

## 18th International Pediatric Congress

### A Revolution - Begun but not Realized

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It is a special pleasure for me to be asked to open this 18th Congress of your distinguished Association. There are few international associations of professionals indeed which can claim a history of 75 years. But pediatricians, in particular, have been in the vanguard in recognizing that our concerns as human beings are really one - that the problems of health and disease in every country and on every continent are basically indivisible - and that we all have a great deal to learn from each other. Likewise, you, as pediatricians, have recognized, long before others, that public health and medicine have much in common - that our goals are the same - and that, with increased understanding of health and disease, we can and must collaborate more closely in new initiatives to produce healthier children - wanted by their parents - children who are given the opportunity to grow to become productive adults. It is not surprising, therefore, to find that many of our most prominent public health leaders are pediatricians. And some, such as your president, continue to play an important role in both fields. You have a proud history of anticipating the future and in your advocacy of change. The theme of this Congress is consonant with this - "Child Health and Well-Being: A World Commitment."

There is today in most countries an emerging concern for the preservation of health and a growing recognition that there is much more work which we could do given imagination and scientific vision and, no less, political commitment.

Mahatma Ghandi pointedly expressed his priorities when he said "I am hard-headed enough to let the sick die if you can tell me how to prevent others from becoming sick." Fortunately, the choices we face today are not quite this stark. However, we *are* devoting greater energies and more resources to prevention because of the extraordinary opportunities now available and others of even greater potential which are emerging. Many are now beginning to be translated into reality through a program aptly called the "Revolution in Child Survival." It is a global effort in which nations throughout the world are participating, to which United Nations agencies, the development banks and voluntary agencies have pledged their support. It is but a few years old. Much has already been achieved and progress now is logarithmic. Indeed, a status report provided at your 17th Congress only three years ago, would suggest ancient history. For the success of this effort, appropriate tribute must be paid to the Revolution's most articulate and persuasive spokesman, Mr. James Grant, the Executive Director of UNICEF. In his report on the "State of the World's Children," he will detail for you the remarkable changes which have already taken place and others which can now be foreseen.

The genesis of this revolution rests in a new recognition of the potential of simple, inexpensive interventions to prevent disease and death and to promote the well-being of children and mothers.

No less important has been a growing appreciation by political leaders that improved health plays a vital role in national development, that healthy children offer a better hope for achieving their own and their country's aspirations. For you, the well-being of children has been your life, your preoccupation. But a new dimension has been added with a surge of national and international political will and commitment to bring this closer to fruition. The heightened interest and activity are welcome but they bring new challenges which require that we look to the future as we evolve appropriate strategies for the years ahead.

The genesis of the Child Survival Revolution has its origin in not one but several developments. To identify the most important helps to characterize it. An important component, and the first initiative to be adopted, was the objective of providing well-established vaccines against six of the major diseases to all of the world's children - the diseases being poliomyelitis, measles, tetanus, whooping cough, diphtheria and tuberculosis. This initiative followed inexorably from the experience gained in smallpox eradication. That program, coordinated by WHO, succeeded in only a decade, and at a total cost of less than \$25 million per year, in eliminating from the earth one of the most feared diseases known to man. Many of you, including your president, are

veterans of the smallpox eradication campaigns. And to you, in particular, I extend a special salute. Smallpox was a disease which, when the program began, annually claimed more than 10 million victims despite the fact that an effective vaccine had been known and available for more than a century and a half. However, an intensified program, endorsed by the World Health Assembly eradicated the disease in only 10 years/9 months/26 days. What accounted for this abrupt change?

**FIRST** was the surprising discovery that, as recently as 1967, most of the vaccine in use did not meet accepted standards. Some vaccine, in fact, was totally impotent. A WHO program requiring simply that all vaccine used in the program be of assured quality, as attested by international laboratories, made a profound difference. **SECOND** was the observation that in most countries, trained health personnel were in surprisingly plentiful supply and that even with moderately effective supervision, they were capable of a remarkably high standard of performance and achievement. The numbers needed were surprisingly small. In Africa, for example, most programs consisted of only 12 to 100 staff. Competent, motivated leadership, even though few in number, made the difference. **THIRD** was the discovery that villagers, when properly approached, were usually willing, in fact eager, to cooperate in the program and sometimes even could serve as volunteer vaccinators. **FOURTH** was the finding that a system for the routine notification and investigation of cases and outbreaks could be reasonably easily established and that the findings were invaluable in guiding strategy and in monitoring progress.

It seemed only logical that other vaccines might similarly be applied with good effect and, in the course of doing so, serve to strengthen national health systems. Thus, as the smallpox eradication program was concluding, an Expanded Program of Immunization was launched - at a time when *less than 5%* of all children in developing countries were receiving any of the vaccines which were in common use in the industrialized countries.

In retrospect, it seems paradoxical that so little attention had been directed to providing vaccination, the single most cost-effective, most innocuous procedure in our entire medical armamentarium - and the simplest to administer. Viewed from another perspective, one might indeed ask the question - If a health service cannot effectively perform the simplest of procedures, what does it suggest about other aspects of a health care system? If a health system can't afford to purchase and deliver vaccines, its most cost-effective intervention, what can it afford? Gradually, but only gradually, the program gained momentum but over the past years, progress has accelerated. Today, nearly 50% of all children in the developing world are being vaccinated; vaccine demand has tripled in the past two years alone; poliomyelitis incidence in the Western Hemisphere has fallen to such low levels that an eradication program has begun with the objective of eliminating poliomyelitis from the hemisphere by the year 1990. The global objective is a vaccination



program which reaches 90% of the world's children by 1990. There is still a long way to go but the result, if successful, translates into the saving of more than 3 million lives.

A second and more recent development contributing to the Child Survival Revolution has been the discovery that deaths from diarrhea can be sharply reduced with a simple oral rehydration solution comprised of salt and sugar. The first 1,000,000 packets were purchased by UNICEF in 1975 - they lasted 18 months. Today, nearly 1,000,000 packets are used *daily*, five times the number used 3 years ago. National programs have begun in more than 100 countries and in countries as diverse as Egypt, the Philippines and Honduras, diarrheal disease mortality has dropped by 50%. Indeed, pediatricians, even in this country, are finding that effective oral rehydration, provided early, diminishes the need for hospitalization and intravenous therapy.

A third and more recent development, an intervention which has only begun to be exploited, was the discovery, less than two years ago, that the periodic administration of vitamin A resulted in a dramatic decrease in childhood deaths, largely deaths due to respiratory disease and diarrhea.

The discovery is reported in a May issue of *Lancet* by Dr. Alfred Sommer and his colleagues from Johns Hopkins and Indonesia. Vitamin A in standard UNICEF capsules containing 200,000 IU, were given once every six months to 1 to 6 year-old children in one group of villages; a second group

of villages served as a control. Death rates among children in the control villages were 50% greater than those receiving vitamin A. Decreases in deaths due both to respiratory disease and diarrhea were observed. It would now appear that vitamin A's mechanism of action relates to its importance in maintaining the integrity of surface epithelium and to humoral and cell-mediated immunity, an effect which is compromised even among those who are marginally deficient. Comparable studies, now in progress on other continents, are beginning to confirm the Indonesian results. Vitamin A, now being given in a number of areas for the prevention of xerophthalmia, will soon be in widespread use throughout many developing countries.

However significant these changes have been, more is promised. Just over the horizon are a whole gamut of new and improved vaccines. As one speaker at a recent conference observed, there are few important diseases for which vaccines are not now moving through the development process. With the new techniques available to contemporary biomedical science, the time required for their development has been greatly abbreviated. In nutrition one may speculate, as well, that there may be other micronutrients in addition to vitamin A which likewise may be marginally deficient but as important to the immune processes.

It is not surprising that the global community has been captivated by these developments. In consequence, more plentiful funds for health programs have been made available and the interest and commitment of politicians is greater than it has ever been. Note, however, that each of these new initiatives are only a decade old and indeed, most progress has been made within the past three years.

It is characteristic of revolutions, however, that in the excitement of the moment, critical deficits are often ignored or overlooked - deficits which potentially could frustrate the primary goal - in this case - healthy children who realize their full potential. This is no less the case with the Child Survival Revolution. I perceive three areas of special importance in which you, in particular, need to take a special interest. In part, they extend beyond the conventional boundaries of pediatric practice but, based on your past record of foresight in extending your horizons, they are very much and very appropriately your concern.

The first problem is that of institutionalizing systems for programs which are based in community involvement and community-wide action - and which can be sustained month after month and year after year. Many programs have so far relied on large-scale, intensive, short-term campaigns and, in doing so, they have awakened community interest and involvement in villages and households



throughout entire areas and countries. But can such programs be sustained? In some areas, they appear to be doing so - and successfully - but there has, as yet, been little experience in doing so over large areas. Your leadership, your support and your imagination will be vital if they are to succeed *everywhere*. Professional expertise is vital. The program is too important to be relegated solely to professional managers and professional politicians. We need trained pediatricians and public health leaders. The process must be a continuing one. The goal of vaccinating all children by 1990 will not be enough. Others will need to be vaccinated in 1991 and 1992 and 1993 and new vaccines will need to be added. Equally as important, cases of vaccine-preventable diseases and nutritional illness will need to be reported and investigated and epidemiological patterns discerned if they are to be controlled effectively. If every physician were to consider every case of a preventable illness which occurs as a failure in the health system and were to address the possible causes, even more revolutionary change would be assured.

The second area of need is for an ongoing, far-reaching program of research. To program managers, such a plea is too often labeled as the irrelevant cry of academics concerned more about their own careers than "getting on with the task." Let us not forget, however, that those once engaged in malaria eradication viewed that problem as entirely an administrative one - to apply DDT to the walls of houses. Deliberately, research programs were terminated. A decade later, with a global

program foundering, there were no alternatives available and no research laboratories to take up the task. Politicians argued similarly when the global smallpox eradication program began. A good vaccine was available: the problem was entirely an administrative one - to apply it in the field. We resisted this view and promoted research throughout the program. By the time it concluded, little was the same as it had been - vaccine production methods had improved, new vaccinating devices were in universal use, our understanding of the epidemiology of smallpox had greatly changed and the strategy and tactics substantially altered. Indeed, without research, smallpox would still be with us.

In the Child Survival Revolution, a number of simple, cost-effective measures are now available and are being widely applied. This effort must continue but, at the same time, we need to seek constantly for simpler, more effective tools and for better means for applying them. For example, none of the vaccines now in use are fully satisfactory. All require far more elaborate refrigeration than was required for smallpox vaccine; the efficacy of many could be improved; and methods for vaccine administration could be greatly simplified. Meanwhile, candidate vaccines in great number are beginning to emerge from the laboratory, but little support is yet being provided for testing them in the field, for the development of simpler preparations for administration, for the evaluation and improvement of different types of programs; for the application of surveillance

systems to monitor progress. Nutritional research in the developing countries is almost nonexistent. As has been the history with new programs, there is a complacency - perhaps overconfidence - that the tools are now available and the only need is to apply them. New methods and new approaches are needed and indeed, there is no technique or technology which cannot be improved upon. To the extent we ignore this, the less certain is the future of the Revolution.

Finally and most important, we must continue to bear in mind that our ultimate goal is for each newborn to realize the potential inherent in him at birth. To assure healthy children but to fail to educate them and to provide an economy which fails to employ them is the ultimate exercise in futility. While this is in large part the provenance of educators and business, the numbers of children to be educated and employed is a critical part of the equation in which we do have a role to play. Child spacing and breastfeeding are of themselves directly important to the health of the child but no less are smaller families which can be adequately fed. Family planning services are still woefully inadequate; methods of contraception leave a lot to be desired; and support for these programs by some governments remains seriously deficient. While a revolution in child survival is at hand, it could be futile indeed if we didn't at the same time, address with vigor the question of numbers of children.

To slow population growth to the point where it can begin to balance the development of other resources is proclaimed not just to be difficult - it is stated to be impossible. Social behavior and social change, it is said, are inevitably slow. Ironically, Rene' Dubos published his book, *Man Adapting*, in the same year that the Smallpox Eradication Program began and made this same point when he said: "Social considerations, in fact, make it probably useless to discuss the theoretical flaws and technical difficulties of eradication programs, because more earthy factors will certainly bring them to a gentle and silent death." We accept the principal uncritically that social change is inevitably slow. I wonder if this is not, in fact, a rationalization for uninspired leadership, and/or an excuse for inaction.

Changes in family planning programs can be impressive. Bali, with a population of 2,000,000, a traditional, rural Hindu culture, decreased its birthrate from 44 to less than 20 in just 7 years.

Similar dramatic changes have occurred in places as distant and different as Thailand, Costa Rica, Chile and China. Over a 15-year period, the world birthrate dropped by more than 20%. And yet, according to the World Fertility Survey, one woman in four reports that her most recent child was unwanted and half of all married women of childbearing age report that they want no more children but half of these women are not using effective methods to prevent conception.

The potential for therapy and prevention is growing, exponentially nurtured by a magnificent base of biomedical research. You know it well - immunology, fiber optics, nuclear imaging, recombinant DNA technology and others. To the press, indeed to many of our colleagues, these developments appear to be the real challenges, the true frontiers of medicine. Indeed they are but there are other frontiers, other priorities, sometimes less newsworthy but far more dramatic and urgent if we, as a species, are to achieve equilibrium with planet earth. And the cutting edge to that problem is wanted children who are given the opportunity to grow in health to adulthood. The responsibility for achieving this cannot be relegated to those without technological competence any more than business can afford to relegate its leadership to accountants and lawyers.

The Child Survival Revolution has begun but it is far from being realized. Your leadership and your articulate voice are vital to its realization - but given that, I would be confident that the 19th Congress will bear witness to a change even more profound than has occurred over the past three years.