

## **CHILD AND NEWBORN HEALTH AT THE END OF THE 20<sup>th</sup> CENTURY\***

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The last quarter of the 20th century will be remembered as a major turning point in global health. Commencing with the World Conference at Alma-Ata when Primary Health Care came to be defined, there has been unprecedented progress in global health. Historically speaking the underlying principles of Primary Health Care represent the convergence of the Basic Health Strategy advocated by the World Health Organization in the 1960s, and the Basic Needs Approach advocated by the International Labour Organization in the 1970s stressing the importance of food, water, sanitation, shelter and warmth. That was the time when only an estimated 20 percent of people in the developing world were receiving basic health services on a regular basis. Careful analysis of health trends in different countries as well as of small-scale programs helped to identify key elements of Primary Health Care. As nations heeded the call for Health For All by the Year 2000, major milestones have been reached in the global health situation. These milestones were unimaginable in the 1970s. Six killer diseases of children, namely measles, pneumonia, diarrhea, tetanus, whooping cough and malnutrition, jointly responsible for more than eight million deaths annually, have been progressively brought under control. A number of nutritional deficiencies and infective illnesses causing disabilities, such as xerophthalmia, iodine deficiency, trachoma, poliomyelitis, and onchocerciasis, have responded to global action. With the reaching of each milestone, new experience has been gained and lessons learned. These have provided the springboard for the next objective. Already 1995 is earmarked for elimination of neonatal tetanus, and the countdown to the elimination of poliomyelitis by the end of the century has commenced. Encouraged by the success of the available technologies and methodologies of planning, new targets were set at the World Summit for Children in September 1990 as follows:

1. Reducing the under-five mortality rate by one-third, or to 70 per thousand live births, whichever is the greater reduction.
2. Raising the immunization coverage to 90 percent.

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3. Halving the maternal mortality rates of the 1990s.
4. Halving the 1990 incidence of severe and moderate malnutrition among children less than five years old.
5. Providing safe drinking water and sanitary disposal of excreta for all.
6. Ensuring access by all to basic education.
7. Halving the 1990 rates of adult illiteracy, stressing female literacy.

As nations heeded the call for Primary Health Care, restructuring of health systems and reorientation of policy makers, managers and health workers became necessary. Different countries have met with varying degrees of success. The ability to bring about change in the health sector depends on the political system, the managerial acumen within the country, and the ability of the training and research institutions to respond to new challenges. The guiding philosophy of Primary Health Care is that equity, availability and social acceptability of health care sets in motion a process in which families and communities are empowered to improve their own health. The emphasis within the health sector, including the training of health workers, has hitherto been predominantly disease-oriented and vertically managed. A great deal of reorientation is needed. Some countries have been more successful than others in achieving the change. An analysis of pathways of improvements in health in countries like China, Sri Lanka, Costa Rica, and the Indian state of Kerala shows that there is a need for innovation on three fronts:

Policy Formulation, requiring: Selection of goals

Identification of strategies of achieving them

Assignment of resources

Assignment of institutional responsibilities

Program administration, requiring: Translating policy into action programs

Establishment of managerial procedures

Development of organizational structures

Service delivery, requiring: Provision of services

Appropriately trained personnel

Implementation of programs

These must be underpinned by political and economic stability, as recent events in Russia prove. There the State Committee for Epidemiological Supervision has reported that the incidence of infectious disease rose by 180 percent in 1994, after a sharper increase of 290 percent in 1993. Life expectancy in Russia is now estimated to be 59 years.

With political will as the engine of change, innovative planning and reorientation of professional training are necessary. Only then can nations arrive at the

mid-decade targets with some degree of assurance for sustainability, and move on to the next phase. The targets for 1995 are:

1. The raising of immunization coverage to at least 80 percent.
2. The elimination of neonatal tetanus.
3. A major reduction in measles cases and deaths.
4. The eradication of polio.
5. The achievement of 80 percent ORT use.
6. Support of breastfeeding through the Baby Friendly Hospital Initiative, and the ending of free or subsidized distribution of formula milk.
7. The virtual elimination of vitamin A deficiency.
8. The universal iodization of salt.
9. The virtual elimination of guinea worm disease.
10. The universal ratification of the Convention on the Rights of the Child.

Based on current information gathered from 61 developing countries, approximately half are likely to reach the mid-decade goals. A clearing of the backlog is essential so as to have a framework in place for progressing to the next stage.

Remarkable advances in the disciplines of genetics, molecular biology, immunology and epidemiology are creating new opportunities for preventing diseases hitherto considered not possible. An example to illustrate this point is that of thalassemia. During the past decade, countries bordering the northern shores of the Mediterranean Sea have experienced a 90 percent drop in births of infants affected by thalassemia major, whereas the situation remains unchanged in countries bordering the southern shores of the Mediterranean. The lesson to be learned is that availability of new technologies can enable us to make inroads to problems hitherto considered intractable. But this would require devising new strategies of Public Health. The old Public Health concentrated quite appropriately on the control of infection and improvement of nutrition. Now the era of a New Public Health is beginning to dawn. Many of the strategies of the New Public Health would need to be firmly grounded as much in social and behavioral sciences, including social epidemiology, as in technological and scientific developments. The pathways of research in genetics, molecular biology and immunology have progressively led towards convergence of these disciplines. One practical outcome has been the development of vaccines. New vaccines (M.M.R.; H.influenzae B; Hepatitis A; Hepatitis B; new oral and injectable vaccines against typhoid fever; rota virus; cholera and malaria) are already either in common use or undergoing field trials. Several more are in the pipeline. At the same time a host of new diagnostic tools are becoming increasingly available

to the health profession. Nations who have successfully cleared the backlog will be better placed to utilize these new developments. The obvious reason is that success in clearing the backlog is a measure not only of political will but also of efficiency and responsiveness in the health sector. Some countries, notably China, having achieved remarkable change in the health situation, are already planning what they call the Second Health Revolution wherein diseases like cancer, hypertension, coronary artery disease, cerebrovascular disease and chronic lung disease would be targeted for prevention.

With the Child Survival Revolution firmly in place and the Safe Motherhood Initiative gaining ground, the time has come to target the health of the newborn. There are two compelling reasons for doing so. As in the case of the Child Survival Revolution, a handful of low-cost technologies can be identified to ensure the smooth transition of the newborn to extrauterine life. Secondly, epidemiological research indicates that the fetal and neonatal periods, as well as infancy and early childhood, are likely to become the focus of several strategies of the New Public Health. Evidence of physiological programming through breastfeeding, hormonal signals operating during the early formative periods of life, and of external stimuli is sufficiently strong to provide the rationale for health action. Low body weight, head circumference and ponderal index at birth, and low weight at one year have been associated with increased risk of cardiovascular disease in adulthood. Small size at birth and up to one year has also been associated with higher blood pressure and adverse changes in plasma concentration of a number of substances, including glucose, insulin, fibrinogen, Factor VII and apolipoprotein B all related directly or indirectly with vascular physiology. Poor fetal nutrition, perhaps resulting from poor maternal nutrition, adversely programs the individual for cardiovascular disease, hypertension and diabetes in adult life. The strength of evidence about folic acid deficiency during pregnancy resulting in neural tube defects in the fetus is sufficient for countries to implement programs of supplementation during the antenatal period. The importance of breastfeeding for developmental maturation of the newborn's body systems, including cognitive development and metabolic programming for later life, is now well recognized. These observations have led to global programs for the promotion of breastfeeding. With regard to early childhood experiences it has been shown that negative emotional experiences in early life operate in the long term by inducing disruptive behavior. Such behavior, in turn, increases the frequency of stressful life events, thereby predisposing the individual to psychopathology in adult life.

While we contemplate the new possibilities, we should also remind ourselves of the present trend for evidence-based medicine, including in Public Health. As costs of medical care have escalated in country after country, big purchasers such as governments, health insurers and employers of large workforces are

beginning to turn away from curative care. They are increasingly demanding best buys and value for money in preventive/promotive care.

There are also emerging new problems. The rise in poverty, urban decay and the associated problems of single-parent families, teenage pregnancy, street children, substance abuse and violence create a social situation in the context of which new disease problems, such as HIV infection, would need to be tackled. These call for programs at the grass roots level in which social epidemiology, behavioral science and the New Public Health blend together.

Are we creating a new breed of community health worker capable of carrying the message of health and the fruits of scientific progress to those who need them most? Are we providing such health workers with simple and scientifically sound technologies for applying within the home and the community?

To what extent are our frontline workers being equipped to create a healthy world for the newborn to come into in the 21<sup>st</sup> century?