IMMUNIZATION AGAINST INFECTIOUS CHILDHOOD DISEASES

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1. **INDICATOR**

   **(a) Name:** Immunization Against Infectious Childhood Diseases.

   **(b) Brief Definition:** The percent of the eligible population that have been immunized according to national immunization policies. The definition includes three components: (i) the proportion of children immunized against diphtheria, tetanus, pertussis, measles, poliomyelitis, tuberculosis and hepatitis B before their first birthday; (ii) the proportion of children immunized against yellow fever in affected countries of Africa; and (iii) the proportion of women of child-bearing age immunized against tetanus.

   **(c) Unit of Measurement:** %.

   **(d) Placement in the CSD Indicator Set:** Health/Healthcare Delivery.

2. **POLICY RELEVANCE**

   **(a) Purpose:** This indicator monitors the implementation of immunization programs.

   **(b) Relevance to Sustainable/Unsustainable Development (theme/sub-theme):** Health and sustainable development are intimately interconnected. Both insufficient and inappropriate development can lead to severe health problems in both developing and developed countries. Addressing primary health needs is integral to the achievement of sustainable development. Particularly relevant is the provision of preventative programmes aimed at controlling communicable diseases and protecting vulnerable groups. Good management of immunization programmes, essential to the reduction of morbidity and mortality from major childhood infectious diseases, is a basic measure of government commitment to preventative health services.

   **(c) International Conventions and Agreements:** See sections 2(d) and 6.

   **(d) International Targets/Recommended Standards:** In 2005, the WHO Assembly adopted the Global Immunization Vision and Strategy. In the Global Strategy for Health and the Ninth General Programme at Work, all children and 90% of children respectively, should be immunized against diphtheria, tetanus, pertussis, measles, poliomyelitis, tuberculosis and hepatitis B (see section 6 below). The 1992 World Health Assembly agreed that all children should be immunized against hepatitis B as part of expanded national programmes of immunization. In addition, all children in affected countries of Africa should be immunized against yellow fever. At the World Summit for Children it was resolved that all pregnant women should be immunized against tetanus.

   The indicator is one of three indicator used to measure progress towards the Millennium Development Goal Nr. 4 (Reduction of childhood mortality) and the associated target “Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.
(e) **Linkages to Other Indicators:** This indicator is linked to other health indicators, particularly those associated with the young, such as infant mortality and life expectancy. It is influenced by such indicators as health expenditure and the proportion of population in urban areas.

3. **METHODOLOGICAL DESCRIPTION**

(a) **Underlying Definitions and Concepts:** A child is considered adequately immunized against a disease when he or she has received the following number of doses: tuberculosis (1 dose); diphtheria, tetanus and pertussis (DTP) (2 or 3 doses according to the immunization scheme adopted in the country); poliomyelitis (3 doses of live or killed vaccine); measles (1 dose); hepatitis B (3 doses); and yellow fever (1 dose). A pregnant woman is considered adequately immunized against tetanus if she has received at least 2 doses of tetanus toxoid during pregnancy or was already previously immunized.

(b) **Measurement Methods:**

i) **Infant population:** The numerator is the number of infants fully immunized with the specified vaccines x 100, while the denominator is the number of infants surviving to age one. For immunizations against tuberculosis the denominator is the number of live births. If the national schedule provides for immunization in a different age group, such as measles in the second year of age, the value should be the percentage of children immunized in the target age group. For the proper management of immunization programmes, it is however essential to be able to break down the data in such a way as to show the percentage covered in the first year of life (or second year for measles immunization).

ii) **Women of child-bearing age:** The numerator is the number of women immunized with two or more doses of tetanus toxoid during pregnancy x 100, while the denominator is the number of live births.

(c) **Limitations of the Indicator:** It is useful to have a composite indicator of adequate coverage by immunization. However, it is easier to collect data on the global coverage of a population against one disease than on the immunization of each child against all target diseases at the same time. This is why in most countries only the former data are easily available and collected. The percent of pregnant women immunized with two or more doses of tetanus toxoid during pregnancy is rather easy to monitor through routine data collection in the health services. However, it underestimates the percent of pregnant women actually immunized against tetanus. It does not take into account women who are already adequately immunized when becoming pregnant and therefore do not require new doses of tetanus toxoid during pregnancy. Women in this category are not numerous in countries where neonatal tetanus is still an issue and where, accordingly, this indicator is mainly used. But in some countries in transition, with long-standing child immunization programmes, the percent of pregnant women receiving tetanus toxoid is misleading as a significant number of them may be already immunized at the moment of pregnancy. The indicator does not reflect other health preventative measures, such as education, diet, and pollution prevention. The international targets are not very meaningful for many countries.
(d) **Status of the Methodology:** Not Available.

(e) **Alternative Definitions/Indicators:** Not available.

4. **ASSESSMENT OF DATA**

(a) **Data Needed to Compile the Indicator:** The number of infants fully immunized against: DTP; poliomyelitis; measles; the number of infants surviving to age one year; against tuberculosis; the number of births; the number of infants living in African countries exposed to yellow fever; the number of pregnant women immunized against tetanus; and the number of live births.

(b) **National and International Data Availability and Sources:** Data is readily available from national immunization programmes of most countries, at least at the national level. Reporting of vaccinations performed annually or nation-wide surveys are the most common data sources.

(c) **Data References:** Data on immunization against DTP, measles and Hepatitis B is included in the WHO Core Health Indicators, see [http://www3.who.int/whosis/core/core_select.cfm](http://www3.who.int/whosis/core/core_select.cfm)  
Data on immunization against measles is available at the MDG website, see [http://mdgs.un.org/unsd/mdg/](http://mdgs.un.org/unsd/mdg/)

5. **AGENCIES INVOLVED IN THE DEVELOPMENT OF THE INDICATOR**

(a) **Lead Agency:** The lead agency is the World Health Organization (WHO). The contact point is the Director, Office of Global and Integrated Environmental Health, WHO; fax no. (41 22) 791 4123.

(b) **Other Contributing Organizations:** The United Nations Children’s Fund is a cooperating agency.

6. **REFERENCES**

(a) **Readings:**

(b) **Internet sites:**
WHO website on immunization: http://www.who.int/topics/immunization/en/