

METADATA – VACCINE PREVENTABLE DISEASES

Description	<p>Several indicators are considered:</p> <ul style="list-style-type: none"> - Number of poliomyelitis cases : number of reported cases of polio in Belgium during one year - Number of measles cases: number of reported cases of measles in Belgium during one month - Number of cases of meningococcal disease: number of reported cases of meningococcal disease in Belgium during one year by type of serogroup - Percentage of fully vaccinated children: Percentage of fully vaccinated children under 2 years during one year and by type of vaccine - Percentage of fully vaccinated adolescents: Percentage of fully vaccinated adolescents during one year and by type of vaccine
Rationale	<p>The epidemiology of the infectious diseases targeted by vaccines has changed significantly since the introduction of the Belgian vaccination programs, with a substantial decrease in incidence. Some infections have become sporadic, such as tetanus, or have been eliminated in Belgium, such as congenital rubella and polio. However, vaccination and surveillance remain necessary due to the risk of importation and the severity of these diseases.</p>
Primary Data source	<p><u>DISEASES</u></p> <p>Poliomyelitis [1]:</p> <ul style="list-style-type: none"> - the system of Mandatory Notification of infectious diseases to the regional health authorities - the PediSurv network coordinated by Sciensano, - the National Reference Center for polio and enteroviruses, - and the Network of Sentinel Laboratories. <p>Measles [2]:</p> <ul style="list-style-type: none"> - the system of Mandatory Notification of infectious diseases to the regional health authorities - the PediSurv network coordinated by Sciensano - Epilabo - The National Reference Center (NRC) at Sciensano confirms suspected cases of measles. <p>Meningitis: Sciensano hosts the National Reference Centre (NRC) which provides epidemiological monitoring of the bacteria <i>Neisseria meningitidis</i> (meningococcus) and <i>Listeria monocytogenes</i> (listeria) [3].</p> <p><u>VACCINE COVERAGE</u></p> <p>Vaccination coverage is monitored by coverage surveys organized and financed by the relevant regions/communities:</p> <p>Infant vaccination coverage :</p> <p>To study infant vaccination coverage, a sample is drawn from the general population in both Flanders and Wallonia/Brussels. In Wallonia, the nine communes of the German-speaking community are excluded from the sample, as the German-speaking community manages and evaluates its own vaccination program. This exclusion is unlikely to have a significant impact on the figures, as the German-speaking community represents only 2.5% of the population under five years old in Wallonia. [5]</p> <p>Adolescent vaccination coverage:</p>

	<ul style="list-style-type: none"> - In Brussels and Wallonia: surveys carried out on a sample of pupils in French-speaking schools on a four-year cycle. As part of this process, vaccination data for students in the sample are requested directly from the French community's School Health Promotion Services (SPSE) and PMS (Psycho-medico-social) centers. [4] - In Flanders: The vaccination data survey is carried out for each child/adolescent (via the parents) and is then actively supplemented, if necessary, with data from Vaccinnet (Flemish Community vaccination register) and data from the CLB (Flemish Community school guidance center) and/or the attending physician. [5]
Indicator source	Sciensano: service of Epidemiology of Infectious Diseases [4-5] report (disease data and national vaccination coverage)
Periodicity	<p><u>DISEASES</u></p> <p>Poliomyelitis: in Belgium, any case of poliomyelitis or suspected poliomyelitis must be reported through a mandatory notification to the regional health authorities. There is no real periodicity to monitor polio cases. An annual enterovirus epidemiological report is published by the Sciensano department 'Epidemiology of Infectious Diseases'.</p> <p>Measles:</p> <ul style="list-style-type: none"> - Any suspected case of measles must be reported in Belgium. Surveillance data is regularly transmitted to Sciensano through the regional infectious disease control services. For more information: Flanders, Wallonia, Brussels. - Pedisurv: every month - As a National Reference Center, Sciensano confirms suspected cases of measles monthly . [2] - An annual measles epidemiological report is published by the Sciensano department 'Epidemiology of Infectious Diseases'. <p>Menigitis: The Infectious Diseases Epidemiology Department publishes an annual epidemiological report on meningococcal disease.</p> <p><u>VACCINE COVERAGE</u></p> <p>Coverage surveys take place approximately every three to four years. Estimation of national vaccination coverage is calculated each year.</p>
Calculation, technical definitions and limitations	<p><u>DISEASES</u></p> <ul style="list-style-type: none"> - Poliomyelitis commonly known as "polio", is a highly contagious infectious disease caused by polioviruses. The virus is transmitted from person to person, essentially by ingesting food or water contaminated by faeces and more rarely by the droplets of saliva emitted during bouts of coughing or sneezing. After having multiplied in the throat and the intestine, the virus can invade the central nervous system and cause paralysis (Acute Flaccid Paralysis), most commonly in the lower limbs. There is no treatment for polio. Vaccination is the only means of prevention. <p>Sciensano's Epidemiology of Infectious Diseases Department, centralizes and analyzes data on acute flaccid paralysis and enteroviruses. [1]</p> <ul style="list-style-type: none"> - Measles is an infectious disease caused by the morbillivirus. Measles exhibits a typical skin rash and high fever. The rash begins in the face, often behind the ears, and gradually spreads from the upper to the lower part of the chest and to the limbs. A few days before the appearance of the rash, the disease begins with a cold, general malaise and fever (catarrhal phase). This is a highly contagious period. A diagnosis of measles is first made based on clinical signs and then confirmed by laboratory tests (serum, saliva and/or nose and throat swab).

	<p>Sciensano coordinates all measles data from different sources (mandatory notification, Pedisurv, Epilabo and NRC) to evaluate measles activity and thus monitors the elimination status of measles in Belgium according to WHO guidelines. [2]</p> <ul style="list-style-type: none"> - Meningitis is an inflammation of the meninges, the thin membranes covering the brain and the spinal cord. Meningitis can be caused by bacteria, viruses and fungal infections (rare). Bacterial meningitis can be caused by different types of bacteria: <ul style="list-style-type: none"> • meningococcal (<i>Neisseria meningitidis</i>) • pneumococcal (<i>Streptococcus pneumoniae</i>) • <i>Hib</i> (<i>Haemophilus influenzae type b</i>) • listeria (<i>Listeria monocytogenes</i>) • other bacteria: <i>Escherichia coli</i>, staphylococcus, gram-negative bacilli. <p>Sciensano hosts the National Reference Centre (NRC) which provides epidemiological monitoring for the bacteria <i>Neisseria meningitidis</i> (meningococcus) and <i>Listeria monocytogenes</i> (listeria). [3]</p> <p><u>VACCINE COVERAGE</u></p> <p>An estimate of national vaccination coverage in Belgium is calculated by Sciensano's Epidemiology of Infectious Diseases Department on the basis of the most recent vaccine coverage studies and weighted by population size.</p> <p>Vaccination policy in Belgium is organized by the different regional authorities, but the basic vaccination schedule is similar (more information can be found in the report 'Conseil et politique de vaccination en Belgique' or 'Vaccinatiebeleid en advies in België'). You can find the schedules for Flanders, Brussels and Wallonia (including the German-speaking community).</p>
International comparability	<p>Availability & comparability:</p> <ul style="list-style-type: none"> - Europe: European Centre for Disease Prevention and Control [6] - World: World Health Organization (WHO) [7]: WHO and UNICEF annually estimate the number of reported vaccine-preventable disease cases and national immunization coverage using official reports from Member States, published and grey literature, and input from local experts. They strive to provide the most accurate coverage estimates by considering data quality, potential biases, and expert insights.

References

- [1] Sciensano. Poliomyelitis. <https://www.sciensano.be/en/health-topics/poliomyelitis-polio/role>
- [2] Sciensano. Measles. <https://www.sciensano.be/en/health-topics/measles>
- [3] Sciensano. Meningitis. <https://www.sciensano.be/en/health-topics/meningitis>
- [4] Sciensano. 2023. Epidemiology of vaccine-preventable infectious. Diseases. <https://www.sciensano.be/en/biblio/epidemiologie-des-maladies-infectieuses-a-prevention-vaccinale-synthese-annuelle-2023>
- [5] Sciensano. 2021. Couverture vaccinale. <https://www.sciensano.be/en/biblio/couverture-vaccinale-des-vaccinations-de-base>
- [6] European Centre for Disease Prevention and Control. Vaccine preventable diseases. <https://www.ecdc.europa.eu/en/vaccine-preventable-diseases>
- [7] World Health Organization. Vaccines and Immunization. https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1