechanics of this will have to be carefully determined in each urban context, mindful of the precedents, constraints, opportunities and variations that exist, and the range of stakeholders that must be engaged with.

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