

Working Paper:

A critical theory of the index in healthcare and medicine

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“Indicator” means a numeric measure that depicts the status of a population or a health system on a core health care or public health construct.

(MoHFW, the National Health Bill, 2009 Working Draft: Version January '09, p10)

One of the most common conceptual instruments used in health care and medicine is the index. The maternal mortality and infant mortality rates, the expected life span, the baseline percentage of malaria in a population are all indices of health care. Similarly, body temperature, cholesterol level, and red or white blood cell counts are indices of an individual’s health and illness in curative medicine. Often the index is taken to be a transparent, direct fact about the object under study, i.e., in medicine and healthcare, a truth about the body or population. What I attempt in this essay is to bring to visibility the layer of scientific (and political) representation that the index constructs. The purpose is to provide activists and academics with an instrument to critically examine and evaluate the structure of different indices that govern individual patients and populations today. The paper starts with a definition and works through a series of examples toward a usable contemporary theory of the index. The term ‘critical’ here is used in the broad sense of examining the limits of validity and therefore setting the boundary to the use of the index in medical and healthcare logic.

A definition: An index is a) clear and present sign; b) which refers to an object of interest; and c) is interpreted in a specific way.

A CLEAR AND PRESENT SIGN



OBJECT OF INTEREST



INTERPRETANT

This is a definition very close to the general definition of a sign given by Charles Sanders Peirce, the American philosopher who made significant contributions to sign theory. His philosophical theory of the index as a specific type of sign is a useful base from which to begin our more detailed study.¹ The simple figure above depicts the three zones of importance in health indices that I will deal with in this essay. It would be useful to refer to this figure if at any point in the essay there is a confusion about which aspect of the index's function I am talking about.

A clear and present sign

An indicator (or index) is a sign that points to a specific state of affairs. Indices may be natural or constructed - lightning is a natural index of thunder; a doorbell rings as an artificial index of someone at the front door. An index is connected to what it explains - it is part of its structure (sometimes physically, at other times causally or correlatively). At the simplest level, a ringing doorbell is a physical sign that someone has pressed the button. It is an artificial sign that is linked physically to its object. At the most complex level, the index is a very sophisticated tool of logical inference and analysis: a high suicide rate is an index that was first interpreted by the pioneering sociologist Emile Durkheim as a statistical correlate of social disorientation and individualization.

Clinical indices are individual; examples:

- body temperature
- blood glucose level

Public health indices are population oriented; examples:

- Infant mortality
- Life expectancy

¹ I will be following Peirce's theory of the index in a general and somewhat opportunistic way without using his strict typologies and categories, and in addition without completely accepting the premises and goals of his philosophical thought. Those interested may refer to the chapter "Logic as Semiotic: The Theory of Signs" in Justus Buchler, ed. (1955). The concept of the index in language and philosophy has a wide spectrum of considerations from the phenomenological, structuralist and poststructuralist perspectives - my effort here is not so much at the fundamental level of the index as an entity of perception and thought, but more so as a concept that may be usefully reflected upon for everyday medical activism.

An index may be qualitative (presence of pallor or a lump; “the face is the index of the mind”), or it may be quantitative (total cholesterol level; life expectancy). While everyday indices are used to gauge the well being of loved ones (‘you look so thin, come and eat a good meal with me’, as a mother would say), more sophisticated indices are used in medical care. I argue here that historical change in medical care has resulted in the index going far beyond the intuitive commonsense level of physical palpation and clinical examination, to complex tests that put the patient behind a screen of imaging and numbers that are generated by medical science.

Object of interest

The immediate aspect of the index - the clear and present sign (or what Peirce also called representamen) - points to an object of interest and depicts some aspect of it. Continuing the previous explanation, in clinical medicine the object of interest referred to by the index is the individual human body, while in public health, it is a statistical population.

Examples:

- The patient’s body is the object of interest in which a potential inflammatory process is indicated by a high erythrocyte sedimentation rate (ESR).
- A high total fertility rate indicates complex birth and death processes in a demographic profile, which is the object of interest.

Artificial constructs - objects of interest and indices

A little thought would make it clear that, in healthcare, the statistical population is an artificially conceptualized and constructed object of interest. In public health it most usually signifies a number of individuals who belong to a specific category (rural, urban, slum dwellers, lorry drivers) and each individual is simply seen as an actual or potential carrier of disease (TB), risk (stroke, AIDS) or death (IMR).

Less obvious is the fact that even in individualized medical care, the object of interest is not a ‘natural’ object (i.e., the human body) but a way of perceiving, conceiving and acting on that object. Thus a doctor will use the rheumatoid factor in a blood sample as an index to decide if somebody has rheumatoid arthritis. However, the latter is a disease according to a specific conception of the body according to Western medicine. It leads to specific

kinds of curative measures including for example the use of steroids. In contrast, in Ayurveda for example, there is perhaps no conception of the body that permits a disease called rheumatoid arthritis. There is a completely different way of conceiving the signs and symptoms of joint pain in that system. Both systems of medicine try to alleviate the symptoms and effects of the disease. The indices of cure are also different - what counts as a cure in one system may not in another. In many non-terminal cases, it often depends on the culture of acceptance of the terms of the cure. Untimely death due to disease is taken as the final index of the failure of health care.

The above argument implies that the status of an object of interest is often 'known' only through one or other index. There is no way to 'know' blood pressure except through the effect it exerts on a mercury column (or any other instrument) or through the damage it causes to some part of the body (seen through a laboratory index/technological image of damage in the pathology of the living body, or in the final diagnosis made through a post-mortem examination). What this ultimately means is that the 'object of interest' is a scientific construct to understand, explain and control a practical situation - in Peirce's terminology it is a *pragmatic* construct of knowledge. I will argue as an underlying thread of this essay that, to the extent that medicine is not a 'pure' science (unlike say physics, which is 'pure') the whole indicial operation is a construct that often reflects political agendas.²

Moving back to the 'clear and present sign', health care indices too are (as are objects of interest pointed to by these indices, see above paragraph) designed constructs - they are not simple natural signs. For example, blood pressure, though it is a natural characteristic of the human body, does not function as an index simply as if it were this 'natural characteristic'. As an index, blood pressure depends on a specific anatomical and physiological model of the functioning body (which is the object of interest). This model provides an explanatory framework for why blood pressure is critical to the functioning of the body. It also provides both an explanation of the factors that give rise to variation in blood pressure and a pathological pathway for clinical diagnosis. How accurately the index actually functions in relation to people's lives,

² It has been argued by theorists like Bruno Latour that even pure sciences like physics are composed by several agendas and alliances of power that sustain, grow and complicate the field organically. In that sense even pure sciences are political.

depends on how well it has been designed. The strength of an index depends on the knowledge system within which it is embedded among several other indices in a configuration of logical arguments. Thus any index is open to examination, analysis and criticism in its structure and its use.

The fact that the index can predict a repeatable status of the object, e.g., cardiovascular disease, as a biochemical, pathological fact means that the index is not a purely ideal concept; it indicates a specific repeatable condition of the body and of the world in general. Indeed every index is essentially nothing but the dynamic connection between the world, knowledge and practice. This is why in the discipline of linguistics, *indexicals* gain importance as elements of language that mark, point to and address specific locations, positions and aspects of the world.

Interpreted in a certain way

Peirce uses the term *interpretant* to describe the final step of interpretation of the sign in a specific way. The interpretant is often a more complex sign. The simplest example of an interpretant to an index comes from the nation's population growth rate which at the first level is an index that points to the rate of increase (in the Indian case) of the nation's population as a whole. In modern demographic theory, population growth is in turn *interpreted* as a more complex index (however accurate or not) of the economic stress on the resources and capabilities of a developing nation and the troubles that lie ahead of it.

There is a logically established way in which any given index is interpreted in relation to other signs. This interpretation depends on the explanatory framework of the index. The interpretive relationship between the index and the object is characterized by its strength, complexity, etc. Let me illustrate this with the example of diabetes that works in both clinical medicine and public health:

A high in vitro level of blood glucose is a strong individual index of diabetes linked through the logic of diagnosis with other extremely complex indices and general signs that characterize the disease pathology in the human body as a system. It is part of the history of the index of blood glucose that a single reading was, as time progressed, found inadequate, replaced by two readings (fasting and post lunch) then by both a measure of long term average blood

glucose (HbA1c) and a real time record of the dynamically varying value of blood glucose. The search for a more precise index, while sometimes necessary, is sometimes an unnecessary chase after more and more sophisticated techniques and wider markets. The critical challenge is to differentiate the necessary from the wasteful and exploitative.

In an individual clinical diagnosis, the abnormal level of blood glucose in me, points to diabetes, which is itself an interpretant that points to a compromised future marked by chronic and often failing engagement with the disease as I age and finally succumb to one of its many complications. Thus, the prognosis is one kind of an interpretant that follows from the diagnosis.

In a public health register, an increasing percentage of patients who present with diabetes has been made an interpretant in two ways: First, it has been used by the WHO to promote national budgetary commitments to clinical care against an incipient epidemic of diabetes in the third world. Second, it is also used to propose population level causes of diabetes in terms of undernutrition of pregnant mothers and of infants that has resulted in an epidemic. Thus the interpretant may work both to promote a future strategy and to suggest a historical cause.

In the broadest register, the general term 'health', used in the context of governmental programmes and business interests is the final interpretant of success in many desirable indices. 'Health' is neither easy to define nor stable. On the one hand, it indexes a conveniently moveable target that the healthcare industry (medicines, parenterals, supplements, exercise, organic food, to name a few) uses in its marketing. On the other, it has been widely recognized in the West that historically the term 'health' points to a receding goal that demands higher proportions of the national budget to chase rarer forms of disease. Contesting and debating the proposed notion of health as the ultimate interpretant in specific programmes is an implicit agenda for a health activism that tries to make healthcare into a meaningful enterprise.

Reference to a norm

A health (or for that matter, economic) index is usually measured against a norm or ideal state, and leads to a systematic action to achieve that ideal state. This norm is usually a quantitative one both in terms of empirical measurement and through the explanatory logic of human physiology. The

target of the systematic action is usually the object of interest - i.e., the human body in the case of the individual index, or the population in case of the statistical index. So if you, an individual, have a diastolic blood pressure reading of 110 mm of Hg on the sphygmomanometer, (an instrument that provides an index to internal blood pressure), which is a sign of possible damage to the organs of the body, the doctor will strive to bring your diastolic reading down to 80-90 mm of Hg. The achievement of this goal in terms of lowered blood pressure will be an interpretant of a reduced risk to you of stroke, kidney failure, etc. However, health care norms are statistical artifacts whether they are applied to individual cases or to populations. To continue with the example of blood pressure, it is only through statistical sampling of thousands of readings and the examination of the effects of extreme deviations that the norm of healthy blood pressure is arrived at.

In the case of norms as applied to populations, if for example, a specific rural population has a sudden and rapid rise in the number of patients who report to the hospital with fever and are diagnosed with dengue, this exceeding of the norm (i.e., the normal percentage limit of patients presenting themselves with specific symptoms) is an index of a possible epidemic, which then ideally results in swift curative care for actual patients and preventive public health measures. These systematic actions to improve or correct a problem are typically taken by experts or specialists - the doctor, the health care specialist, or the government.

Population disease indices which cross a norm are treated by governments as objective scientific signs of an epidemic. Such signs usually call forth administrative measures to deal with a situation - e. g., a dengue epidemic would call forth extensive curative and preventive measures on a war footing. Such a situation is also legitimate ammunition for political opposition parties, e.g., about the lack of sanitation, unchecked breeding of mosquitoes, poor public health engineering, etc. For this reason, administrators and health professionals often refuse to interpret an index in such a way that it points to an epidemic.

A normal range of values for the health index indicates that the object as it is modeled is working well and within safe limits. There is a historical trend of this normal range as it is corrected to make it more strict or lax, and this trend is kept in discussion and in mind as the background of any specific reading (or

series of readings) in a patient or population. Thus for example, when the normal values (in other words, norms) of safe blood sugar levels are lowered in the battle against the risk of diabetes, this lowering is in the background during each clinical interpretation of a patient's blood sugar level. The establishment or shifting of health norms can have widespread economic consequences, e.g., if the safe levels of blood sugar are lowered, a large number of individuals of the hitherto safe population would be deemed at risk, and hence in need of medication. This leads to steep increases in the sale of drugs and consequent profits for pharmaceutical industries. It is for this reason that changing norms in the health indices need to be examined with suspicion and care. The difficulty is that even institutions like the WHO that have a tradition of watching over health have become less immune to being influenced by state and industry interests through the World Bank. The problem then is to find in a group of thinkers with both the expertise and the democratic commitment to conduct these critical studies of change.

Informal indices

Indices can be explicit or implicit, formal or informal. Most often a general practitioner diagnoses a specific patient's illness in the flow of the general ailments that enter her clinic. When a patient comes in with a prolonged fever, the doctor will consider many factors to decide whether it indicates a serious ailment or not. Among these factors, she will consider the trend of patients coming with extended fever to her clinic as a background informal index to decide whether the individual patient is at risk of an exceptional and serious ailment.

Often the general practitioner who works near a slum uses extremely informal indices to treat everyday illnesses of the poor symptomatically. For example, an impoverished patient who comes complaining of weakness is generally given a bottle of glucose as a way to boost energy levels.³ Sometimes, the doctor simply gives an injection of Vitamin B 12, to take care of this weakness on a slightly longer term. To understand this seemingly corrupt practice (one may call it quackery), one would have to account for how the expectations and

³ See Lakshmi Kutty "The Intractable Patient" in Zachariah, Srivatsan and Tharu (2010).

needs of the impoverished patient hover over the short or middle term solution of getting back to work the next day with relief from symptoms.⁴

More importantly, such 'cut-rate' practices indicate that there is a practical knowledge base of informal indices that are used by committed practitioners as treatment for commonly reported illnesses and syndromes among the poor. Typically, neither the syndrome nor the treatment follows the norms of standard medicine. This informal knowledge base is usually seen as illegitimate by the standardized, certified practice of medicine that pays less heed to the life constraints of the patients who come seeking help.

Curative Medicine

In standard curative medicine at the primary health care level, diseases are taken care of when they occur in the body. This kind of medicine is usually focused on simple indices like the symptoms (what the patient reports as ailing him) and to a small degree on instrumental indices like measurements of blood pressure, X-rays etc. One diagnostic session is usually enough to prescribe a treatment for the illness and patients rarely repeat a visit. In more advanced stages of the disease at the level of tertiary care (or advanced medical care after hospitalization), symptoms lose their importance, and instrumental and pathological signs (measurements, numbers, and images) become primary in dealing with the patient. In such advanced cases of disease, a continuous monitoring and dynamic interpretation of indices (such as vital signs) lead to an advancing diagnosis and treatment of the emerging condition. This dynamic process of interpreting changing indices is seen as critical for cure.

Preventive Medicine

With preventive medicine, i.e., where diseases are prevented before they occur, the objective statistical index of disease prevalence in the population completely does away with the subjective index of the individual patient. It acts on the population through a variety of measures ranging from impersonal processes (e.g., insecticide spraying) to individual procedures (e.g., vaccination). E.g., the percentage of polio cases presenting in a hospital is an index of the prevalence of the disease in the population. This index triggers a course of decisions and actions involving immunization, the success of which is

⁴ I am convinced by Das' (2012) argument about the short range temporality of expectation among the poor.

measured by the reduced prevalence of the disease again indicated by a reduced percentage of patients in the hospitals.

In any preventive healthcare programme the object being monitored through the index is not the individual patient, but the population. This has specific effects. For example if there is a 5% incidence of a specific disease in a population, an immunization programme for the disease may be designed to reduce that incidence to 2% the following year. The paradox of the statistically driven immunization programme is that firstly, the individual who gets the disease can in no way tell whether she was in the targeted infection rate (2%) of a successful immunization programme or a result of the failure of the immunization process (the 3% supposed to have been saved). Secondly, the person who does not get the disease cannot say whether he was saved by the immunization programme (the 3% incidence reduced by immunization), or because he was part of the safe population that did not need the immunization (the 95% population that was safe anyway). The viewpoint of any immunization programme is that of the health care administration and its economic calculations. Programmes like these sometimes lead to coercive conduct on the part of officials who feel they know better than those they protect. Such conduct in turn may lead to resistance and escape on the part of the 'beneficiary'. Immunization programmes today are seen as ripe opportunities for confirmed sale of large volumes of vaccines to the WHO and to governments which are interested in reducing the index of specific diseases. Indeed, the vaccine industry is now finding new indices and vaccines to sell governments in the name of health, e.g., the HPV and the Hib vaccines.

Experience and measurement

Patients go to doctors with symptoms (i.e., their experience) of illness. One of the crises of medicine today is the dominance of specialists using the tertiary care model in clinical care. Because of this dominance laboratory indices, imaging and instrumentation provide objective signs of disease that have marginalized the patient's own description of the experience of his illness. This dominance of laboratory indices is related in our present circumstances to unnecessary heavy handed, expensive specialty treatments of problems that could have been handled more effectively, economically and with minimal side effects earlier in the disease's progression by a general physician.

There is always a gap between an objective index of a disease and a person's expression of his symptoms (i.e., his illness). It may be predictably certain, or it may be ambiguous. This is complicated by the fact that people have different pain thresholds and psychological responses to distress. This distance or gap between the subjective and objective is typically overcome by treating the objective sign as more reliable than the symptom. For example, in the early stages of breast cancer, the mammogram was seen as a safe (until recently) and far more reliable objective index of the reality of the disease than the subjective experience of the symptoms. For such apparently logical reasons, medicine and healthcare try to eliminate the subjective feeling of the patient (and the doctor) from their calculations. However, the increasing dependence on objective indices at the individual and population level follows a trend to minimize the importance of the patient's experience which is neither specifically for a reason nor recent.

At a deeper level, medicine, health care and government all prefer objectively measurable and independently verifiable data that do not depend on subjective opinion of either the patient or the doctor. This trend towards objectively verifiable evidence is part of the long and complex history of the interplay between empiricism and rationalism in a (Western) medical science of the body, an interplay which has the effect of eliminating the experienced phenomenon of disease as a factor in treatment.⁵ In some ways, the recent turn in this history of the elimination of experience is linked to the development of Evidence Based Medicine (EBM) in clinical care. In EBM the attempt is to provide any individual scheme of clinical treatment strong formal validity based on well recorded statistical indices of success of that type of clinical treatment procedure in large populations. There is thus the emphasis on removing the subjective (and therefore potentially idiosyncratic and unreliable) decisions of the doctor.

⁵ Empiricism argues that objective knowledge is generated when there is mutually verifiable evidence that is available to any observer. It tends to the position that there is no component of logic that goes into the generation of significant knowledge. Rationalism on the other hand argues that objective knowledge arises when logic is imposed on what is observed in order to make sense of it. The 'experienced phenomenon' in the sentence refers to the first person, i.e., the phenomenological, irreducible primary experience of the patient.

In the final analysis, all curative medicine at any level has to treat the incoming patient with symptoms and clinical signs and send her back to the community with that complaint cured (i.e., the symptoms removed) and the recovery of her ability to sustain her life through work. The added worry of the doctor is to ensure that the biochemical indices underlying the symptomatic relief fall in the healthy range. So far, medicine cannot do away with symptoms altogether, since in the end a patient or his carer has to come complaining of something. However, it seems as if the day is not far off when an individual patient would go for a routine checkup and be administered individual preventive medication for diseases that are predicted to emerge. This will make for a convenient and predictable market that doesn't depend on the actual occurrence of diseases for revenue from the sale of medicines - it would be possible to predict sales from a simple count of individuals coming in for routine preventive checkups one way or another.

Be that as it may in the future, today when curative medicine becomes part of a large national, intergovernmental program, the index of cure may be divorced from the patient's need. For example, the Directly Observed Treatment Short Course (DOTS) program supported by the WHO and run on a large scale by the government (Revised National Tuberculosis Control Program) to control tuberculosis depends on a specific index of cure. The patient who entered the program because her sputum smear tested positive for TB is released from the program after medical treatment when her sputum smear tests negative. The sputum smear negative condition only means that the patient cannot transmit TB through her cough. In other words, it is only an interpretive index of successful preventive medical care for the rest of the population. Strictly speaking it may not necessarily mean that the patient has recovered fully from her disease. While the DOTS programme may have its degree of success and complex results in TB control, next stages of prevention and treatment need to be developed to look more carefully into the individual needs and constraints of patients.

When a symptom (expressed index) is not recognized by medical opinion, the illness is trivialized and suffering goes unrecognized. Thus when working women's symptoms of chronic back pain are dismissed as an expression of a feminine tendency to complain, the very real incidence of the ailment due to excessive load, bad posture and working conditions is never recognized as a

problem that needs medical attention.⁶ It is often the unrecognized or invisible syndrome of symptoms, the high costs of standard medicine and the ignoring of unpleasant side effects of this treatment, that in some combination drive individuals who suffer to unorthodox, uncertified and alternative forms of medical care.

On the other hand, it is also paradoxically true that the establishment of an index in medicine or economics permits people to recognize their condition and encourages them to submit to being governed by the category described by the index. Thus when an indicative syndrome of sleeplessness, anxiety attacks and hallucinations experienced by soldiers returning from the front was categorized under the term ‘post traumatic stress disorder’ (PTSD) after the Vietnam war, many veterans claimed that the description fit their condition - and hence made them eligible for compensation.⁷ In other words, indices may in some cases become rallying points for asserting identities.

Indices, government and politics

Indices are political instruments. I will briefly refer to the current extended debate with respect to two indices that lead to contradictory interpretations of India’s progress to demonstrate this. This controversy has arisen about the relative importance of Indian indices of infant and maternal mortality (IMR and MMR) versus those of malnutrition. The current IMR and MMR indices are interpreted as pointing to India’s development status being several ranks ahead of the countries of Sub Saharan Africa, while the malnutrition indices of height and weight (that would be expected to correlate with the MMR and IMR) point to India’s development being seen as equal to or worse off than that of the Sub Saharan African countries. Faced with this paradox the economist Arvind Panagariya has marshaled arguments for dropping malnutrition figures as indices of development in favour of IMR and MMR.⁸ He proposes that there is a genetic difference in maximum possible height between Indian and Sub Saharan African populations that lead to the difference in average measured height. Medical nutritionists have refuted his argument and point to his prejudicial citation of evidence and his ignoring studies that complicate the role of

⁶ See Shatrugna, et.al., 1990 for a seminal study of backpain among women.

⁷ See KS Jacob “PTSD, DSM and India: A Critique” in Zachariah, Srivatsan and Tharu (2010).

⁸ See Panagariya (2013)

genetics in determining the height norms of the Indian population.⁹ They have argued that in the current context, the special clinical care made available by the government to the mother and child in critical emergencies leads to an isolated improvement of the IMR and MMR figures. However, since these are emergency curative measures, they don't reduce general morbidity and chronic undernutrition. The logic the medical nutritionists employ here to interpret contradictory indices reflect their medical training in developing differential diagnoses in complex conditions with paradoxical signs. In other words, when there is a stable yet paradoxical set of indices, medical logic tries to understand the specific pathology of the body that gives rise to the paradox.

The lesson to take home here is that the index should never be understood as a one dimensional truth that stands by itself. It is a complex entity whose function is affected by several factors in the framework within which it is constructed. To put the point more concretely, indices like MMR and IMR can be improved by specific systems and strategies to deal with critical emergencies. This do not necessarily mean that the reduction in IMR and MMR can be interpreted as a sign of better overall development *even though it is an unexceptionable and welcome health care strategy*. In fact these strategies only mean that MMR and IMR are weakened as interpretants - i.e., they are no longer interpretive signs of better overall development. Undernutrition remains therefore the sign of overall underdevelopment. Similar arguments can be made about reducing the rate of population growth in India. Birth control and reduction of rates of population growth, as soon as they are directly addressed by a strategy, are weakened as interpretants of overall development they once were. This is not so unexpected or difficult to understand - take the case of a ball on the surface of the water. The ball is an index of water level only so long as it is neither pushed down into the water nor raised above the water by hand.

The different interpretations of the indices of malnutrition point to very different outcomes. The nutrition scientists argue that low average height is not an index in vacuum and point to its status as an interpretant of possible adult morbidity (acquired both congenitally and in infancy): low height is one crucial sign among a complex set of indicators of the risk of chronic diseases

⁹ Some critical responses are found in Coffey et. al. (2013), Gupta, et. al. (2013), Jayachandran and Pande (2013), Lodha, Jain and Satyamala (2013), and Wable (2013).

that will plague large adult populations in the decades to come. Governmental recognition of low average height as a critical sign of widespread structural deprivation of the body will prioritize budgetary allocation for food for the population, and for medical care in the future. On the other hand, saying that the index of nutrition for India is wrongly constructed as Panagariya does will tend to result in a reduction in priority of food allocations to the poor. This then is the battle between nutrition scientists who understand the complexity of the height index and the emerging field of epigenetic research in some depth, and a policy oriented neoliberal economist who understands these indices as transparent and simple signs of how the world is to be seen. Thus, in Panagariya's view the fundamentally political problem of food has become a token to be traded in against more conservative indices of economic development like the GNP per capita.

Conclusion

Indices are the tools for practical handling of the problem of health care, i.e., they are an inevitable aspect of pragmatism in an increasingly complex contemporary life. There is no doubt that the use of healthcare and medical indices are critical for the wellbeing of people today. However pragmatism at the governmental level is fraught with the risk of serious consequences for those governed as the previous section demonstrates. There is the all too real possibility that governmental pragmatism will degenerate into a utilitarian decision making mindset which is only too ready to sacrifice the interests of the poor to the cause of 'national development' taken specifically as uncomplicated indices of growth, such as GNP. Therefore it is important to understand that the assumptions underlying this pragmatism are important points of conflict and contestation.

On the other hand, in the emerging corporate scenario of individualized clinical medicine, the problem is more intractable. The patient, the family or the communities have little purchase on the 'pragmatism' of specialty medical care, its costs, assumptions and objectives. Such commercial pragmatism draws subtly and overpoweringly on the construction of specialty indices that are extremely difficult to critique. It is also difficult to think of activism in the case of individualized chance occurrence of ailments which need to be treated in an emergency.

For such contestations where possible, a thorough understanding of how the index is being constructed is an important political instrument. Some questions to be asked are:

1. What is the structure of the index and its relation to the object of interest?
2. What is the framework of explanation within which the object of interest is constructed?
3. How stable is the index in its indicial function?
4. What does the index bring to visibility and what does it hide?
5. How is the interpretant of the index functioning in the real world?
6. Why is the index being proposed and by whom? What interest does it serve?
7. How does the ultimate interpretant of 'health' in each specific situation look under a microscope - is it reasonable, or ill founded?

Negotiating such difficult questions of policy and expertise is the essence of the crises to be faced by democratic politics. It seems to me that the historical levels of technical expertise in medicine, governmental perspectives in India, and the economic force of the health industry will form highly stable and resistant configurations that are barriers against democratic political thought for several decades to come. On such a horizon, I have over the past few years argued that medical activism's involvement with political action, and everyday politics (not only of the 'left' variety) is important, seeing that coming together of expertise and politics as a desirable goal. At this point I wonder how to make sense of that goal without harking back to an idyllic past community where specialization and division of labour didn't exist and a unified political effort was somehow imaginable. In other words, is the future goal of a perfectly democratic politics of medical care simply a mirror image of a utopian past in a fully healthy and whole community? The question becomes what are the real political conditions under which specialist knowledge and the struggle for democratic change can come together.¹⁰ In India, I cannot help but think of the Medico Friend Circle that is celebrating 40 years of its

¹⁰ To date, we have no theoretically rigorous answer to this question; only commonsense notions of individualized commitment, moral responsibility and personal 'goodness' as explanatory factors.

existence, and has exerted (as have some of its comrade organizations) a stubborn effort to change ethically the relationship between disciplinary expertise, industrial greed and governmental power.

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References

- Buchler, J. ed. 1955,1940. *Philosophical Writings of Peirce*. New York: Dover Publications.
- Coffey, D, A. Deaton, J. Dreze, D. Spears and A. Tarozzi. 2013. "Stunting among Children: Facts and Implications" in *EPW* August 24, 68-70.
- Das, V. 2012. "Poverty and the Imagination of a Future: The Story of Urban Slums in Delhi, India" in *Asia Colloquia Papers* Vol 1, No 4 March 2012. (Page numbers not available, accessed online on October 8, 2013).
- Gupta, A. et.al. 2013. "Are Child Malnutrition Figures for India Exaggerated?" in *EPW* August 24, 73-77.
- Jayachandran S., and R. Pande. 2013. "Choices not Genes: Probable Cause for the India Africa Child Height Gap", in *EPW* August 24. 77-79.
- Lodha, R., Y. Jain and C. Sathyamala. 2013. "Reality of Malnutrition among Indian Children" in *EPW* August 24 70-73.
- Panagariya, A. 2013. "Does India Really Suffer from Worse Child Malnutrition Than Sub-Saharan Africa?" in *EPW* May 4. 98-111.
- Shatrugna, V, Nirmala Soundarajan, P. Sundaraiah, Leela Raman, 1990. "Backpain - the Feminine Affliction" in *EPW* April 28. WS-2 to WS-6.
- Wable, G. 2013. "Methodologically Deficient, Ignorant of Prior Research" in *EPW* August 2013. 60-64.
- Zachariah, A., R. Srivatsan and Susie Tharu, eds. 2010. *Towards a Critical Medical Practice: Reflections on the Dilemmas of Medical Culture Today*. Hyderabad: Orient Longman.