Summary of the Second Meeting of the International Task Force for Disease Eradication (II), Jan. 25, 2002

This meeting of the International Task Force for Disease Eradication was devoted exclusively to the issue of measles (rubeola) and its potential eradicability. The names of members of the Task Force or their representatives who participated in this meeting, the presenters, and other invited guests are included below. The meeting was convened at The Carter Center from 9 a.m. to 4 p.m. on January 25, 2002.

The Task Force members are: Sir George Alleyne, Pan American Health Organization; Dr. Yves Bergevin, UNICEF; Dr. David Heymann, World Health Organization; Dr. Jeffrey Koplan, Centers for Disease Control and Prevention; Mr. James Lovelace, The World Bank; Dr. Adetokunbo Lucas, Nigeria; Professor David Molyneux, Liverpool School of Tropical Medicine; Dr. Mark Rosenberg, Task Force for Child Survival and Development; Dr. Harrison Spencer, Association of Schools of Public Health; Dr. Dyann Wirth, Harvard School of Public Health; Dr. Yoichi Yamagata, Japan International Cooperation Agency, and Dr. Donald Hopkins, The Carter Center. Ten of the 12 attended this meeting. Dr. Jeffrey Koplan was represented by Dr. Julie Gerberding. Dr. Yves Bergevin was not represented. Presentations were given by Dr. Robin Biellik, WHO Regional Office for Africa; Dr. Julian Bilous, World Health Organization; Dr. Diane Griffin, Johns Hopkins University; Dr. Ciro de Quadros, Pan American Health Organization, and Dr. Peter Strebel, Centers for Disease Control and Prevention. Invited guests included Dr. Ana-Maria Henao-Restrepo, World Health Organization, Dr. Samuel Katz, Duke University Medical Center, and Dr. Walter Orenstein, Centers for Disease Control and Prevention.

After measles vaccine was licensed in the early 1960s, one of the earliest regional efforts to control measles was implemented in 20 countries of West and Central Africa from 1967 to 1972, in a combined Smallpox Eradication/Measles Control Program. In addition to temporarily controlling measles throughout the region, this campaign unexpectedly eliminated transmission of the disease altogether in The Gambia for three years (1968-1970). In 1989 and 1990, the World Health Assembly and the World Summit for Children set goals to reduce measles cases by 90% and measles deaths by 95% compared to pre-immunization levels by 1995. By 1995, measles cases had been reduced by about 56 percent, and measles deaths by about 81 percent (1.1 million).

The first ITFDE concluded in 1992 that measles was "not now eradicable", owing mainly to the "lack of suitably effective vaccine for infants; cost; and public misconception of seriousness". Much has changed since then, beginning with the 1994 resolution by the Pan American Health Organization (PAHO) to eliminate measles from the Americas by 2000. PAHO's resolution was based on that region's success in including immunization against measles in the mass vaccination campaigns aimed at eliminating polio. In 1996, a meeting co-sponsored by WHO, PAHO and the Centers for Diseases Control and Prevention (CDC) concluded that "measles eradication is technically feasible with available vaccines", and it recommended adoption of the goal of global eradication of measles with a target date during 2005-2010.

WHO currently estimates that measles causes approximately 777,000 deaths a year, or about 45 percent of vaccine-preventable deaths among children, and that under-utilization of measles vaccine is the main reason for the high measles mortality remaining. CDC published estimates in 2000 that eradicating measles would prevent the annual deaths and save about $1.5 billion in treatment and prevention costs globally, including $45 million spent annually for the measles component of Measles-Mumps-Rubella vaccine in the United States alone.

Three WHO regions have set regional goals to eliminate transmission of measles: PAHO (by 2000), the European Region (by 2007) and the Eastern Mediterranean Region (by 2010). PAHO has pioneered a three-pronged strategy of "Catch-up": one-time only mass measles vaccination of all children 1-14 years; "Keep-up" routine vaccination of 95 percent of children in each subsequent birth cohort (using Measles-Mumps-Rubella vaccine); and "Follow-up" periodic measles vaccination of all children age 1-4 years every four years. The PAHO strategy also includes intensive surveillance of rash illnesses, including active case searches in problem areas and laboratory confirmation of all sporadic cases and of a sample of cases in each outbreak, as well as aggressive investigation of all suspected cases. With this strategy, measles cases in the Americas have been reduced from 246,612 cases reported in 1990 to 2,109 cases in 1996 and a provisional total of only 533 cases, many of which were imported from other regions, in 2001. Most of the cases in 2001 were reported from Haiti, Dominican Republic and Venezuela. At the end of 2001, indigenous transmission of measles had apparently been ended in all countries of the Americas except Venezuela.

Of the three WHO regions that have not yet established regional goals to eliminate transmission of measles, the Western Pacific Region has already eliminated transmission of polio, and currently experiences about 17,000 measles deaths annually, or about 2 percent of the global total. The other two regions, Africa and Southeast Asia, contain an estimated 59 percent and 25 percent respectively, of remaining global deaths from measles. Public and political support for measles mortality reduction is strong in the African Region. Seven contiguous countries in the southern part of the continent (Botswana, Lesotho, Malawi, Namibia, South Africa, Swaziland, Zimbabwe) began implementing the recommended WHO strategies for measles elimination in 1996. Some of those countries split their mass "Catch-up" campaigns into two sessions (by age or geographic grouping), because of inadequate funding and/or an inadequate number of vaccinators, with no apparent negative impact on the outcome. These seven countries have reduced measles cases from about 60,000 in 1996 to 13 (provisional) in 2001, while measles deaths were reduced from 116 in 1996 to zero laboratory confirmed measles deaths in 2000 or 2001. It thus appears that indigenous transmission of measles has been eliminated from the seven countries. It is likely that interruption of measles transmission will be most challenging in West and Central Africa, and in the Southeast Asia Region, as it is for polio.

In 2001, a U.S.-based coalition (The Measles Initiative) was established with a long-term commitment to control measles deaths. Leading this effort are the American Red Cross, United Nations Foundation, Centers for Disease Control and Prevention, World Health Organization, and United Nations Children's Fund. Other key players in the fight against measles include the International Federation of Red Cross and Red Crescent Societies, and countries and governments affected by measles. This coalition mobilized $20 million in 2001. These funds were used to immunize an additional 20 million children through campaigns successfully conducted in eight African countries. In 2002, plans include providing support to campaigns targeting approximately 70 million children in 17 African countries. Initially, the coalition will focus its efforts in Africa.

The Task Force discussed various technical, operational, financial and socio-political concerns related to measles eradication. Among these was the lack of political and societal support for measles eradication in several industrialized countries of Europe and Asia (for example, France, Italy and Japan) because the local impact of measles is not fully appreciated there by many political leaders, medical practitioners, or by the general public. There is great resistance among some international donors to embarking on an effort to eradicate measles before polio eradication is completed. There is also great concern among some donors and public health leaders in endemic developing countries that measles eradication would mean "another vertical campaign" with negative impact on their broader primary health care infrastructure and systems. Some of the impediments to measles eradication (e.g., urbanization, the HIV epidemic, waning immunity, transmission among adults, and risk of unsafe injections) it was noted, will not be altered by polio eradication, and a few of them can be expected to get even worse over time. It was further recognized that in endemic areas of Africa, particularly, there is need to develop surveillance, epidemiologic, and laboratory capacities to support such an eradication campaign, as well as the need to demonstrate an ability to break transmission of measles in densely populated mega-cities such as Lagos. There is also need to take greater advantage of measles' seasonality in efforts to interrupt transmission.

Although there is a growing body of evidence indicating that existing measles vaccine and strategies are effective to dramatically reduce measles mortality and interrupt measles transmission in large geographic areas, efforts are underway to develop an improved measles vaccine. Participants discussed the optimal characteristics of an improved measles vaccine. An ideal measles vaccine should be safe, confer immunity in young infants who still had maternal antibodies, and not predispose the vaccinee to atypical measles. In addition, the vaccine should ideally be stable and able to be administered without an injection. Various approaches are currently being investigated, including aerosolized vaccine delivery and other needle-free injection methods as well as different types of antigens. Research related to the immunology of measles, new measles vaccines, and alternative routes of immunization are important preparation for an eventual initiative to eradicate measles.

The Task Force reviewed the WHO/UNICEF Global Strategic Plan 2001-2005, which has as its main objectives to reduce global measles-related mortality by half by 2005, to achieve and maintain interruption of indigenous measles transmission in large geographical areas, and to convene a global consultation in 2005 to review progress and examine the feasibility of measles eradication. The strategies intended to achieve those objectives are to improve coverage of routine immunization services, ensure a second opportunity for measles immunization, establish effective surveillance for measles and monitoring of vaccine coverage, and improve case management, including vitamin A supplementation. These were said to be the same strategies needed to eradicate measles. WHO estimates that at present, at least 74 countries (35 percent) are reporting routine measles vaccination coverage, 162 countries (76 percent) are providing a second opportunity for measles immunization, and a global network of national and regional reference laboratories for measles surveillance is about 50 percent complete. Vitamin A supplements are being distributed with routine immunization services in 49 countries (37 percent), and 105 countries include rubella vaccine in their national immunization programs. It was suggested that WHO should consider convening its global consultation to review the feasibility of measles eradication sooner than 2005. It was agreed that only the World Health Assembly should declare a global goal to eradicate measles.

Considerable discussion ensued regarding what were felt to be three main impediments to global eradication of measles: financing for priority operations and research, inadequate political will, and concerns about interference with polio eradication. Sentiment was expressed that the Global Alliance for Vaccines and Immunizations' (GAVI) efforts to improve routine immunization coverage should be encouraged, since they will help reduce measles mortality in Africa and elsewhere. More information is needed in order to estimate what the costs of measles eradication would be, including what it would cost and who would bear those costs, as well as what the benefits would be and to whom those benefits would accrue. The latter data and better mortality statistics could be used to help advocate for measles eradication and help build political will among donors and reluctant countries more effectively. With current knowledge, advocates need to be careful not to overemphasize projected financial savings to occur after a successful eradication initiative, but at least one of the current two-doses of measles vaccine could probably be discontinued following global eradication. The costs of not eradicating measles, or of delaying action should also be considered. Concerns about the safety of measles vaccine must be addressed where they are a significant impediment. It was mentioned that some measles-free countries might eventually resort to requiring proof of measles immunity as a condition of entry, in order to try to prevent imported cases and the associated risks and expenses, although it was made clear that WHO would not likely support or condone such a step.

Eradicating polio will be one of the best things in favor of measles eradication, by removing that important source of perceived competition. Until then, measles activities should be integrated with polio efforts wherever possible and practicable when they overlap. Other potential synergies such as association with vitamin A distribution, with other immunizations, and with mass drug distribution campaigns, such as Mectizan or Zithromax, for example, should also be used as appropriate.

ITFDE Conclusions and Recommendations:

1. Measles eradication is technically feasible, and it is a desirable goal, ultimately.
2. It seems desirable to accelerate the announced WHO/UNICEF strategy to reduce mortality from measles, by using current tools more effectively to increase routine immunization coverage, provide second opportunities for measles immunization, improve measles surveillance and improve the management of complicated cases beginning immediately.
3. Where circumstances are favorable, regions should work to eliminate the disease regionally.
4. Programs should look for synergies between measles activities and other disease control efforts, such as immunization against polio, mumps, rubella, distribution of vitamin A supplements, etc.
5. There is need to support research and development on several issues, including immunology of measles, impact of HIV infections on measles vaccination and transmission, operational aspects of simultaneous delivery of measles and polio vaccines, alternative measles vaccines and routes of administration, integration of measles immunization with other public health work, and demonstration and documentation of ways to break transmission in very large urban areas.
6. The Global Alliance for Vaccines and Immunization is in a good position to support current efforts to reduce measles mortality. The ITFDE encourages the partners under the GAVI to monitor progress and support efforts towards the achievement of sustainable measles mortality reduction.
7. More funding is needed to support implementation of all recommended strategies to reduce measles mortality particularly in Africa and South East Asia.
8. More advocacy is badly and urgently needed, especially in certain developed countries, so as to strengthen global political will against measles. This advocacy should emphasize the responsibilities of the industrialized world to help achieve greater equity in public health matters, as well as their own self-interest in doing so, the efficacy and safety of measles vaccine, and the relatively small marginal costs of immunization in industrialized countries.
9. Better cost effectiveness and cost benefit studies of measles, and better documentation of measles mortality in developed countries are required in order to facilitate advocacy and other consideration of these issues.