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Reaching Every Child: Achieving Equity in Global Immunization

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INTRODUCTION

Since the early 1960s, high quality vaccines have been available to counter many of the most common infectious diseases that kill or severely harm children, such as measles, diphtheria, pertussis, polio, and tetanus (1). Until as recently as 1975, however, less than 5% of the world's children had access to these vaccines, despite immunization being the most cost-effective of health interventions (2,3).

That extraordinary progress has been made in rectifying the gap in childhood immunization coverage between rich and poor countries is primarily the result of one of the largest and most successful public health initiatives ever—the Expanded Program on Immunization (EPI). Through this program, a global network of national immunization services was developed, such that within 15 years, routine coverage of children had risen to nearly 75% worldwide (4), and world leaders were backing new and ambitious global immunization goals such as the eradication of poliomyelitis, and the elimination of measles and neonatal tetanus (NT) (5). Today, the EPI is making a major contribution to the achievement of the millennium development goals by reducing childhood mortality, and immunization rates are commonly used as a national development indicator.

Although extraordinary progress has been made toward reaching all children with immunization services, in 2006, more than 20% of the children in the world were still not routinely receiving the basic childhood vaccines, and as a consequence, nearly 2 million children died of vaccine-preventable diseases, with the vast majority of these deaths occurring in developing countries (6).

This chapter outlines the history and accomplishments of the global EPI effort and summarizes the challenges that must be overcome, particularly in developing countries, if every child is to be safely immunized with effective and appropriate vaccines as early as possible in life.

1974–1984: THE EPI IDEA AND THE EPI TOOLS

Origins

The success of the global smallpox eradication initiative was perhaps the most important stimulus for a WHO program to support the development of routine immunization services in developing countries (2). By the end of 1973, smallpox had been restricted to only five countries in Asia and Africa (7), and it was widely agreed that the momentum of the Intensified Smallpox Eradication Programme should be exploited to control other vaccine-preventable diseases (8).

This consensus led WHO to establish the EPI in 1974, with the objective of raising childhood immunization coverage with an *expanded* number of antigens in an increasing number of countries (2). While the Intensified Smallpox Eradication Programme remained WHO's highest immunization priority through the late 1970s, this period was used to develop the basic EPI principles such as the optimum vaccines and delivery strategies for developing countries.

Though the EPI initiative arose out of the smallpox program, many important elements were to differ substantially, perhaps none more so than the strategic approach. For example, by the mid-1970s the smallpox eradication program had demonstrated the utility of wide-scale mass immunization campaigns to control other important vaccine-preventable diseases, such as measles, in developing countries (9). Following a large EPI feasibility study begun in Ghana in 1976, however, the founders of EPI opted to promote the delivery of vaccines through routine immunization services rather than large-scale campaigns.

The original ''EPI'' vaccines were determined largely by the global relevance of the target disease, the availability of low-cost vaccines, and the cost-effectiveness of its control through immunization (10). Initially, antigens against six diseases were included BCG (against tuberculosis), DTP (against diphtheria, tetanus, pertussis), polio, and measles for infants, with tetanus toxoid for pregnant women to prevent neonatal