

Community Health - A New Look
The Kathryn Boucot Sturgis Lecture
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It is a privilege and an honor to be asked to give the Kathryn Sturgis lecture - a lecture which properly recognizes a pioneer in our field, a person who broadened our horizons in preventive medicine and who caused us again and again to reassess directions and values. For those of you who have not endeavored to prepare a lecture which is a credit to a distinguished figure in our field, I would only point out that the task is an agonizing one - or at least it is for a dean. Accustomed as we deans are to public speaking and proclaiming hallowed verities, seldom are we challenged by the injunction that we should say something meaningful. Today, I will try - and the subject of my reflections will be the Health of the Community. It is a topic we all have indulgently gnawed upon for a very long time - albeit under different rubric. In WHO, the central strategy for addressing community health problems has borne the label of "primary health care" - and, as you know, the mantra, "Alma Ata," has been monotonously intoned for the past decade in proper obeisance. We have cheerfully and piously littered the landscape with pilot and demonstration projects both here and in Third World countries. But few have progressed beyond the pilot demonstration. Departments of Community Medicine and others with comparable intent have briefly flourished in all manner of medical schools but their growth has been stunted, some have folded and many are regarded as marginal, at best, to the mission they have proclaimed.

The health of communities remains low on all agendas. Just how low has been recently and vividly illustrated by McCord and Freeman in their penetrating paper on "Excess Mortality in Harlem" in a January issue of the *New England Journal of Medicine*¹. As they documented, newborn boys in Bangladesh (a country which annually is included in the list of 25 poorest in the world) are more likely to reach age 65 than are newborns in Harlem. They went on to show that in 54 of the 353 health areas in New York (one in seven), the standardized mortality ratios were twice those in the overall U.S. white population. Others have shown that New York is not alone.² Under the circumstances, the solemn chant of "Health for All in the Year 2000" represents little more than a cruel joke.

In the U.S., resources for community health *per se* are few indeed albeit there are a host of uncoordinated categorical programs operated by all manner of public and private agencies which address pieces of an overall set of problems in some parts of some communities. But who is there who is responsible and accountable for the health of the community as a whole? Who is responsible for the diagnosis of problems, for the development of overall strategies, for program evaluation and for resource allocation? The simple fact that the McCord-Freeman paper came as the surprise it did suggests - I believe rightly - that no one is really both responsible and accountable.

So what is to be done or is there anything that can be done? There are no simple solutions or magic bullets but I do believe there are new directions which could be taken which might begin a process. My

conclusions derive from personal experiences of the past three decades and I now must ask you to indulge me in recounting some historical nuggets as they represent the experiential basis for a proposed point of departure. In major part, they are rooted in the more starkly drawn panoramas of the third world where, often, our own problems are mirrored more clearly.

An early lesson I learned in public health was that thoroughly documented problems and needs and brilliantly conceived solutions seldom were persuasive in obtaining necessary resources. The legendary Fred Soper repeatedly pointed out that for someone responsible for a health program, half the task was obtaining the necessary resources and half the task was executing the program. However, the packaging and selling of believable and sexy programs to secure needed resources is an art form and one which we have not well mastered in public health. The creation and development of the Epidemic Intelligence Service illustrated for me certain of these realities. Alex Langmuir arrived in Atlanta in 1949 to assume the post of chief epidemiologist for CDC. He was all but alone - one chief and no Indians. The concept of a proper sized staff devoted to field epidemiology and surveillance was fine in principle but didn't have much sex appeal. Very soon thereafter, however, the Korean War broke out and the bogey was raised that biological warfare might be a national risk. What could be done? Alex had just the answer - a cadre of field epidemiologists prepared to investigate epidemics of all types and at a moment's notice. If a biological warfare attack were launched, he argued, they would be sure to detect it promptly through field epidemiology. In the cold, hard

light of day, I find it difficult to believe that any one seriously considered biological warfare to be an important risk requiring this sort of response and Alex himself has remained studiously noncommittal about the matter. However, 23 positions promptly materialized and all manner of field programs began. A couple of the EIS officers were actually assigned to laboratory research projects dealing with biological warfare agents.

The validity of this justification was beginning to wane when inactivated (Salk) polio vaccine began to be used, some of which proved not to have been wholly inactivated. Suddenly, we had the so-called Cutter incident and the case was made that additional EIS officers were needed for polio surveillance - to ascertain the epidemiological characteristics of the problem and to detect other possible problems with the vaccine. Many additional positions were promptly made available and this led to my own recruitment. Indeed, we were all informed that first week of orientation that our first priority responsibility was necessarily polio. Several indeed were assigned specifically to a polio unit but most were assigned to many different units as well as state health offices - ready to be called when needed but undertaking all manner of activities in the meantime.

Annually thereafter, a plea was made for added EIS positions but to no avail. It was widely acknowledged that the EIS contributions were most valuable, that the training program added much needed talent to the Public Health Service and that, in principle, there was support - but no funds. In due time, however, oral polio vaccine came into use and -

guess what, another successful justification for added positions. Later, measles vaccine was introduced for routine use. Again, you guessed it, another successful pitch for positions. Analogously, it seems to me that our newspaper colleagues have grasped the importance of this response better than we. In covering a story, they look for a "news peg" - a specific interesting event or person to induce the reader to become involved with the broader story. In our quest for EIS resources, it was clear that our chances had benefitted greatly by having a creditable budget peg which sold a need. Subsequently the resources could be used effectively to build an activity both which addressed the problem and built a broader foundation.

Smallpox eradication provided a similar sort of budget peg for attracting resources for health programs and indeed, new resources were forthcoming. You may have assumed that those of us responsible for the program had a single-minded dedication to the eradication of smallpox - and certainly none of us would ever have acknowledged other than our total commitment. In fact, we viewed this program as a potential entering wedge for a much more broadly-based immunization activity. Soon after the smallpox campaign was started, we set out to create such a program. To launch this effort, we staged an international conference on immunization - in December 1970 - which made recommendations for a multi-purpose immunization program throughout the developing world. DPT, BCG, measles, poliomyelitis and yellow fever vaccines were identified as candidate antigens.³ Further discussions and presentations ensued and, in 1974, the World Health Assembly voted to begin the Expanded Program for Immunization - at a time, I would note,

when less than 5% of children in the Third World were receiving these well-tested vaccines. UNICEF's call for a Child Survival Revolution brought unimagined resources and so today 70% are being so immunized with all of these antigens except for yellow fever which is a regional rather than a global concern.

If the first important lesson I have learned was the need for a salable "budget peg," the second was that existing so-called health care systems were ill-equipped, unprepared and indeed hostile to the concept that they had a responsibility to administer vaccines. Hospitals were, in fact, notorious. We were uniformly unsuccessful in persuading hospital staffs, even infectious disease hospitals, to vaccinate new admissions and visitors let alone those attending their outpatient departments. Many, in fact, even refused to permit smallpox eradication staff to perform this function. In consequence, we dealt with outbreak after outbreak in which the hospitals themselves served to amplify transmission. The primary health centers were little better. Even when vaccine was provided to them with instructions to vaccinate every attendee - there being no contraindications - few did so. Despite repeated training sessions, vaccine was regularly found to be improperly stored and regularly mishandled. The high point - or, better characterized, the low point - in my field experience occurred in 1972 in Iran. That year, Iran experienced an epidemic involving thousands of cases, its epicenter extending across the area where WHO and Iran had established a model primary health center network. I visited a number of them to inquire innocently as to whether they vaccinated all attendees or only those without a vaccination scar. I was told in no

uncertain terms that they hadn't time for vaccination - they had too many sick people to care for. The epidemic was finally terminated by special teams moving village to village throughout the area.

The smallpox programs differed from country to country but all were based on two principles: (1) a plan to vaccinate 80% or more of the population within a three-year period and (2) the establishment of a surveillance and containment system to monitor progress. Health service staff of all types participated in the program in many different ways but what was abundantly clear in every country was that passively waiting for prospective vaccinees to present themselves at a hospital or a health center accomplished very little. One needed to go into the community - to involve the community in the program. The existing health service systems were established for a different purpose - to provide curative care. To solve one problem using a system created for a different purpose simply didn't work.

At this time, however, our WHO basic health service gurus and many in the academic pediatric community regularly berated us for our so-called vertical program which was designed to address specific community-wide problems. They never tired of preaching the virtues of continuity of care and the importance of vaccination by those offering well-baby checkups. That most children were never brought for well-baby checkups and that, if they did, vaccination was an alien concept, never seemed to trouble them. The sickness care system was there and a reality. If it didn't function properly, that only meant that more efforts should be devoted toward fixing it. That no one seemed to be able to do so was

irrelevant. This led to a continuing wrangle - which continues today - over the virtues of "vertical" vs. "horizontal" programs. We eventually came to define a "vertical" program as one with clear-cut objectives and management; a "horizontal" program basically defined the posture of the workers - sleeping. The point, however, was that instead of defining a health problem and seeking the most effective and least costly approach for its solution, it was believed that all efforts should be directed toward making an existing system - designed for another purpose - perform a health care function - and that, not surprisingly, did not work.

By the time the Expanded Program for Immunization took form, we had come to realize that the fundamental problem in health care was the lack of management and the absence of any sort of surveillance system to permit a rational allocation of resources and to evaluate outcomes. EPI from its inception was thus visualized as being a vehicle for a system with specific targets, which permitted a product to be disseminated throughout a network to the whole of the country and with measurements which permitted performance to be monitored on an ongoing basis. When Rafe Henderson and I first discussed the program, we agreed that the primary objective of the program was not the immunization of children but rather the creation of a managed health structure.

The early years of the EPI program served to dramatize yet a third critical lesson for me, i.e. that concurrent monitoring of cases of disease throughout a community by surveillance was a totally alien concept and not readily established. This had been a difficult

principle to convey in the smallpox program. There it eventually proved successful perhaps because of the focus on reaching "0". EPI was a disease control program, however, and perhaps because of this, surveillance languished. This point has broader reference because the health of a community inevitably must depend on measuring as a numerator, cases or deaths - with the total population representing the denominator.

In 1985, an opportunity arose to alter this state of affairs. By that year, reported cases of poliomyelitis had fallen sharply throughout much of the western hemisphere. Surveillance systems had not been developed and reporting was grossly incomplete but, nevertheless, the reporting systems such as they were which once had reported many cases, now reported very few. With Dr. Ciro de Quadros, the director of the PAHO EPI program, a decision was made to recommend a polio eradication effort throughout the western hemisphere. This was a useful and well-received budgetary peg, by the way, and has proved to be popular and well-supported. In fact, the initiative represented, in part, a Trojan horse. An eradication program dictated the need for a surveillance system, and once established, we believed it could serve to monitor many other diseases. Moreover, it dictated an augmented community-based effort and better coverage than could be provided through the traditional sickness care system alone. Special vaccination days were launched albeit with howls of protest from the orthodox medical care community. Again, however, it was soon confirmed that far better coverage was possible through special programs which reached into communities, that a comprehensive reporting network could be readily

established and that the epidemiological observations were invaluable in guiding program strategy and tactics.

Within months after surveillance began to be established in Latin America, a possible problem of vaccine composition was discovered and soon confirmed by special studies. This resulted in a doubling of the Type III virus content. Continuing transmission of polio during interseasonal peaks appeared to be primarily in periurban slums - much as was the case with smallpox - and so high-risk target areas were identified and systematically vaccinated house by house. Meanwhile, surveillance for neonatal tetanus was developing concurrently. That program has now shown that in most countries, cases occur primarily in definable high risk pockets in the population permitting a concentration of resources at the point where most cases are occurring.

The polio eradication program was not fully funded until April 1987. Already, however, we are at the point where two years have elapsed since the last confirmed case in Central America, and more than a year since the last case in South America. In fact, the last known cases occurred last October and November among migrant workers in a village in Western Mexico. Needless to say the area has been saturated with vaccine.

The community-based programs for immunization have been an entering wedge. Other programs are also in progress or on the drawing boards - oral rehydration, Vitamin A and iodine administration, provision of antiparasitic drugs such as albendazole, ivermectin and praziquantel. And, last but not least, family planning programs. Their success

depends first on the definition of the problem, identification of strategies and tactics which best address the problems at hand, involvement of the community, an active program of marketing and merchandising the product and, finally, the development of surveillance systems to measure outcomes in terms of health events throughout a population and the appropriate reallocation of resources to achieve the best possible effect.

Community health initiatives are rapidly gaining momentum - at least in the Third World. There is much to be learned, especially with respect to surveillance, but a start has been made. How goes it in the U.S.? I would have to submit - badly. We have several not inconsequential problems which demand aggressive community health programs - to name a few of the more obvious - AIDS, substance abuse, and teenage pregnancy. At this point, we continue to stumble along, largely in the dark, with few ongoing measures of these problems (i.e., little effective surveillance), tactics which rely primarily on a sickness care system ill-motivated to deal with these problems, and a diverse array of poorly coordinated community-based programs which haphazardly apply patches to a rickety system.

Is there any possible way by which some semblance of order and a new direction can be brought to address these problems - as well as so many others demanding community-based interventions? I believe there is. After all, we now have not one but several "budget pegs" to provide resources. As I see it, the problem is that of first defining more clearly and on an ongoing basis the nature and epidemiological

characteristics of the problems we face - not through an annual report but week by week and with widely disseminated reports of progress. A term for this exercise is "surveillance."

Second, we need to recognize that the problems must differ in character from community to community as well prospective solutions. Thus, we will need to bring to bear creative thinking from many different disciplines and in many different parts of the country.

To date, it seems to me that the potential key contributors have functioned in more or less compartmentalized boxes. In AIDS, for example, we have at the federal level, large numbers with expertise heavily concentrated in Atlanta and Washington; academic expertise is restricted primarily to the sickness care network of hospitals and clinics; private agencies have dealt with pieces of problems in parts of communities; state and local health departments, as always, are so thin in resources as to be able barely to keep pace with day to day functions.

Might it not be most sensible to disperse more widely the federal effort and to involve more meaningfully the expertise of those in our academic health establishments? Might it be feasible to build an effective working partnership involving federal, state and local governments, academic health centers and private agencies. I believe it would but it would require truly creative thought, as well as substantial redirection of thinking and financing. Note that Medicare and Medicaid funds, flowing from state and federal sources, now support an extensive

clinical care program but provide no mechanisms for health centers to be concerned and involved in the health of the population they serve. Their concern now is for the sick who appear at their doorstep. But don't fault them. They have salaries to pay and buildings to maintain and sickness care is what they are paid for. They can only respond if resources permit them to do so. Should they not be playing a more major role? They are after all the site of much of our best talent and they are located in communities where the problems are occurring. Might they not join state and local health staff in providing a health service to the community much as they now provide sickness care services to patients?

However, I can hear the rumbling now. Wait a moment, you say, you are advocating vertical programs dealing with single problems. These do not encompass the full panoply of activities which community medicine must embrace. How right you are. But do bear in mind that each of these problems represents a budget peg. They are salable; they are doable. If they remain single purpose programs which address no other issues, the fault will properly be laid at the feet of those directing the programs.

REFERENCES

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