961

Beyond Lalonde: Creating Health

Editor's note:

In 1974, Lalonde's document "A New Perspective on the Health of Canadians" (1) *also known as the Lalonde Report, provided a conceptual framework for analyzing health problems, determining health needs, and choosing the means by which those needs can be met, based on the subdivision of the health field into four broad elements: human biology, environment, lifestyle, and health care organization. The chapter of the Report dealing with the description of this approach and its principal characteristics was reprinted in the* Epidemiological Bulletin, *Vol. 4, No. 3, 1983, under the title "The Health Field Concept—A Canadian Perspective."*

In the article that follows, Professor Carol Buck, from the University of Western Ontario, Canada, discusses the recommendations and policy decisions based on Lalonde's concepts. Her article was selected for publication because it deals with one of the new and controversial approaches to the use of epidemiology in the solution of health problems and because the dissemination of these approaches constitutes one of the central objectives of the PAHO Epidemiological Bulletin.

It is ten years since the Lalonde Report was published *(1)*. Were its recommendations sound and have we implemented the best recommendations? The answer is no. Both the Report and subsequent policy decisions have failed to deal adequately with the Environment. I shall argue that this is the most important of the four elements in Lalonde's Health Field Concept. If the Environment is wrong, the elements of Human Biology, Lifestyle and Health Care Organization will be wrong also.

It is instructive to observe what people worry about, because this gives one a sense of whether they understand the nature of their problems. What are people in this country worried about today? They are worried about nuclear war, pollution, unemployment, poverty and crime. Are they worried about health? Yes, and in particular about cancer, Alzheimer's disease, AIDS and the shortage of transplant organs. Since their worries about health are highly specific, they fail to see how closely health is connected with some of their other concerns. Until this connection is made, the actions necessary to create health will not be taken.

I shall review the factors which must be changed if health is to be improved. My choice of factors is influenced by Antonovsky's concept of coherence as a basis for health. He defined coherence as: "A global orientation that expresses the extent to which one has a pervasive, enduring, but dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected" *(2)*. This is not a utopian concept. In our society, a number of factors can be recognized as serious obstacles to health.

1. Dangerous Environments

Violence continues to be one of the major causes of mortality. For each death, there are many permanently handicapped survivors. Most violent deaths are termed accidents because they are not the result of a deliberate action, but in a broader sense they are not accidental; they are caused by dangerous conditions that society tolerates. Our roads, cars, railways, planes and buildings could be much less accident-provoking. Most disasters in mines, construction, and other industries are the result of negligence, rather than acts of God. The sinking of the Ocean Ranger oil rig off the coast of Newfoundland is a clear-cut example. In many instances workers are induced by fear of unemployment to accept conditions of manifest danger. Particularly is this true in the depressed areas of Canada. Miners in Nova Scotia have expressed the opinion that a dangerous job is better than no job. How can a person who reaches such a conclusion have a sense of coherence?

In the cores of large cities, violent assaults have become so frequent that people are no longer able to move freely in their environment. Such an environment has no coherence. Although this problem has reached a peak in some American cities, we must see that it is on Canada's horizon. Some of the perpetrators of urban violence are themselves victims of the incoherence of their environment.

Environments are made dangerous in a less dramatic way by pollution. Even if we do not understand all the health effects of air and water pollution, we can surely deal with the hazards that are clear, mercury and lead pollution being cases in point. The problem of pollution

demands anticipatory study since pollution, once it has occurred, cannot be turned off like a tap. It is particularly important to remember this at a time when we are faced with the disposal of nuclear waste.

2. Lack of Necessities and Amenities

The basic necessities of life are said to be food, clothing and shelter. Actually, clothing is an aspect of shelter and beyond that an art form. The lack of necessities is sometimes thought to be restricted to the third world. It is more common by a hundred fold in the third world but not restricted thereto. In our country there are significant numbers of people whose intake of food is inadequate and whose housing is deplorable. This was true even before the recent economic recession. The recession has brought into public view the new wave of unemployed who no longer can afford adequate food and shelter. Hostels and public kitchens have been set up to relieve their distress. But it is obvious that these hostels and kitchens are frequented by substantial numbers of people whose wages or social assistance payments have long been inadequate to provide them with the necessities of life.

What are the effects of inadequate nutrition upon health? It is well known that a diet which fails to supply sufficient calories, vitamins and minerals impairs physical growth and resistance to infection. What is less well known is that such a diet in infancy and early childhood causes irremediable retardation of intellectual development *(3)*. It is unfortunate that we hear so much about the effects of the affluent diet upon heart disease and so little about the effects of the deprived diet upon one of the most important of human attributes. The other basic necessity, shelter, needs little comment. The problems of the homeless are obvious to everyone. Slightly less obvious are the effects upon health of living in a place that is too cold in winter and too hot in summer, that has insufficient space for its inhabitants and is deficient in refrigeration and cooking facilities. These are the characteristics of a slum. Because slum housing is not obviously related to cancer, AIDS, Alzheimer's disease and other newsworthy ailments, we tend to forget that it causes and perpetuates many more important but less fashionable health problems.

I have talked about the lack of necessities. Now I turn to the lack of amenities. An amenity is something that adds to the ease and pleasantness of life. We need such amenities as transportation, recreation, beauty, and stimulation in order to fulfill the human potential. Physiological and psychological evidence suggests that pleasing activities, sights and sounds are conducive to the optimal function of body and mind. For example, a recent study of surgical patients found that those who had a view of nature from their hospital window recovered more rapidly *(4)*.

The need for transportation was less in an era when most of us lived in small communities. A walk of a mile or so provided the walker with recreation and beauty. Transportation became an important amenity when humans congregated in large urban centers where the walk was no longer feasible nor idyllic. Transportation has become expensive and time-consuming for everyone, particularly for the working poor who have to punch a time clock, take children to day-care, search for cheap groceries, wash their clothes in a coin laundry and visit medical facilities often far from where they live. For the unemployed who are required to make a specified number of daily job searches, transportation costs are prohibitive. They have the time but not the money.

Recreation is an amenity not easily acquired in the modern urban setting. Tennis, golf, squash and health clubs are expensive and beyond the reach of most people. Furthermore, it is difficult for the manual worker who has been slugging away all day to see the need for further exercise, however salubrious it might be. For children, hockey and baseball have become equipment-oriented sports rather than pleasant pastimes on pond or field. In fact, hockey has become a blood sport. As a consequence, many people turn to viewing sports on television rather than actually taking part in them.

Some of the forces that make physical recreation difficult apply also to intellectual recreation. Television has become the principal means of access to literature, art and music. The goal of commercial TV is the sale of products. Therefore the content of programs is directed toward the consuming potential of the viewer rather than toward his intellectual and emotional enrichment.

As far as beauty is concerned, industrialized urbanization has deprived us. What beauty remains is concentrated in central showplaces that are seen more by tourists than by the resident population. Large numbers of people live in drab surroundings, and work in windowless environments where the feel of a breeze or the sound of a bird is a rare occurrence. In the biggest cities they travel between these two environments in a tunnel. Replacing beauty is an abundance of noise, harmful to the ear and distracting to the mind.

3. Stressful, Unrewarding and Depersonalizing Work

The industrial revolution eliminated some of the most back-breaking work of mankind, but brought with it a different problem. For many, work no longer offers creative satisfaction. The worker's contribution to the

finished product is circumscribed and carried out by processes that are repetitive to the point of boredom. Relief from the monotony may come only at the risk of being replaced by a robot. In the interest of efficiency, shiftwork has become widely prevalent, especially the sequential weekly rotation that continually disrupts the natural circadian rhythms of the body *(5)*. A study of factory workers showed that shiftwork and piecework, in particular, had unfavorable effects on physical and mental health *(6)*. The work problem is compounded by the recurrent threat of unemployment. There can be little coherence in a life that oscillates between unrewarding work and unemployment.

Samuel Butler said that a chicken was just an egg's way of making another egg. The philosophy of our economic system is that a person is just a dollar's way of making another dollar.

4. Isolation and Alienation

Man is by nature gregarious and needs the opportunity to give and receive affection, help and information. The term social support has been created to describe the fulfillment of these needs. Evidence accumulates that isolated people with inadequate social support are more likely to become ill *(7)*. There are many isolated people, and one thinks especially of the aged, the widowed, the single parent and the uprooted worker in search of a job.

Even more distressing than isolation is the experience of living on the fringe of society where one's opportunites, values, expectations and customs are not those of the mainstream. This is the situation of alienation. It befalls ethnic minorities, recent immigrants, migrant workers and all who are rejected or dislocated by cultural change. Cassel's famous study of the coming of industry to an Appalachian mountain population showed that the effect of alienation upon health was profound *(8)*.

5. Poverty

I have put poverty last because it brings in its wake all the obstacles to health that I have described. It is the poor, above all others, who live in dangerous environments, who lack necessities and amenities, whose work, if they have any, is stressful and unfulfilling, and who are isolated from sources of information and encouragement. On top of all this, poverty is intrinsically debasing and alienating. Particularly is this true when the poor are aware that poverty is not the natural lot of man, as they cannot help but be when the media constantly display the life of the affluent majority. Rollo Walter Brown described the phenomenon eloquently: "...poverty stultifies a human being as inevitably as a continued injection of poison into the blood. By a slow numbing it renders them incapable of any sharp awareness of their own best qualities of character, it robs them of their sense of high enterprise, it undermines their confidence and prevents them from extending the essential parts of themselves into the life of the world about them. It unbalances them in the wrong direction by crowding their lives full of inescapable considerations of the scant, the petty and the under-dog point of view" *(9)*. Brown was referring to chronic poverty, not the temporary poverty of the student and other upwardly mobile people. It is the ex-poor who are vocal about the character-building aspects of austerity. The chronically poor are silent on this topic.

Elevated rates of death and disability among the poor have been found in every country where the relationship between social class and ill-health has been examined. This is true even in countries with publicly financed health care *(10-12)*.

So far, I have described the effects of bad environments upon health. The other elements of Lalonde's Health Field cannot be improved if the environment is wrong because they are inextricably related to the environment.

The Environment and Human Biology

The cells, tissues and organs of the human body are responsive to the environment. If the environment is dangerous they can be destroyed by injury. If the environment fails to provide adequate nutrition they will not develop properly. More subtle, however, is the effect of environmental stressors upon the principal regulators of the human body—the central nervous system and the endocrine glands. Cassel reviewed the compelling evidence that environmental stressors act upon the regulators to increase susceptibility to all diseases, both physical and mental *(13)*.

The Environment and Lifestyle

A healthy lifestyle can be adopted only if people have the knowledge, the opportunity and the will. In an impoverished environment there are barriers to knowledge and opportunity. But perhaps more important is the erosion of will. It is not easy to engage in the positive pursuit of health when great energy is required just to deal with the hassles of day to day existence. Rather, the temptation is strong to seek solace in unhealthy habits. House found that factory employees on shiftwork and piecework were the heaviest users of alcohol and tobacco *(6)*.

The Environment and Health Care

Even when health care is financed from the public purse, environmentally induced inequalities in access and quality persist. In the United States, average Medicaid payments per recipient are significantly greater for whites than for blacks *(14)*. In Britain there are substantial variations in the kind of health care provided to rich and poor. For children of the lowest social class, a higher proportion of hospital admissions were for emergency care than for planned diagnostic and therapeutic actions *(15)*.

Rundle and Wheeler reject the view that the poor receive inadequate health care because they are unsophisticated *(16)*. They found that the poor were often directed toward providers who did not encourage preventive medicine.

Finally, it must be emphasized that the damage done to health by the bad environment is cumulative. There is a formidable multiplier effect. The infant of an underweight lower class mother is more likely to be of low birthweight. Low birthweight increases the risk of a whole range of brain damage from cerebral palsy to mental retardation. But low birthweight increases the risk *much more* when the infant belongs to an impoverished family *(17)*. As Blaxter says, the social environment creates potential disadvantage and then reinforces its effects *(18)*. The most pernicious aspect of accumulation is that it continues over generations. Poverty in one generation reduces the chance of a healthy birth and impairs the environment of the children who are born. The children of the second generation, being further handicapped in health, education and employment, create an even more unfavorable environment for the third generation. Finally we end up with people whose conditions seem so hopeless that we despair of helping them.

Solutions

I have dealt at length with the problems. Now I turn to the solutions. It will not come as a surprise that I have more confidence in remedies that are directed toward the environment than toward the other elements of Lalonde's Health Field. My objection to the Lalonde Report is that its recommendations for improving the environment were weak. The Lalonde Report is not alone in this fault. Draper and his colleagues found a similar defect in the report of the Merrison Royal Commission in England, which failed to emphasize that the unhealthy environment must be continually and constructively challenged rather than passively accepted *(19)*. Most official pronouncements on health take the environment as given, as a series of problems to be adapted to. The onus for change is put on the individual, often with the expressed conviction that millions of health care dollars could be saved if people would abandon their perverse behavior. There is no doubt that some habits, smoking and heavy drinking in particular, are causes of serious health problems that entail large expenditures for medical care. But the correction of these habits would not prevent all our ills. Nor can we expect these habits to be corrected purely by the effort of individuals. As Draper *et al.* point out, there is a need to tackle the wider environmental issues that shape individual choices, but are beyond the individual's control *(20)*. Individuals must be brought to better health by providing them with a milieu that does not damage them physically and psychologically. In such an environment both the desire and the opportunity to indulge in unhealthy habits would be reduced.

Excessive emphasis on the individual's responsibility for health has the effect of increasing the sense of alienation among people who already are suffering from a fringe position in society. This, literally, is adding insult to injury. One cannot expect welfare recipients to be inspired by the exhortation to increase the protein and vitamin content of their diet when their most pressing problem is to stave off hunger. Now of course it is possible, by ingenious shopping and clever cooking, to maximize the nutritional value of a cheap diet. This can be done by a person with culinary knowledge, persistence, spare time and good cooking facilities, characteristics which are not enjoyed by the majority of welfare recipients. Some of the health promotional activities in accident prevention are similarly unrealistic. Accidents in the home and on the street are an important cause of death and disability among young children. Yet what sense does it make to focus on the coping abilities of mothers who are raising their children in accident-producing environments? As Blaxter says: "...Cures are sought in general safety education or in more specific education and supervision offered to families by public health nurses. Yet it seems obvious that remedies lie rather in public policies regarding the environment of poor families: the provision of safe play space, the control of traffic through housing estates, the elimination of fire-trap housing, policies to ensure that poor families do not have to resort to dangerous forms of cheap heating, and the design of public housing for young families so that it is possible for mothers to supervise children of different ages at the same time. There is no doubt that behavior is implicated, but it is behavior which is inevitable in certain environments" *(18)*.

Let us also remember that it is far less efficient to operate on the individual than on the environment. Can you imagine trying to prevent typhoid fever by urging people to boil their water? As Syme has said, changing people is a never-ending task whereas changes in the

environment are more durable *(21)*. We see this clearly in the prevention of dental decay. The fluoridation of water surpasses by far the efficiency of programs for dietary change and tooth-brushing.

The Lalonde Report was a political document, whose titular author was a cabinet minister in the federal government of Canada. Not surprisingly it recommended very little that would embarrass the government financially, yet it professed concern with all aspects of health. The widespread acclamation of the Lalonde Report reflects the prevalence elsewhere in the world of an unwillingness to tackle the full range of obstacles to health.

In the minds of some, the solution to ill health is still to be found through better health care. By "better" is meant wider access to the kind of care now available, and an enhancement of the technological capacities of medicine. If hands and arms are lost in accidental injuries, the answer is better microsurgery to sew them back on. If an accumulation of personal and environmental factors leads to vascular disease, the answer is better transplant surgery. But the technological remedies already are approaching economic and logistic limitations. Therefore it is almost inconceivable that wider access to health care and the provision of ever more technologically advanced care can coexist.

Some opponents of the technological solution propose instead a greater emphasis on the caring aspects of medicine, with more attention paid to strengthening the social supports of the vulnerable. Appealing as this approach may be, it contains an element of danger. Social supports are important but the danger lies in letting them become a substitute for basic reform. Slum dwellers could indeed be treated more lovingly by doctors and social workers and could be helped to support one another more fully. Although this might mitigate the harsh effects of their living conditions, it would not remove the causes. To be truly effective, social support must be based upon such a degree of respect for human beings that they are not allowed to enter into conditions that predispose to illness and injury. The fundamental issue is a moral one, as was clearly recognized in the 1983 New Year's statement of the Canadian Catholic Bishops.

Finally, we must consider the barriers to achieving an environment that will create health. They are large and deeply entrenched. But if we understand what they are and begin a relentless attack upon them, we have hope of ultimate success.

Possibly the most entrenched barrier of all is a philosophical one, the belief that an element of misery is part of the human condition. To some extent this is a justifiable belief, because pain, grief and loneliness can never be totally eliminated. But to believe that a substantial amount of misery is inevitable is quite another matter. The biblical quotation "for the poor always ye have with you" must not be offered as an excuse for tolerating chronic poverty. The idea that there are winners and losers closes the door to reform. The door is closed firmly if the idea is buttressed by the mistaken argument that the losers are those to whom fate has dealt a bad set of genes. Although a single gene can play awful tricks, such genes are rare. Most human qualities are influenced by multiple genes that determine one's potential for physical and mental development. The potential of some is lower than that of others, but in a good environment at least the full potential of everyone can be realized. A good environment can shrink the gap between winners and losers. Furthermore the improvement of some aspects of the environment helps everyone, whatever their genetic endowment. Water purification prevents typhoid and cholera, irrespective of the intelligence of the person who drinks the water.

Inertia is the next barrier to consider. The sheer effort of introducing basic reform is an intrinsic deterrent to action. Our humane impulses are more conveniently satisfied by easy remedies. Unfortunately, these usually come too late in the chain of events to be effective. Giving hand-outs to the poor when they can prove by submitting to a means test that they are poor, is an example of what I mean. We may think that this approach disappeared when the Poor Laws of the Victorian era were replaced in the 20th Century by social insurance. It did to a degree. But the trouble with our income support programs is their discontinuity. A sharp and inhumane line is drawn between the working poor and the welfare poor. There is a chasm between the two, where there should be a bridge.

Inertia occurs in a different way when we embark upon a program of reform that is too small in scope or too brief in duration for a full effect to be achieved. This happened with the Headstart program in the United States. It was intended to give intellectual and emotional enrichment to culturally deprived pre-school children. The hope was that even a few months of enrichment might be sufficient. The consensus of those who have evaluated the Headstart programs is that the gains were proportional to the time that the child spent in the program *(22)*. This is not wholly surprising. The results of Headstart show that lesser effort is a form of inertia.

Another barrier to reform is the fragmented structure of the political and bureaucratic apparatus. Health, education, labor, environment, social insurance and welfare come under different jurisdictions. This restricts the opportunity for coordinated action. As a result no one has a comprehensive view of what is wrong and what must be done by way of remedy. I doubt that the solution to this problem lies in the creation of ever

more omnibus departments of government. The solution to fragmentation should be sought in better modes of communication among government departments which share responsibility for the human environment. Better communication must occur at the central level where policies are formed, and also at the peripheral levels where government officials deal with the complex problems of a single human being. Theoretical studies of organization and communication have advanced greatly in recent decades. It is time for this knowledge to be applied to the barrier of fragmentation. The impediment of fragmentation might be reduced in another way. When many unrelated groups are making plans, each should ask itself: how will our plan affect the health of the people to whom it is directed? Health should be on every policy agenda.

I have left to the last the powerful barrier of vested interest. To employers, landlords, investors, and taxpayers in general, the cost of reform is a strong deterrent to action. Our hearts may be warm, but they are cooled by an examination of our purse. Nevertheless, it is conceivable that much of the money we spend on "safety nets" could profitably be transferred to more basic reforms. What is more effective is not always more costly. But even when it is more costly, a substantial transfer of money could take place in our society without anyone losing an immense amount of happiness. The accumulation of money for its own sake is a burden, from which some might be glad to be relieved were they not indoctrinated in the belief that acquisition of wealth is the ultimate human goal.

It is salutary to realize that reform may be the safety net for all of us whose vested interests oppose reform. The existence of a deprived group has dangers for the comfortable majority. In this context, the remarks of Geoffrey Vickers are worth pondering. "Some trigger is needed to convince the busy, cushioned comfortable west of the instabilities which are visible enough to the destitute, the impotent, the disillusioned and the desperate, even in their own countries" *(23)*.

In the process of improving the human environment, two ideas will be helpful. The first is that highly innovative reforms should be carried out on an experimental basis *(24)*. Introducing a reform on a small scale, with careful arrangements for determining both its positive and negative effects, is the prudent way to learn from experience. Applying the scientific method to reform is not cold-hearted. It protects us from doing harm when we mean to do good. However, the experimental approach can lead one down the slippery path of inertia if a successful experiment is regarded as the final achievement. A success must be built upon with all possible speed.

The other idea is the setting of goals against which the progress of reform can be measured. Measurement of progress is an antidote to inertia. Terris emphasizes the importance of establishing goals that specify not only what is to be achieved but when it is to be achieved *(25)*.

References

(1) Lalonde, M. A. New Perspective on the Health of Canadians. Ottawa, Information Canada, 1974.

(2) Antonovsky, A. *Health, Stress and Coping*. San Francisco, Jossey-Bass, 1979.

(3) Birch, H. G. Malnutrition, Learning and Intelligence. *Am J Public Health* 62:773-784, 1972.

(4) Ulrich, R. S. View through a Window May Influence Recovery from Surgery. *Science* 224:420-421, 1984.

(5) Moore-Ede, M. C., C. A. Czicsler, and G. S. Richardson. Circadian Timekeeping in Health and Disease: Part 2. Clinical Implications of Circadian Rhythmicity. *N Engl J Med* 309:530-536, 1983.

(6) House, J. S. *Occupational Stress and the Mental and Physical Health of Factory Workers*. Ann Arbor, Michigan, Survey Research Center, 1980.

(7) Berkman, L. F. and S. L. Syme. Social Networks, Host Resistance, and Mortality: A Nine-year Follow-up Study of Alameda County Residents. *Am J Epidemiol* 109:186-204, 1979.

(8) Cassel, J. and H. A. Tyroler. Epidemiological Studies of Culture Change. *Arch Environ Health* 3:25-33, 1961.

(9) Brown, R. W. *I Travel by Train*. New York, Appleton-Century, 1939.

(10) Registrar General. *Decennial Supplement for England and Wales 1970-71*. London, HMSO, 1978.

(11) Wilkins, R. *L'Espérance de Vie par Quartier à Montréal*. Montreal, Institut de Recherches Politiques, 1979.

(12) Forster, D. P. Social Class Differences in Sickness and General Practitioner Consultations. *Health Trends* 8:29-32, 1976.

(13) Cassel, J. The Contribution of the Social Environment to Host Resistance. *Am J Epidemiol* 104:107-123, 1976.

(14) Davis, K. and C. Schoen. *Health and the War on Poverty*. Washington, D. C., The Brookings Institution, 1978.

(15) Earthrowl, B., and M. Stacy. Social Class and Children in Hospital. *Soc. Sci Med* 11:83-88, 1977.

(16) Rundle, T. G. and J.R.C. Wheeler. The Effect of Income on Use of Preventive Care: An Evaluation of Alternative Explanations. *J Health Soc Behav* 20:397-406, 1979.

(17) Davie, R., N. Butler, and H. Goldstein. *From Birth to Seven: the Second Report of the National Child Development Study*. London, Longman, 1972.

(18) Blaxter, M. Health Services as a Defense against the Consequences of Poverty in Industrialized Societies. *Soc Sci Med* 17:1139-1148, 1983.

(19) Draper, P., J. Dennis, J. Griffiths, and J. Popay. The Royal Commission and Prevention. *Lancet* 2:425-426, 1979.

(20) Unit for the Study of Health Policy. *Rethinking Community Medicine*. London, Guys Hospital, 1979.

(21) Syme, L. S. Cassel Memorial Lecture. Winnipeg, Society for Epidemiological Research, 1983.

(22) Consortium for Longitudinal Studies. *As the Twig is Bent*. New Jersey, Erlbaum Hillside, 1983.

(23) Vickers, G. *Freedom in a Rocking Boat*. London, Allan Lane, Penguin Press, 1970.
(24) Campbell, D. T. Reforms as Experiments. *Am J Psychol* 24:409-429, 1969.
(25) Terris, M. Newer Perspectives on the Health of Canadians: Beyond the Lalonde Report. University of Toronto, Rosenstadt Lecture, 1984.

(*Source:* Carol Buck, Department of Epidemiology and Biostatistics, The University of Western Ontario, London, Canada. Reprinted by permission from the author.
This article was first published in the *Canadian Journal of Public Health* 76, Supplement 1, May/June 1985.)

Diseases Subject to the International Health Regulations

Cholera, yellow fever, and plague cases and deaths reported in the Region of the Americas up to 30 June 1986.

Country and administrative subdivision	Cholera cases	Yellow fever		Plague cases
		Cases	Deaths	
BOLIVIA	–	*3*	*3*	*26*
La Paz	–	3	3	26
COLOMBIA	–	*2*	*2*	–
Arauca	–	1	1	–
Meta	–	1	1	–
PERU	–	*43*	*40*	–
Junín	–	6	6	–
Madre de Dios	–	9	9	–
San Martín	–	28	25	–

Note: Since the publication of the last issue of the *Epidemiological Bulletin* (Vol. 7, No. 1, 1986), *Bolivia* has reported two additional cases of yellow fever in the La Paz Department, for a partial total of 53 cases and 35 deaths in 1985. Additional plague cases have also been reported for 1985. *Brazil* has added 9 cases to the year's figures (2 in the State of Bahia and 7 in the State of Ceará) for a total of 71 cases and no deaths.

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION
525 Twenty-third Street, N.W.
Washington, D.C. 20037, U.S.A.