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Public Health in India: An Overview[1]

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Abstract

Public health services, which reduce a population's *exposure* to disease through such measures as sanitation and vector control, are an essential part of a country's development infrastructure. In the developed world and East Asia, systematic public health efforts raised labor productivity and life expectancies well before modern curative technologies became widely available, and helped set the stage for rapid economic growth and poverty reduction. The enormous business and other costs of the breakdown of these services are illustrated by the current global epidemic of avian flu, emanating from poor poultry-keeping practices in a few Chinese villages.

For various reasons, mostly of political economy, public funds for health services in India have been focused largely on medical services, and public health services have been neglected. This is reflected in a virtual absence of modern public health regulations, and of systematic planning and delivery of public health services. Various organizational issues also militate against the rational deployment of personnel and funds for disease control. There is strong capacity for dealing with outbreaks when they occur, but not to prevent them from occurring. Impressive capacity also exists for conducting intensive campaigns, but not for sustaining these gains on a continuing basis after the campaign. This is illustrated by the near-eradication of malaria through highly-organized efforts in the 1950s, and its resurgence when attention shifted to other priorities such as family planning. This paper reviews the fundamental obstacles to effective disease control in India, and indicates new policy thrusts which can help overcome these obstacles.

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[1] A shorter version of this is forthcoming in Kaushik Basu, ed., The Oxford Companion to Economics in India.

Focusing on clinical services while neglecting services that reduce exposure to disease is like mopping up the floor continuously while leaving the tap running
(paraphrased from Laurie Garrett, *Betrayal of Trust*)

When I arrived in Berlin, I heard the words 'sanitary' and 'health' everywhere, but I really did not understand those words. What I eventually came to understand was that these words …referred to an entire administrative system that was organized to protect the public's health…. and to improve the nation's welfare
(Nagayo Sensai, architect of the Japanese public health system, c. 1871)[2]

1. What is public health, and why invest in it?

Public health services are conceptually distinct from medical services. They have as a key goal reducing a population's *exposure* to disease — for example through assuring food safety and other health regulations; vector control; monitoring waste disposal and water systems; and health education to improve personal health behaviors and build citizen demand for better public health outcomes. Thus they involve such disparate activities as improving slaughterhouse hygiene and cattle-keeping practices, cleaning irrigation canals to discourage vector breeding, and applying public health regulations.

Public health services produce "public goods" of incalculable benefit for facilitating economic growth and poverty reduction. Consider, for example, the long-term growth possibilities generated by draining the swamps around which Washington DC was built. And conversely, consider the global economic costs imposed by the avian flu and SARS epidemics, emanating from poor poultry-keeping and health practices in a few Chinese localities. In India, the 1994 plague epidemic following poor municipal sanitation in Surat is estimated by the WHO (1999) to have resulted in losses totaling $1.7 billion.

Poor public health conditions take economic tolls in various ways, including reduced attraction for investors and tourists; continued expenditures on combating diseases which should have become history; and labor productivity foregone. The poor pay a high price in debility, reduced earning capacity, and death. The rich suffer little mortality from communicable diseases, but nevertheless suffer repeated episodes of morbidity which are reflected in high rates of stunting amongst their children.[3]

It has long been accepted that the most effective approaches to improving population health are those that prevent rather than treat disease. Moreover, they account for a small fraction of the total health budget in most countries. It is the norm for public health services to be publicly funded, since the market has limited incentives to provide them. This applies even in the US, where medical services are largely privately financed. But in India public policies and programs have focused largely on the provision of curative care

[2] Cited in Ann B. Jannetta (2001).

[3] For example, estimates indicate that in 1998-99, 45 percent of children below the age of 3 in India were stunted — and even among the top wealth tertile over 28 percent of children were stunted (National Family Health Surveys I and II). See also Das Gupta et al. (2005).

and personal prophylactic interventions such as immunization, while public health activities have been relatively neglected. This helps explain why India's health indicators are so much poorer than in East Asia and much of the rest of the world.[4]

2. The evolution of public health services in the developed world[5]

In developed countries, the need for effective public health services was triggered partly by military concerns, since army casualties from disease were far higher than from battle. Elites also had a stake in disease control because cure was uncertain until antibiotics began to be mass-produced in the mid 20th century. Besides, business interests were at stake, as illustrated by the massive business losses following a cholera epidemic in Hamburg in 1892.

In the last decades of the nineteenth century, scientists began to identify germs and learn how they cause disease. This led to the "sanitary movement", which involved radical changes in citizens' health behaviors and private lives, including foregoing keeping livestock in urban areas. Protests arose: ranging from mass protests to the case of the irate butcher chasing a sanitary inspector down a Chicago street with a knife. The changes had to be implemented not only rigorously (sometimes coercively), but with much attention to persuading citizens of how better sanitation improved their wellbeing.

Much effort was devoted to building the organizational and technical infrastructure of public health services, and public health engineering. By the mid-twentieth century, the institutions and procedures for preventing exposure to communicable diseases had become well-established in the developed world. They had brought about rapid declines in mortality and morbidity. Non-communicable diseases became the major source of ill-health, and public health services were broadened to control these through lifestyle changes and controlling environmental pollution. Nevertheless, public health services continue to be highly successful at communicable disease control, and are overhauled periodically in response to changing circumstances.

Japan studied European public health services and moved early to emulate them as part of its preparation for becoming a world power, and applied similar measures in their colonies in Korea and Taiwan. Johansson and Mosk (1987) have argued that reducing the toll of communicable diseases raised labor force productivity and life expectancy in Japan, despite lack of rise in wages and consumption. This is consistent with the fact that in 1940, life expectancy in all three East Asian countries was nearly 50 years, significantly higher than in India (32 years), although per capita caloric availability was fairly similar across them all.[6]

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[4] UN estimates (http://esa.un.org/unpp/p2k0data.asp).

[5] This section draws on Barclay (1954), Duffy (1990), Easterlin (1999), Evans (1987), McGuire (2001), McKeown (1976), Johansson and Mosk (1987), Preston (1976); Preston and Haines (1991), Rosen (1993), Tatara , Schofield et al. (1991), Sung (2003), Szreter (1999),Vögele (1998), and Woods (2003).

[6] Das Gupta et al. (2003), Figure 1.

3. Public health services in colonial India[7]

During the colonial period, public health measures were focused largely on protecting British civilians and army cantonments. There is much debate about whether this resulted from parsimoniousness where Indian wellbeing was concerned, or fear of triggering hostility by imposing alien practices. In any event, a series of measures ensured that the British lived in residentially segregated areas with good environmental sanitation. Municipal areas were privileged with machinery to assure good sanitary conditions, including the management of water, solid waste, and liquid waste. For towns and rural areas, the services were focused largely on early detection and control of outbreaks of contagious diseases with high fatality rates — such as cholera and the plague — before they could spread, and even menace the more privileged populations.

Yet even for these limited purposes, the colonial authorities built impressive capacity for delivering public health services:

- Institutions for public health training and research, which ranked amongst the best in the world — most notably the All-India School of Public Health and Hygiene, and the Calcutta School of Tropical Medicine. These conducted basic research such as discovering how malaria is transmitted; developed and tested vaccines; and provided technical leadership and support as well as training for the public health authorities.
- Public Health legislation along lines then current in Europe.
- Sanitary Departments at national and provincial levels for civilian public health services, while military hygiene was under military medical officers. They were answerable directly to the government, and administratively separate from the Indian Medical Service (IMS) which provided medical services.
- Policy making and planning for public health services, done systematically to address all major threats to the public health. The Sanitary Departments issued annual reports with information on disease patterns and associated factors such as seasonal conditions and population movements, and analyzed this information to extrapolate the potential for outbreaks for which advance planning might be necessary. Periodic Sanitary Conferences were convened to discuss and refine overall policy thrusts, and coordinate policies and implementation between provinces.

The Sanitary Departments were entasked with ascertaining local sanitary conditions and improving them; vital registration[8]; monitoring disease trends; providing technical advice on disease control; and carrying out vaccination programs. They were expected to detect outbreaks early, trace them to their source and extinguish them quickly. Their medical staff was on average better-qualified, better-paid, and had faster promotion avenues than those in the Indian Medical Service. Municipal governments hired their own public health staff, consisting of medical doctors, and "a small army" of supervisors and sanitary inspectors to enforce sanitary regulations. Municipal planning was designed to avert

[7] This section draws on Harrison (1994), Jeffrey (1988), the essays by Arnold and others in Dyson (1989), Guha (1993), Ramasubban , the reports of various Sanitary Conferences, and annual reports of the Sanitary Commissioner of Punjab Province.

[8] In many provinces the quality of vital registration data was much higher than today (Dyson 1989).

public health threats, for example an elaborate system of drainage in and around the city of Calcutta reduced the risk of malaria.

The Sanitary Commissioners sometimes expressed shame that health conditions in India and Britain had come to diverge so widely since widespread sanitary measures began to be undertaken in Britain in the 1880s. They often sought to lobby the higher administrative authorities to expand the scope of public health services in India. The ongoing struggle within the administration is evident in the annual sanitary reports, for example in statements such as "if the District Collector does not sanction the construction of an improved washing ghat, even his table linen will be washed in filthy water".

The spare but systematic colonial approach to public health service provision is reflected in its successes and failures. During the first half of the twentieth century, the mortality spikes from epidemics were sharply reduced. By the end of the colonial era mortality from diseases such as cholera and the plague had fallen sharply,[9] but diseases such as malaria and gastro-enteric infections continued to take heavy tolls. Independent India's First Five-Year Plan notes that only 3 percent of households in India had toilets, and that much of the population lacked basic water, drainage and waste disposal services.

4. Public health in Independent India [10]

Little remains of the colonial public health arrangements, beside an impressive capacity to control outbreaks once they have occurred. The capacity to *prevent* outbreaks from occurring has atrophied. By 1950, much had changed both globally and in India, which led to this atrophy. Some of these factors include:

- Techniques for mass-production of antibiotics were refined during the 1940s. This made it possible for local elites to protect themselves from dying of communicable diseases, without having to maintain rigorous environmental hygiene to prevent exposure to disease for rich and poor alike. The developed world also became better able to protect themselves from the prospect of epidemics spreading from the developing world, and the focus of medical research shifted away from finding new technologies for communicable disease control — except when threatened by newly-emergent diseases against which they have no protection, such as the avian flu.
- The public health successes achieved in the developed world meant that by the 1940s their main causes of death shifted from communicable to non-communicable diseases such as cardiovascular diseases and cancer. At the same time, advances in medical technology offered the promise of managing these diseases through clinical and surgical interventions. The glamour and status earlier accorded to public health authorities was now accorded to medical doctors. The intellectual cutting edge shifted from improving public health systems, to improving curative technologies and methods of health care financing.
- Multilateral and other donor agencies have encouraged creating separate institutional structures and programs for controlling specific communicable diseases, thereby

[9] See for example Arnold 1989, and the other papers in Dyson 1989.

[10] This section draws on Nath (2003), Jeffrey (1988), Government of India (1996, 2002), Government of Karnataka (2001), and the Government of India Five-Year Plans.

facilitating the clear identification of project inputs and outcomes — but discouraging the building of health systems which seek to use resources as they are needed to improve public health outcomes.

- The spread of democratic institutions also affected public health services, because electorates typically prefer public funds to be used to provide private goods (such as medical care), rather than public goods (such as sanitary measures to protect the health of the population as a whole).[11] Selling a public health success electorally requires creativity, since the successes are by nature negative ("no cases of typhoid last year" does not hit the headlines, while advances in surgical techniques is big news). In the developed world, this means that public health authorities have to fight to ensure adequate funding,[12] while in the developing world it can lead to serious neglect of public health services. It is notable that the non-democratic regimes of East Asia were the most successful in the developing world in improving health outcomes, by focusing their scarce resources on public health measures rather than on providing advanced medical care.
- Elite capture also plays a role. In India, even more than most developing countries, public funds for health and education have been funneled towards tertiary rather than primary levels. Substantial proportions of the health budgets have been spent on expanding subsidized medical training, public sector employment for medical graduates, and high-end tertiary medical services — all of which largely benefits the middle classes and detracts from the provision of public health services.

Several policy thrusts of the newly-independent India also detracted from public health service provision. To begin with, the overarching policy vision emphasized developing heavy industry rather than health and education. Public health services were merged with the medical services in the 1950s. Qualifications in specialty curative skills became far better rewarded than public health qualifications, and attracted the best talent. Gradually senior positions were filled by people with no training or experience in public health, poorly-equipped and poorly-motivated to manage public health activities. The demand for as well as the supply of public health training atrophied. The atrophy was further fuelled by the fact that it is politically much easier to respond to budget constraints by cutting (the relatively invisible) public health positions and activities, while expanding the curative services for which there is strong electoral demand.

Moreover, an inconsistency between Constitutional provisions starved public health systems of funds. Public health services were designated as the responsibility of the state governments, except for issues such as port quarantine and provisions relating to the spread of diseases between states. At the same time, the constitutional fiscal provisions require states to hand over the bulk of their tax revenues to the central government. The central health authorities leverage their funds by requiring states to provide co-financing for many of their programs. This leaves little fiscal room for states to operate programs for which there is little support from the central government, such assuring environmental sanitation and other core functions of a public health system.

[11] Khaleghian and Das Gupta (2005).

[12] Institute of Medicine (1987, 2002a and 2002b).

These global trends and the policies of the newly-independent government were reflected in the withering away of public health services, in a variety of ways, including:

a) Neglect of public health regulations and their implementation

Public Health Acts, which constitute the legislative framework for public health service provision, have not been updated and rationalized since the colonial era. For example, five decades after Karnataka state was created out of several contiguous kingdoms and provinces, it has not developed a unified and updated Public Health Act — those for each constituent part from the colonial era are still on the books. In Tamil Nadu, the Madras Presidency's Public Health Act of 1939 was still in place in 1999.[13] The central government developed a Model Public Health Act in 1950 and revised it in 1987, but did not influence the states to adopt it. As in the colonial period, major municipal areas continue to be privileged, in that they still have public health regulations in place, and some staff and facilities for implementing them. These are much less in evidence in small towns, and even less in rural areas.

The Prevention of Food Adulteration Act is one of the few pieces of public health legislation which is still widely known to be in force. However, the Act has several serious deficiencies which prevent it from effectively protecting food safety, beginning with the fact that it focuses almost exclusively on food adulteration. In a large volume of detailed regulation, only a few paragraphs pertain to food hygiene. Besides, the Act is geared more towards punishing offenders, than towards helping businesses understand and comply with the regulations. Given the very limited funds available to inspectors for purchasing food samples for testing, and the slow disposal of court cases, it is apparent to food sellers that the law is short on credibility. Food inspectors are also a shrinking category of staff, as they are of low priority for cash-strapped states.

b) Diversion of funds from public health services

The distortionary implications of the fiscal and planning regime are illustrated by the effects of the family planning program. In the mid-1960s, the Indian government embarked on a massive effort to reduce population growth in the country, following some years of food shortages and Census results showing that population growth rates had accelerated sharply. To deliver sterilization and other contraceptive services, the network of public clinics was rapidly expanded. The central government is generous in supporting the family planning program, for example by covering the salaries of female outreach staff. The proportion of the central government health budget spent on this program has risen sharply, at the expense of other health programs. However, the states have to pay for maintaining the clinics and the salaries of doctors and other staff.

This heavy financial burden for the states has led to a progressive strangulation of funds for what ought to be routine public health services, to the point where these are often

[13] http://www.tnhealth.org/epidemics.doc

vestigial at best. For example, in West Bengal state, the positions of Sanitary Inspectors are largely vacant. Across the country, there is a trend for the position of male health workers to also be vacant, since their salaries have to be met by the state governments.

Unfocused labor policies add to the problems, with the emphasis often more strongly on protecting labor than on assuring an appropriately qualified workforce. For example, in West Bengal, malaria workers' job security was assured by absorbing them into the cadre of male health workers. Thus many of the precious slots left in this important but underfinanced and dying cadre of public health staff are occupied by people who lack the required qualifications. Moreover, the staff suffer from the atrophying of public health training. For example, the District Sanitary Inspector in a large district said that in 33 years of service he had received almost no training in public health.[14] It is crucial to improve the training and career rewards available to public health staff.

c) Organizational changes inimical to maintaining public health

Other problems arise from making health primarily a state responsibility, while building a "command and control" framework of centralized planning backed by fiscal dependence of the states on the center. The central government is the key actor in designing health policies and programs, partly because state budgets are highly constrained as described above. However, the central government focuses on planning specific programs, such as malaria eradication or family planning. This means that the bulk of the funds allocated by the central Health Ministry to the states are tied to specific programs and categories of expenditure within those programs, and states are not free to reallocate the funds to issues that may be of higher local priority.

A related problem is that there is very limited scope for making overall reviews of public health policies, fine-tuning their implementation and rationalizing the use of resources, which had been done in the colonial era through forums such as the Sanitary Conferences. The demise of a public health system means that there is also inadequate inter-sectoral coordination, which further wastes resources. For example, the health department has limited recourse if the irrigation department generates malaria by leaving a canal half-finished and waterlogged, but once an epidemic breaks out they will be called in to step up clinical services to handle the problem. A multiplicity of agencies is able to work on parallel tracks or even at cross-purposes. These trends are further encouraged by donors, as discussed above.

Public health planning and implementation has become ad hoc in ways deeply inimical to effective functioning. For example, it quickly became the norm for health programs to be conducted on a "campaign" basis. This means, in practice, that when a specific issue enjoys high priority a lot of resources are diverted towards it, and the obverse. However, public health cannot be sustained on a "campaign" basis. Much can be achieved in a campaign, but the benefits can be short-lived without continuing arrangements for identifying and responding to any remaining or imported threats. For example, there are a

[14] Author's field interviews.

few cases of many communicable diseases every year in the US, but through constant vigilance they are confined and stamped out.

The history of public health since 1950 in India illustrates that the organization of services is conducive to successful campaigns followed by unsuccessful "maintenance" phases of disease control programs. For one thing, with the exception of female health workers (who are earmarked for family planning service delivery), other health personnel are considered to be "multipurpose". In principle this is a good idea, but in practice it means that they are allocated to whatever is deemed a priority at the time, and discouraged from other activities such as maintaining the gains from earlier efforts.

This is searingly illustrated by the fact that India came very close to eradicating malaria through a highly successful campaign in the 1950s — but then the program was put into a "maintenance phase" and malaria resurged. This resurgence has often been attributed to the emergence of DDT-resistant strains of mosquitoes, though it is clear that the government does not really believe this since they continue to use DDT as a main line of defense against malaria. Less attention has been paid to the shortcomings in program design. In the 1950s, the malaria control program was carefully organized, but attention to program organization suffered subsequently. For example, the current program is formulated such that the central government provides the DDT, drugs and other supplies, while the state government is primarily responsible for the manpower costs. It is not uncommon that the states are unable to afford the manpower to adequately supervise the spraying activities, and prepare communities in advance so that they can plaster their homes before the spraying rather than plastering over the DDT. Besides, manpower is diverted: for example, an ORG study found that frontline staff were preoccupied with family planning work at the expense of malaria supervision at critical times.[15]

The Five-Year Plans document the rapid shift away from a public health-oriented focus in independent India. Even though little was done on sanitation in the 1950s, the Plans recognized clearly its importance for controlling communicable diseases. Water and sanitation was an integral part of the chapter on health planning, and sanitary inspectors figured as an important cadre of frontline staff. By the 1960s, water and sanitation had been separated out as belonging outside the health sector, and there was little further mention of sanitary inspectors in the Plans.

The reduced focus on public health outcomes was also reflected in other ways in the Plans. For example, there is a striking difference between the discussions of the health programs and of the high-priority family planning program. In successive Plans, the sections on health are concerned with inputs and the current priority thrusts such as universal immunization. For the rest, there is a typically desultory account of policies and programs. Analysis of shortfalls is often devoid of suggested remedies, as in the case of the 9th Plan on malaria. Even lip-service ceases to be paid to important issues — for example, the new strategies for malaria make no mention of environmental management.

[15] Operations Research Group 1988.

By contrast, the sections on family planning begin with a careful review of program performance, reasons for shortfalls, and how to overcome them. The need for operational research is highlighted, as well as creative suggestions for generating greater demand for family planning. Indeed, the program developed a highly successful IEC campaign to change people's desired family size and bolster program success. Similar efforts have been made in the health sector only sporadically, and typically to bolster campaign efforts such as immunization, rather than seeking to radically alter people's health behaviors to reduce their exposure to communicable diseases.

5. Encouraging trends for the future

There are many reasons to be hopeful that public health may receive more attention in the near future. Financing is available through large programs, for example the Rural Health Mission, National Sanitation Mission, and the renewed support for the Employment Guarantee Scheme. If implemented creatively, these programs can be used to improve public health outcomes. For example in the US, the Depression-Era food-for-work programs were used to eradicate malaria from large parts of the South. The success of this effort resulted from careful planning and oversight of the work by teams of sanitary engineers, entomologists, and administrators.[16]

Institutions are also being built at the local and national levels, which can play powerful roles in public health. The Panchayati Raj Act has placed emphasis on building local government, and devolving health activities to them. This makes it possible to build institutions for managing public health activities on the ground, with the requisite inter-sectoral coordination. States such as West Bengal and Kerala are experimenting with these possibilities in ways that can serve as models for other states.

At the national level, a new thrust is to build an institution modeled on the US Centers for Disease Control.[17] This model has been adapted across the world, most recently by China and the European Union, which recognizes that the public health systems of its component countries need to be coordinated and supported by a "federal" authority. If designed creatively, this could transform the way that the central government shapes and supports public health services in India. In a large federal country, the key roles of such a central agency include monitoring trends, research, advocacy, and helping states address specific gaps with targeted financial and technical help.

India has exceptional capacity to deliver services, as evidenced by its smooth conduct of elections and censuses across a vast population including pavement-dwellers and remote villages. Its inattention to public health is taking a large toll on its economy, as well as on the lives of its citizens, and it is time to recognize that public health is a key part of its development infrastructure.

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[16] Fee (2004).

[17] In doing this, it is important to learn from and avoid repeating the mistakes made when designing the National Institute of Communicable Diseases as a Centre for Disease Control. This was set up without the necessary authorities to fulfill the complex roles of such a Centre.

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