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Global measles cases almost double in a year, say researchers

by European Society of Clinical Microbiology and Infectious Diseases

Measles outbreaks are still occurring and in some cases increasing, among a wide variety of countries, raising concerns of an acceleration similar to just before the COVID pandemic. Dr. Patrick O'Connor, of WHO Headquarters, Geneva, Switzerland gave an overview of the global measles situation at this year's ESCMID Global Congress (formerly ECCMID—Barcelona, 27–30 April), while Professor Hanna Nohynek of the Health Security Section, Finnish Institute for Health and Welfare, Helsinki, Finland looks at the path to elimination, including successful elimination in WHO's America's region.

Dr. O'Connor discusses how the total cases for 2024 so far look to be on track to at least match the 321,582 cases provisionally reported for 2023 (in 2024, some 94,481 have been reported up to early April, but reporting delays mean the true figure is probably much higher). Of these 2024 cases, almost half (42,767 / 45%) have been in the WHO European Region. Yemen, Azerbaijan and Kyrgyzstan are the countries with the highest reported measles incidence in the world.

Dr. O'Connor explains, "Over the last decade there has been significant progress towards measles and rubella elimination—the Regional Verification Commissions for Measles and Rubella Elimination (RVCs) from all of the WHO Regions will review all national measles and rubella 2023 reports in 2024.

"The European Regional Verification Commission will review the elimination status from 10–12 September 2024—and provide an assessment of the 53 Member States in the European Region— large outbreak and continuous transmissions of measles are always a concern and can make achieving and maintaining elimination challenging."

While this coverage in the European Region for the first and second dose of measles and rubella containing vaccine has been relatively high as the national level, Dr. O'Connor explains, "The measles virus is extremely infectious and any gaps in immunization coverage are potential risk for outbreak. So, coverage needs to high but also uniform and equitable."

Worryingly, the number of countries suffering large or disruptive measles outbreaks (defined as 20 cases/million population continuously over a 12 month period) has tripled from 17 to 51, with the latest rolling 12 month period available as of April 2024 covering the months December 2022- November 2023.

And in absolute numbers, the percentage of global measles cases is dominated by low and lower- middle income countries, which have seen their proportion of all global cases increase from 80% in 2017 to 94% in 2022, while high-income countries fell from 5% to 1% in the same period.

Total cases globally have fluctuated wildly in recent years: 2016: 180,015; 2017: 168,190; 2018: 276,157; 2019: 541,401; 2020: 93,840; 2021: 59,619; 2022: 171,153. The provisional figure for 2023, 321 582, although yet to be finalized, is an 88% increase on the 2022 numbers.

Prof Nohynek says, "Measles cases were high in 2019, with the majority seen in Africa, where measles vaccine coverage has been lowest in the world allowing for unprotected population and as consequence periodic outbreaks. During the COVID-19 pandemic with closure of the society and limiting the number of human contacts, the transmission of all airborne viruses was reduced, including measles.

"During the pandemic, many children remained unvaccinated, and catchup vaccinations have not reached them. Therefore we now see cases increasing again in various regions of the world."

Dr. O'Connor also looks at the huge amount achieved globally by measles vaccination: an estimated 57 million deaths have been avoided globally with measles vaccination from 2000 to 2022, with 1.5 million of these in the European region where there has been a 98% reduction in annual measles deaths from 3,584 in 2000 to 70 in 2022.

He concludes, "Over the last 20 years, there has been significant progress toward achieving measles and rubella elimination—in order to solidify and maintain those gains, we need to ensure high, uniform and equitable routine immunization coverage; and robust outreach and rapid outbreak response."

Professor Nohynek discusses the success of WHO's Americas region, where in 2016 measles was the 5th vaccine-preventable disease to be eliminated from the Americas, after the regional eradication of smallpox in 1971, elimination of poliomyelitis in 1994, and rubella and congenital rubella syndrome in 2015.

This successful strategy involved a one-time national campaign to bring children between 1 and 14 years of age up to date with measles vaccination; strengthening routine vaccination to reach a minimum of 95% of children every year; and undertaking massive follow-up campaigns every four years, to reach a minimum of 95% of children aged 1 to 4 with a second dose of vaccine. Good technical support, laboratory capacity, social and political will all played their part.

She raises the alarm regarding lower-than-needed vaccination rates, explaining that, by 2022, global measles first dose (MCV1) coverage was 3% below the pre-pandemic peak of 86%—she explains that even then 86% was itself too low to prevent the epidemics of 2019. In 2022, 33 million children that should have received a routine MCV dose did not (22 million first dose and 11 million second dose children).

Prof Nohynek says, "Countries should use measles cases and outbreaks as a tracer to identify weaknesses in immunization programs, and to guide programmatic planning in identifying and addressing these weaknesses."

She adds, "Vaccine hesitancy is only one component that can contribute to lower coverage—misinformation about vaccines, access to immunization services, and on-time vaccination cause immunization gaps."

The Immunization Agenda 2030 (the Global strategy endorsed by the World Health Assembly to maximize the lifesaving impact of vaccines) has the goal of preventing 50 million deaths from 2021-2030 using vaccination. Prof Nohynek explains this will not be possible without measles vaccines, saying that measles vaccination will account for 37% of deaths to be averted by childhood vaccination against 14 different pathogens from 2021–2030; and will deliver 75% of the economic benefits of vaccines for 25% of costs.

She concludes, "Innovations are needed to increase coverage, enable campaign integration, improve emergency response, reduce waste, and prevent errors. One such innovation is Measles Rubella MAPS (MR MAPS)—measles and rubella vaccine microarray patches that do not require a needle and syringe."

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