


File Sub: CF/EXD/SP/1991-0054

Guest Editorial by Mr. James P. Grant  
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for  
*The Journal of Tropical Pediatrics*  
Winter 1991

"The Children's Vaccine Initiative and Other Promises to Keep"

18 December 2002

	UNICEF Alternate Inventory Label
	Ref0006HUT
<b>Item #</b>	<b>CF/RAD/USAA/DB01/1998-02269</b>
<b>ExR/Code:</b>	<b>CF/EXD/SP/1991-0054</b>
Children's Vaccine Initiative and Other Promises to Keep.	
<i>Date Label Printed</i>	20-Aug-2002

cover + 5 pp + 0/6

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**The Children's Vaccine Initiative... and Other Promises to Keep**

by **James P. Grant, Executive Director, United Nations Children's Fund**  
Guest editorial for **The Journal of Tropical Pediatrics**

On 30 September 1990, at United Nations headquarters in New York, 71 Heads of State or Government and high-level representatives of another 88 countries -- from North, South, East and West -- came together in the largest-ever gathering of world leaders. Their historic purpose: to seek a better future for the world's children. **Intensification of research to develop improved vaccination technologies was one of the many actions they endorsed and promised to promote.**

The issue dominating the World Summit for Children was what we at UNICEF call the "silent emergency" -- the estimated 40,000 child deaths occurring each day from malnutrition and disease, the 150 million children who live on with ill health and poor growth, the more than 100 million 6 to 11 year olds who are not in school. This, and the certain knowledge that the means of ending much of this tragedy are now both available and affordable.

The result of the World Summit -- contained in the World Declaration on the Survival, Protection and Development of Children and its accompanying Plan of Action -- was the endorsement of an unprecedented array of actions to be taken at the national and international levels and the setting of a broad range of concrete, measurable goals to be met by the year 2000. If the promise of the World Summit for Children is kept, if the pledge signed by the world's leaders is fulfilled, **the lives of some 50 million of the 150 million children who would otherwise die during the next ten years will be saved.** The quality of life of many millions more will be substantially improved.

Immunization, long appreciated as an essential preventive health tool by paediatricians, will serve as a driving force of this life-saving undertaking. It will be joined by other low-cost interventions of proven efficacy, including oral rehydration, breastfeeding, family planning, growth monitoring and female literacy. Just over ten years ago, fewer than 20 per cent of the developing world's children were being effectively vaccinated and nearly five million died every year from immunizable diseases. This prompted the launching of a major international effort to achieve universal child immunization (UCI) against measles, diphtheria, pertussis, tetanus, polio and tuberculosis. The UCI goal was defined as reaching 80 per cent of the developing world's children against the six diseases by the end of 1990.

With the added boost provided by the World Summit for Children, this goal -- which many considered over-ambitious if not impossible when it was set -- was met on schedule. Today, 80 per cent of the developing world's children

receive three separate doses of DPT vaccine by their first birthday. 80 per cent polio immunization has been reached and coverage with tuberculosis-preventing BCG vaccine has surpassed the goal. Measles coverage -- which fell short of the mark by a few percentage points -- has more than tripled in five years. Some 100 million infants are being reached with vaccines four or five times during their first year of life -- a total of 500 million contacts every year between children and organized delivery systems functioning, all too often, under extremely adverse conditions. In many parts of the developing world, the reach of the UCI system meets or exceeds that of postal services.

As a result of this extraordinary effort, the lives of some 8,000 children a day are being saved. That is more than 13 million young lives since the campaign began and some 3 million saved in 1990 alone. Unquestionably, the UCI mobilization is the largest peacetime collaboration among countries in history and is among the greatest public health success stories of the last decades. Paediatricians, who have long appreciated the fundamental importance of preventive health measures, championed immunization early on and played a leading role in the attainment of UCI 1990.

In large part, it was the impending success in reaching the 1990 immunization goal that prompted world-wide discussion of what new targets might be set for improving the lives of children, which in turn led to the holding of the World Summit for Children and its adoption of a broad range of goals for this decade. Among these targets: 90 per cent global child immunization; global eradication of polio and Guinea worm disease; virtual elimination of neonatal tetanus; a 95 per cent reduction in measles deaths; and the overarching goals of a one-third reduction in all under-five deaths and a 50 per cent reduction in maternal mortality by the year 2000.

As front-line fighters for children's health, paediatricians were only too familiar with the obstacles that had to be overcome in order to meet the immunization goals of the last decade, and they understand the magnitude of the challenges facing us in seeking to achieve the maternal and child health goals for this next decade.

True universal immunization protection has not yet been achieved for a number of reasons. Current vaccines are not 100 per cent effective and are often given too late. Infants or their mothers do not receive the full series often because immunization was not offered to them while they sought another health service at a clinic, or because immunization was inappropriately withheld because health workers believed that a mild fever, a case of diarrhoea, or other benign condition constituted a valid contraindication. Also, some vaccines lack adequate stability to withstand heat and, therefore, become impotent before use.

In order to extend the effective reach of preventive medicine and meet the rigorous delivery requirements of the developing world and, increasingly, inaccessible inner-city, peri-urban and rural poor areas of developed countries, we must harness the biotechnology revolution for the Child Survival

**Revolution through the development of new and improved vaccines.** It will be difficult to achieve the new goals established by the international community without improving the vaccines currently used in the Expanded Programme on Immunization (EPI). And because we are now reaching an estimated 100 million infants per year, an extraordinary opportunity exists to deliver existing or new vaccines to protect against diseases other than the six which currently make up the EPI.

The World Health Organization estimates that an additional 5 million to 6 million annual deaths from viral and bacterial diseases such as bacterial diarrhoeas, hepatitis A, C and E, rotavirus, meningococcal meningitis, dengue and acute respiratory infections could be prevented with new vaccines which have already been developed, or could be developed, with existing technologies. More than a million lives could also be saved each year with an effective vaccine against malaria.

Last August, the U.S. National Vaccine Program, at the request of the Secretary of Health and Human Services, convened a meeting of vaccine experts from the United States and around the world to discuss the technical feasibility of a "children's vaccine". They concluded that "the development, testing and delivery of a multi-component vaccine(s) against multiple diseases of infancy and childhood given at or about the time of birth that requires the smallest number of possible contacts with the health care delivery system is feasible and achievable with existing technology within ten years".

Then, on the eve of the World Summit for Children, the World Health Organization (WHO), the United Nations Development Programme (UNDP) and UNICEF met in New York and joined forces -- as we have in many other areas -- to launch the "Children's Vaccine Initiative", with the participation of scientists, government agencies and research institutions from around the globe.

At that meeting at UNICEF House, an important consensus was reached that would subsequently impact on the thinking of the leaders attending the World Summit. The "Declaration of New York" concluded that "scientific progress, matched with improved capacities of all countries to immunize their children, provides an unparalleled opportunity to save additional lives and prevent millions of disabilities annually through a global 'Children's Vaccine Initiative'" that will accelerate and facilitate the development of new and improved vaccines that:

- \* would require one or two rather than multiple doses;
- \* could be given earlier in life;
- \* could be combined in novel ways, thus reducing the number of required injections or visits;
- \* would be more heat stable and could remain potent during transport and storage, especially in tropical climates;

\* could in future possibly be effective against many diseases not currently feasible for inclusion in immunization programmes, such as acquired immunodeficiency syndrome (AIDS), ARI, diarrhoeal diseases and important parasites and,

\* would be affordable for use in developing countries.

The launching of the Children's Vaccine Initiative received enthusiastic attention and political support at the World Summit for Children as a priority activity for the 1990s. It is now being organized with a broad base of support from WHO, UNDP, the Rockefeller Foundation, UNICEF and several national and international organizations in the public and private sectors.

There are at present a large number of new "candidate" vaccines, several of which are based on recombinant technology using "carrier" viruses that have the potential of incorporating a wide range of antigens. Considerable progress has also been made in polymer micro-encapsulation technologies, which will likely lead to the development of single-dose, sustained-release, oral vaccines that could someday replace multi-dose injectable vaccines. A single-dose tetanus vaccine is currently being developed using this technology, in research supported by the WHO Programme for Vaccine Development.

Major "non-technical" obstacles remain in the way of accelerating the development of vaccines which must meet the rigorous delivery demands of the developing world. Among these obstacles is the reluctance of private sector manufacturers to invest their resources in the "scale-up", field testing and licensing of vaccines for which there is no major market in the industrialized world that would allow them to recover their development costs. As a result, vaccine development has been driven principally by market pressures in the industrialized world, as opposed to the public health needs of the developing world.

That is why the call issued by the world leaders attending the World Summit is so important. They urged "Governments, industry and academic institutions... to increase their efforts in both basic and operational research, aimed at new technical and technological breakthroughs...", highlighting "improved vaccination technologies" among other areas in which research is "urgently" needed. Those same leaders pledged to help mobilize the resources necessary to fund the Plan of Action for children in the 1990s.

The momentum generated by the extraordinary success of the UCI effort must not be allowed to dissipate. This achievement is not only a demonstration of what can be done when the world focuses on a practical, achievable target, but it also provides a strategic framework for implementing other great tasks that lie ahead. The techniques and forces used to achieve this breakthrough can and must be enlisted in the effort to satisfy a broader set of human needs. By sustaining and building upon UCI, the empowerment of families through knowledge and access to basic services can be accelerated and extended as never before.

And this is where the readers of this journal and all those concerned with children's well-being come in. I believe the promises of the World Summit for Children -- the Children's Vaccine Initiative among them -- will be fulfilled only if each and every one of us joins in a massive, global movement demanding that children be given a better future. This means applying what the Summit Plan of Action refers to as the principle of a "first call for children": giving "the essential needs of children high priority in the allocation of resources, in bad times as well as in good times".

Paediatricians are uniquely situated to help make this new ethos an everyday reality not only through the delivery of vital services to family and community, but as authoritative advocates for a "children first" agenda on a national and international level. Protecting and nurturing the young -- what you do so well -- is not only a humanitarian imperative but humanity's most vital investment in its own future.