Public Health – the ‘black hole’ in Indian Medical Services

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Public Health is conceptually a different discipline to other medical services, its goal being the reduction of a population’s exposure to disease.1

A colleague from abroad asks you to describe the Indian Healthcare Scene in a nutshell. How would you respond? One picture firmly fixed in the mind is that of a middle income country with a population of 1.25 billion struggling after 68 years of independence to provide its people with basic amenities such as clean water, unadulterated food, unpolluted air, and effective sanitation systems to hygienically dispose of human, industrial, and household waste. In recent years however a second picture has emerged even as the first continues to dominate. In this India is seen as a preferred destination for medical tourism with islands of excellence in the country offering foreign patients hospital facilities similar to those existing in their country of origin, together with doctors having the necessary skills to carry out complex treatments and the surgeries they need. Additionally these services come at a cost less than one third of that charged in their own country and without the inconvenience of long waiting lists.

Perhaps one could have foreseen that the two scenarios portrayed above would at some stage interact one with the other. And so it happened in 2009 when a bacterial organism carrying a novel mechanism of antibiotic resistance was isolated from a medical tourist from Sweden who had recently come to New Delhi for cardiac surgery. This gut organism harboured the enzyme New Delhi metallo-β lactamase (NDM-1)2 which had the capability to spread its resistance mechanism to other microbes within the gut of the same individual and then to others after excretion into the hospital environment if sanitation systems were faulty. This proved to be the case when samples of the hospital effluent were examined and later from samples of sewage seepage, as well as in a few drinking water samples from across Delhi city3. UK scientists accused India’s poor Public Health system for the spread of this organism to advanced countries. India in return objected to ‘New Delhi’ being prefixed to the name of this enzyme and a political spat ensued, which fortunately was soon patched up.

India in the 21st century is acknowledged as a global power economically with a growth rate of about 7% annually. Why have Public Health facilities not kept in step with economic advance. To find an answer we have to go back nearly 200 years into history.

The Evolution of Public Health Services in the Developed World

In the mid 1800s England embarked upon its industrial revolution. Whilst this brought prosperity to the drivers of this movement its effect on the working class was quite the reverse. People flocked into towns and cities in search of jobs. Overcrowding followed, slums sprang up, garbage and filth accumulated, sickness with serious infectious diseases like tuberculosis escalated, cholera outbreaks added to misery, and hospitals were viewed as ‘pest houses’ only fit to die in.4 All this happened it should be remembered at a time when the principles of hygiene and sanitation were still to be defined. A full investigation followed by corrective action was required and that is indeed what followed. Edwin Chadwick (Figure 1) a lawyer by profession was the author of a famous report that urged the government to improve the housing and working conditions of the people and to recognize that filth was the greatest evil they faced.5 In response a great sanitary crusade was embarked upon to improve public health.6 The report also adopted a high moral tone by stating that government was responsible for the health of its people. Comprehensive legislation was brought into force with the Public Health Act of 1875. Other pioneers of the sanitary movement, were Peter Frank who introduced the concept of public health, John Snow who studied the epidemiology of cholera, and John Simon the first Medical Officer of London tasked with implementing the new legislation. Florence Nightingale another towering
personality of this period spent the latter part of her life improving the design and functioning of hospitals. Her interest in environmental sanitation extended to India and the conditions of the British Army serving there, and at times to the Indian population as well.  

**Public Health in Pre-Independent India**

Five thousand miles away from the ongoing events in England colonial rule had been firmly established in India. The rulers were interested in keeping up-to-date with sanitary improvements in public health finding themselves as they did in alien climatic conditions, in poor hygienic environments, and in close contact with a large population of native Indians adding to the threat of fatal infectious diseases. Of course they lived in residentially segregated areas and cantonments with good sanitation. The adjacent municipal areas were provided with necessary equipment for the management of water supplies as well as for solid waste and liquid waste disposal. Facilities for rural areas focused largely on early detection and control of outbreaks of fatal contagious diseases such as cholera and plague before they could spread and menace the more privileged. This was no doubt a self-serving policy but at the same time, one which benefited the whole population.

With the same motivation the colonial masters built institutions to deliver public health training and research – most notably the All India School of Public Health and Hygiene and the Calcutta School of Tropical Medicine. Sanitary Departments were created at the national and provincial levels. They were tasked with ascertaining local sanitary conditions and improving them. They monitored disease trends, provided advice on disease control, and carried out vaccination programmes. Most importantly the medical staff involved in these activities was better qualified, better paid, and had better promotion prospects than those in the Indian Medical Service and therefore attracted talented individuals. By the end of the colonial era mortality from diseases such as cholera and plague had fallen sharply, although malaria and gastrointestinal infections still took heavy tolls.

**Public Health in Independent India**

Independent India started her journey in 1947 at a time of major change in the global medical scene. Antibiotics had arrived and were being used to cure all manner of conditions including many infectious diseases. This gradually diminished zeal for the former sanitary approach to Public Health. Side by side the second great therapeutic advance of the 20th century namely vaccines were giving real hope for the elimination of deadly smallpox, crippling poliomyelitis, and the reduction in incidence of several other high mortality diseases. Traditional Public Health was slowly becoming eroded and hospital based.

Prime minister Nehru’s vision for India emphasized developing heavy industry, munitions, and scientific institutions rather than health and education. Public Health services were being merged with medical services, and doctors with qualifications in curative skills were better remunerated than those with Public Health diplomas particularly as non communicable diseases (NCD) were gaining in importance over infectious diseases in the developed world and even in India as the years passed. Public health training slowly began to atrophy with Preventive and Social Medicine taking its place in the medical curriculum.

The First Indian Health Survey and Development Committee (Bhore Committee) was appointed in pre-independent India in 1943 but only released its recommendations (in three volumes) post-independence. These also supported the merger of public health preventive services with curative medical services. In addition they recommended the setting up of Primary Health Centres for the healthcare of rural communities.

In hindsight all these steps post-Independence that resulted in the down grading of sanitary Public Health services were a huge mistake, the gravity of which was to become apparent only later. Two hundred years earlier England had acknowledged that the greatest evil that the country faced was ‘filth’ and had mounted a great sanitary crusade against it. In India with her burgeoning population filth was everywhere and should have been attacked with similar zeal but hygiene and sanitation had been demoted and the opportunity to tackle it head on had been lost. Traditionally Public Health’s goal it is worth repeating has been to reduce a population’s exposure to disease through data gathering, surveillance, improved sanitation, vector control, waste disposal, protection of safe drinking water, food hygiene etc. India’s health policy paid only lip service to these time tested tools to protect its population from disease and instead chose to focus on the provision of curative care together with personal prophylactic interventions such as immunization. This change of goals explains why despite a rapidly growing economy many of India’s health indicators have remained stubbornly inferior to those of neighbouring Asian countries such as Bangladesh and Nepal. Furthermore the substantial economic consequences that result from poor Public Health was made evident when an epidemic of plague struck in Gujarat in 1994. Poor municipal sanitation and filth was blamed and estimated by WHO (1999) to have resulted in losses totaling $ 1.7 billion.
The Public Health Crisis in India – 21st century

In the second decade of the 21st century poor hygiene and lack of basic sanitation is again seen to be leaving scars on the nation’s health but in ways previously unrecognized. Open defecation is a problem that everyone recognizes but few are prepared to talk about in India. The government of Prime Minister Narendra Modi therefore deserves kudos for bringing the subject out into the open. The statistics are staggering. Approximately one billion people worldwide are practicing open defecation including 600 million Indians, that is nearly half of our population. At the same time it is estimated that 61 million Indian children are stunted, the highest prevalence in the world. No connection between these two statistics was considered till today. Recently however it was noted that Indian children are smaller than their counterparts in Sub-Saharan Africa who are on average poorer and less well fed. Scientists were thus alerted that poor sanitation and not poor diet were chiefly responsible for stunting of growth.

Atrocious hygiene that results from widespread lack of sanitation is made even more damaging by the density of population. With large numbers of people openly defecating and with no hand washing facilities available faecal-oral transmitted infections are common and lead to diarrhea. The latter drain growing children of vital nutrients so that growing up in such environments has a permanently debilitating effect with a chronic enteropathy not allowing nutrients to be absorbed and children to grow. If the hypothesis be true it confirms the terrible price the Indian nation has had to pay for neglecting basic Public Health when the lesson had already been taught to others 200 years ago.

References

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