Clinical medicine and public health: Rivals or partners?

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INTRODUCTION

There has always been an element of distrust between the clinical and public health fraternities as both claim to be the one primarily responsible for improving the health of a country. This is true globally, and the statement of Brandt and Gardiner with reference to the USA applies to India as well: 'The relationship between public health and medicine has been characterized by clinical tensions, covert hostilities and at times open warfare. Representatives of both fields have traditionally voiced strong commitments to health and social betterment.'

Examples from the UK at two different times with respect to two different diseases (infectious and non-infectious) highlight the relative contribution of the two fraternities. Thomas McKeown ignited this debate with his hypothesis, which intended to explain the rapid increase in the population of Britain from the mid-18th to the mid-19th century. The prevailing orthodoxy at the time was that the decline in mortality was due to medical advances, including the rise of the hospital movement in the 18th century. He pointed out that the mortality rates for most serious infectious diseases, such as tuberculosis, plummeted long before the advent of any effective individual preventive or therapeutic medical measures, and argued that such measures had little effect on mortality before 1935. Likewise, McKeown concluded that public health measures, particularly sewage disposal, the supply of clean water and milk pasteurization, became important only from around 1870. He attributed the decline in mortality rates before this to improved living standards and nutrition. Notwithstanding the several criticisms of the evidence used by McKeown or his interpretations, one can safely agree with his broader conclusions that public health measures are effective, modern medicine has some benefits, and it is socioeconomic development, including improvements in the environment, that brings the maximum improvement in health. All these areas are outside the traditional health sector.

In more recent times, on the basis of a modelling exercise, Unal et al. estimated that in the UK, between 1981 and 2000, the mortality rates of coronary heart disease (CHD) decreased by 54%, resulting in 68,230 fewer deaths in 2000. Overall, the prevalence of smoking declined by 35%, the mean total cholesterol concentrations by 4.2% and the mean population blood pressure by 7.7%. About 45,370 fewer deaths were attributable to reductions in the above three major risk factors in the population—36,625 (81%) in people without recognized CHD and 8745 (19%) in patients known to have CHD. The number of deaths prevented due to the treatment of hyperlipidaemia and hypertension was much less than that due to a change in the population. The authors concluded that primary prevention achieved a four times greater reduction in deaths than secondary prevention.

Thus, the evidence shows that while both fraternities have contributed to an improvement in the health of the population, public health has made a larger contribution. However, such assessments are fraught with methodological difficulties, the more so in India, both due to the non-availability of appropriate data and the relatively blurred distinction between these two approaches. There can be no doubt that there is a lot of common ground between these two disciplines and approaches. Our undergraduate medical training prepares us for the clinical approach and, in general, there is little understanding of the public health approach to diseases.

We explain the public health approach and contrast it with the clinical approach. The aim is to enable the reader to better appreciate the public health approach and not to criticize the clinical approach. We also do not intend to compare the two sets of professionals.

WHAT IS A PUBLIC HEALTH APPROACH?

Public health is 'the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals.' In general, public health is a combination of sciences, skills and beliefs directed towards the maintenance and improvement of the health of all people through collective or social actions. A public health approach to any health problem or disease would consist of the following:

1. Define the health problem.
2. Identify the risk factors associated with the problem.
3. Develop and test community-level interventions to control or prevent the cause or the problem.
4. Implement interventions to improve the health of the population.
5. Monitor those interventions to assess their effectiveness.

This is not very different from the clinical approach, in which a clinician makes a diagnosis, identifies the causes, prescribes drugs to treat the patient and follows up to see whether the drug has worked or not. So what is the difference between the two approaches?

The primary difference, from which the others flow, is that clinicians deal with individuals, whereas public health experts deal with communities. A community could signify the population of anything from a hamlet to a country. This automatically results in two additional differences between the two approaches. First, no community is actually ever 'cured' of a disease (with the exception of smallpox and guinea worm) and each community faces multiple health problems, which often compete with each other on a scale that is not conceivable in an individual. The second major difference is that public health deals with the preventive and promotive rather than the curative aspects of health.

PHILOSOPHICAL DIFFERENCES

There are some philosophical differences which underpin the two approaches. These are best described as the medical model and the social model of disease.
The medical model of disease is what is taught in our medical schools. This is a simple model, according to which diseases are caused by agents (best represented in infectious diseases by bacteria, viruses, etc.) and, therefore, their treatment consists of destroying the agent. So all that needs to be done is to identify the agent, and on the basis of a knowledge of microbiology and pharmacology, use an appropriate antimicrobial to cure the patient. This approach is not equally applicable to non-communicable diseases (NCDs). NCDs are said to be determined by the individual’s choices. For example, a person may get lung cancer because (s)he chose to smoke against medical advice. So tobacco becomes the agent to be destroyed. However, the means of achieving this are not as simple as the use of antibiotics or vaccines for infectious agents.

The basic premise of the public health approach is that a disease is caused by multiple factors, the special focus being on the social determinants of health. The emphasis is on poverty, equity, access to affordable healthcare, etc. rather than the technical quality of care. As a result, the public health approach uses a systems framework and envisions the provision of care through a health system and community-level institutions, such as panchayats.

DIFFERENCES IN PRACTICE

Clinical practice aims at making a diagnosis using information gathered through clinical-based (history and examination) and laboratory-based procedures. On the other hand, the question asked by a public health person is whether the said health issue is a public health problem in the given community. The question is answered by conducting epidemiological studies to quantify the present burden of the health problem and the future trends, as well as carrying out qualitative studies to understand the community’s perception.

Once the diagnosis is reached, a clinician proceeds to cure the individual (or control the disease in the case of NCDs). The treatment is individualized on the basis of the patient’s age and other personal considerations. The tools available include drugs, vaccines and surgeries. Once a community identifies a public health problem, it aims to control, eliminate or eradicate the problem (the choice depends on technical and operational factors), using public health tools such as policies, programmes, legislation and guidelines.

A public health approach focuses on risk factors or the causes of disease and, therefore, the prevention approaches relate to primordial or primary prevention. Clinicians usually practise secondary and tertiary prevention as they most often deal with people who already have the disease, which rules out the possibility of practising primary prevention. An exception to this is the concept of Well Baby clinics, run by paediatricians. Children are asked to visit these clinics irrespective of whether they have an illness or not; their growth is monitored and advice is given on diet and immunization. In this case, therefore, primary prevention is practised and preventive medicine is a part of clinical medicine.

While clinicians would opt for counselling people to change their behaviour, public health personnel would use educational media campaigns to influence people to choose the right behaviour and, in fact, change the community’s definition of ‘appropriate’ or ‘acceptable’ behaviour. The simultaneous use of both approaches is required as a community comprises people who have established ‘inappropriate’ behaviour (which needs to be changed through counselling), as well as people who are undecided or display appropriate behaviour (who need convincing or reinforcement).

DIFFERENCES IN ETHICAL PRINCIPLES

The general principles of ethics underlying the two approaches are the same—non-malefice, beneficence, individual autonomy and equity. The main difference is that while decision-making takes place at the individual level in a clinical situation, it is the responsibility of the community in a public health approach. It is easier for an individual than for a community to weigh the pros and cons of the choices and come to a decision. In a public health scenario, the choice made by an individual may affect the fate of others, as is true of programmes such as immunization and universal salt iodization.

As followers of the medical model of disease, clinicians use an individual framework and try to determine the best treatment option for an individual patient. Public health recognizes that the best treatment for all is a utopian dream and bases its approach on the principles, ‘Let best not be the enemy of good,’ and, ‘Good for many is better than best for few.’ Thus, if we consider the two approaches, we see that there is an ethical dilemma because of a conflict of interest between the individual and the community.

The advocates of the public health approach, while recognizing this dilemma, take the position that the benefit of the community overrides that of the individual. Clinicians face ethical dilemmas if they choose to use standard rather than individualized treatment; they may be denying a patient access to a better treatment option. However, experience with tuberculosis has shown that clinicians’ freedom to treat patients the way they want, without regulation of prescription practice or drug dispensing, can have serious adverse consequences for the community. Therefore, in the larger public interest, governments issue guidelines on prescription and drug dispensing.

In fact, guidelines standardize treatment. The basic principle behind this is that most patients can do with a standard treatment. Only a minority requires a different treatment, which necessitates decision-making at the individual level. Clinicians feel that if most patients are given standardized treatment, they are being robbed of ‘specialized’ technical knowledge. Also, as was seen in the cases of diarrhoea and pneumonia, in the long term, standardized treatment allows for the entry of non-medical or paramedical persons in the management of these conditions. It is, therefore, perceived of as a threat to the discipline of medicine.

DIFFERENCES IN EPIDEMIOLOGICAL ASPECTS

Finally, we shall consider the differences between the epidemiological aspects of the two approaches. The case studies used by clinicians and the ecological studies used by public health professionals do not provide sound evidence for any decision-making. While clinicians are interested in answering questions about absolute risk (what is the risk of developing the disease in different settings), public health specialists are interested in ‘attributable risk’ (what proportion of the total disease burden in the community is attributable to a particular factor and will, therefore, disappear if that factor is removed from the community).

Clinicians are interested in identifying the ‘abnormal’ (diseased) so that it can be made ‘normal’ (disease-free) with the help of treatment. The problem with placing too much emphasis on identifying the ‘abnormal’ is that the definition of ‘abnormal’ keeps changing. Examples in the area of NCDs abound (hypertension, diabetes, hypercholesterolaemia, etc.). Public health professionals recognize that all cut-offs are arbitrary and instead, focus on the distribution of the parameter in the community and try to shift the curve to the right or left, according to the appropriate direction.
The idea of focusing on populations and not individuals was proposed by Geoffrey Rose in his seminal paper, ‘Sick individuals and sick populations’. We also now recognize that behaviours, including what is considered ‘appropriate behaviour’, are shaped by community-level determinants. For example, the consumption rates of tobacco and alcohol are higher among communities which accept the use of tobacco or alcohol (in rural India) than among those which do not. We could reduce their consumption in a more effective and sustainable way by changing the public perception, either by encouraging a voluntarily change (through an educational campaign) or by compulsion (legislation or ban on smoking, etc.), which are examples of public health tools.

EVOLUTION OF DISCIPLINES AND THEIR PRACTITIONERS
Some clinicians, after years of practice, begin to find it monotonous and futile doing the same things over and over again, and then decide to move in any of the two directions, depending on their personal philosophy and values. They could become more specialized (acquire a specialized degree/training) or more public health-oriented. The latter need not mean changing their work completely; they could just get involved with community work, work with non-governmental organizations, etc. This is a common trend and, in a way, a natural evolution. Both options represent perfectly natural paths of evolution and progress, and are a reflection of a desire to do better.

It is also interesting to contrast the absolutely different directions that clinicians and public health experts are taking in developing their disciplines further. While clinical disciplines are moving into more and more narrow confines (from eye to retina or from orthopaedics to knee replacement surgery), public health is increasingly recognizing the global nature of health (pandemics, multinational marketing, etc.) and is defining the community as a global village. For example, the provision of care for diabetes has passed through the cycle of physician, endocrinologist and now diabetologists. Public health experts, on the other hand, would take the matter to the level of a general doctor and also see what role a paramedical worker could play.

The distinction we have drawn in this paper is not specific to health. It holds good for other disciplines as well. For example, there is a similar difference between a teacher and an educationist, or for that matter, between a biologist/botanist/zoologist and an environmentalist/ecologist. While one approach considers individual children and trees, the other considers the education system and the forest.

CONCLUSION
Our endeavour to improve the health of the community requires the joint efforts of clinicians and public health specialists. A better appreciation of a social model of disease and a public health approach, in addition to the medical model on which clinical practice is generally based, is essential for building synergy between clinicians and public health professionals. These two strategies are mutually reinforcing and deserve mutual respect. They can be used in tandem to promote the health of individuals and the community. Let us be partners and not rivals.

REFERENCES