Force Health Protection Branch
NATO MilMed COE Munich

Update 146
FHP-Update
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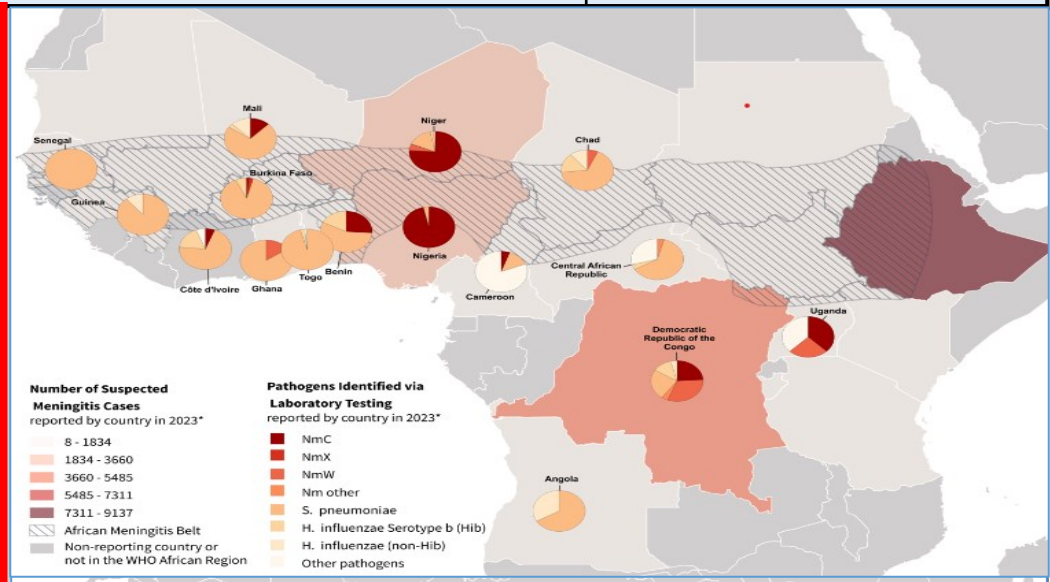
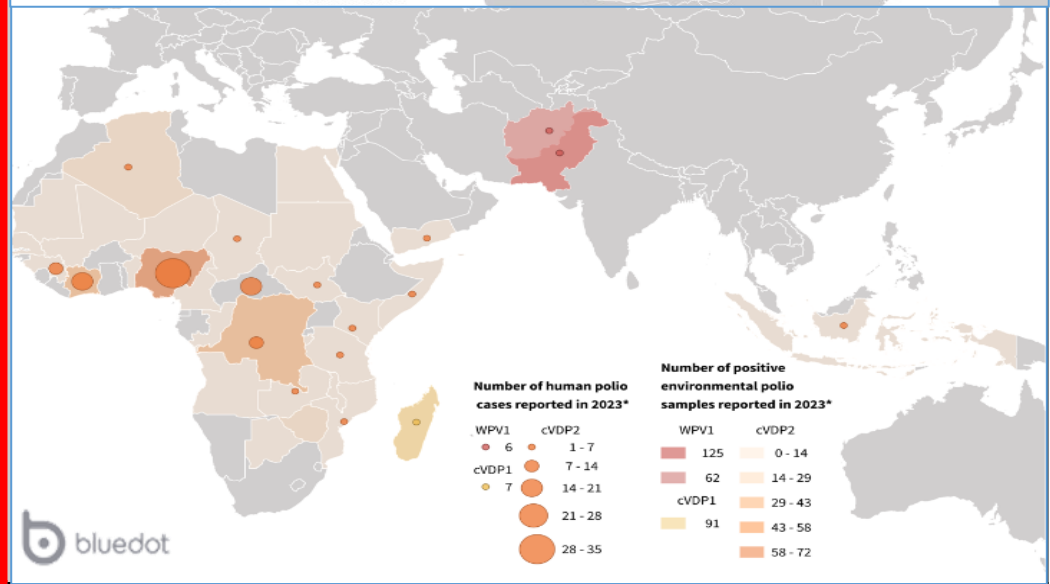
News:

- **CDC:** recommends that adults ages 65 years and older receive an additional updated 2023-2024 COVID-19 vaccine dose. The recommendation acknowledges the increased risk of severe disease from COVID-19 in older adults, along with the currently available data on vaccine effectiveness. Data continues to show the importance of vaccination to protect those most at risk for severe outcomes of COVID-19. An additional dose of the updated COVID-19 vaccine may restore protection that has waned since a fall vaccine dose, providing increased protection to adults ages 65 years and older.
- **CDC:** reported the interim flu vaccine effectiveness estimates show that so far during the 2023-2024 flu season, flu vaccines have worked, substantially reducing the risk of flu-related medical visits and hospitalizations across all age groups, with some estimates higher than have been previously observed, even during well-matched seasons. Additionally, the data show that flu vaccination is working against both the influenza A and B viruses that have spread most commonly so far this season. CDC continues to recommend getting a yearly flu vaccine as long as flu viruses are spreading in the community. Specifically, flu vaccination has reduced the risk of flu medical visits by about two-thirds and flu-related hospitalization by about half for vaccinated children and flu medical visits by half and hospitalization by about 40% for vaccinated adults. This is the first time that interim flu vaccine effectiveness estimates for children and adults from four major networks are available at the same time, providing extensive data on how well flu vaccines are working this season across influenza virus types, by age, and across a spectrum of illness severity.
- **ECDC:** released a report that outlines key strategic and operational considerations to inform preparedness planning around the design and implementation of Public Health and Social Measures (PHSMs) in the EU/EEA for health emergencies and pandemics.
- **ECDC**: has published its latest Annual Epidemiological Reports shedding light on the state of sexually transmitted infections (STIs) in the EU/EEA. The findings reveal a troubling surge in cases of syphilis, gonorrhoea, and chlamydia, indicating a pressing need for heightened awareness of STI transmission, and the need to enhance robust prevention, access to testing, and effective treatment to address this public health challenge. In 2022, the number of reported cases saw a significant increase compared to the previous year, with gonorrhoea cases rising by 48%, syphilis cases by 34%, and chlamydia cases by 16%. In addition, cases of lymphogranuloma venereum (LGV) and congenital syphilis (caused by transmission from mother to fetus) have also substantially increased. These trends underscore the urgent need for immediate action to prevent further transmission and mitigate the impact of STIs on public health.
- **WHO:** warns that the situation in Gaza is catastrophic, with northern Gaza facing imminent famine and the rest of the Strip at risk as well. Today's report shows that as of February in the northern governorates, that figure is between 12.4 and 16.5%. The current situation will have long-term effects on the lives and health of thousands.
- **EFSA**: reported, that resistance of *Salmonella* and *Campylobacter* bacteria to commonly used antimicrobials continues to be observed frequently in humans and animals. The combined resistance to critically important antimicrobials for human medicine remains very low, except in some types of *Salmonella* and *Campylobacter coli* in some countries. there has been an increase in the proportion of *Escherichia coli* isolates from food-producing animals that exhibit 'complete susceptibility' or 'zero resistance' to key antimicrobials.





2023 Year in Review: Vaccine Preventable Disease Trends I

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Overview

- Between 2019 and 2021, the world experienced the largest sustained decline in childhood vaccinations in approximately 30 years.
- 2023 was characterized by large outbreaks, resurgence, and/or re-establishment of vaccine preventable diseases (VPDs), in areas where the disease had been absent for decades.
- The following report does not cover all VPDs reported in 2023, but aims to summarize those with increased Event-Based Surveillance (EBS) media reports throughout the year: diphtheria, measles, rubella, meningitis, poliovirus, and cholera.

Meningitis

- There are four main causes of acute bacterial meningitis, each of which have a specific treatment and are vaccine-preventable: *Neisseria meningitidis* (Nm) (also known as meningococcus); *Streptococcus pneumoniae* (*S. Pneumoniae*) (also known as pneumococcus) and *Haemophilus influenzae*.
- Collectively, these bacteria are responsible for more than half of the deaths from meningitis globally and they cause other severe diseases like sepsis and pneumonia.
- Under-resourced countries across the sub-Saharan African 'meningitis belt' experience the greatest burden of disease amid challenges including a limited number of diagnostic facilities, limited appropriate treatment options, and poor access to timely treatment in primary hospitals.
- Ethiopia had the largest burden of meningitis cases in 2023, followed by the Democratic Republic of the Congo (DRC). Most meningitis cases were associated with the isolation of *Neisseria meningitidis* serotype W.
- Other countries with notable meningitis outbreaks in 2023 where Iraq, specifically impacting the Kurdistan Region beginning mid-April 2023, and New Zealand with 59 cases and one death. 47% of all cases being attributed to the group B strains.

Diphteria

- In 2023, the wide variability in vaccine coverage from country to country was exemplified by countries with high vaccine coverage reporting cases amongst asylum seeking, refugee, and migrant populations. Countries with low vaccine coverage reported unusual increases in cases amongst the population while simultaneously dealing with regional instability and barriers to vaccine supply chain and logistics.
- Multiple countries across Africa reported new or ongoing outbreaks of diphtheria. Three West African countries (Nigeria, Guinea, and Niger) reported unusual increases in diphtheria cases, while Mauritania and South Africa reported smaller outbreaks. Children were the most affected demographic with 44% of the affected individuals unvaccinated.
- Reported cases of diphtheria in 2023 declined to 170, with the highest number of cases (107) reported in Germany. Three fatal cases were reported in 2023, one each in Belgium, Germany, and Latvia. Most cases were reported amongst asylum seekers, refugees, migrants, and travel-related cases.
- 54 of 157 cases were classified as being imported from another country. Countries of exportation with 10 or more cases included Afghanistan (24) and Syria (10).
- There is risk of spread to individuals in the general population who are unvaccinated or have not completed a full diphtheria vaccination series.

Cholera

- Globally, there was a significant surge in cholera, totalling over 667,000 cases with 4,000 fatalities reported in at least 30 countries in 2023 (as of 15-Dec-2023).
- The numerous outbreaks spreading across various regions are coupled with a scarcity of vaccines and resources to deploy them. This global resurgence continues to be categorized as a grade 3 emergency by the WHO, with the global risk evaluated as extremely high.
- Due to differences in case definitions and reporting, cases and deaths due to cholera cannot be directly compared.
- As of 15-Jan-2024, eastern and southern African nations bear the heaviest burden of cholera with approximately 75% of the fatalities and a third of all cases reported by UNICEF. These regions are grappling with inadequate clean water and sanitation issues.
- Of the countries that reported, as of 15-Dec-2023, the highest rate of cholera cases reported in the WHO African Region was in Malawi with 296 cases per 100,000. This was followed by Mozambique with 122 cases per 100,000. The highest number of deaths reported was in in Malawi with 1,771.
- Outside of the WHO African Region, Afghanistan, the Syrian Arab Republic, and Haiti report the highest numbers of suspected and/or confirmed cases with 215,210, 180,288, and 76,556 cases, respectively.

Measles

- Provisional data reported to the WHO (Geneva) as of January 2024 indicate an increase in the total number of measles cases reported globally in 2023 (280,933) compared to 2022 (171,156).
- The increasing number of measles cases is not unexpected given declining vaccination rates:
    - Globally, over 61 million doses of measles-containing vaccine were postponed or missed between 2020 and 2022 due to the COVID-19 pandemic.
    - In total, 1.8 million infants in the European Region missed their measles vaccination between 2020 and 2022.
    - Factors that contributed to declining vaccination rates include disruptions to health services and worsening of public vaccine skepticism related to the COVID-19 pandemic.
- Countries that have eliminated measles as an endemic disease are at risk of measles outbreaks following importation of the measles virus from other countries. Prevention of community outbreaks through herd immunity is achieved only with very high rates of routine childhood vaccination (at least 95%), which is not sustained in all communities.
- In 2023, measles cases have increased in the Eastern Mediterranean Region, European Region, South- East Asia Region, and Western Pacific Region.
- Between January and October 2023, over 30,000 cases of measles were reported by 40 of the WHO European Region's 53 Member States.

2023 Year in Review: Vaccine Preventable Disease Trends II

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Polio

- Although Wild poliovirus type 1 (WPV1) cases appear to be decreasing since 2020, cases continue to be reported in Afghanistan and Pakistan, where WPV1 remains endemic.
- According to GPEI in early 2022, a WPV outbreak was confirmed in southeast Africa. Throughout 2023 no additional cases have been reported in Malawi or Mozambique and an official closure to this outbreak is expected in the coming months.
- Regarding circulating vaccine derived poliovirus (cVDP), data updated as of 6-Feb-2024, indicate that in 2023 there were seven human cases of cVDP type 1 (cVDP1), 126 human cases of cVDP type 2 (cVDP2), and no human cases of cVDP type 3 reported.
- In 2023 human cVDP2 cases made up 94.7% of all human cVDP cases reported with cases spanning across the African continent and Indonesia.
- The decline in human cVDP2 cases reported over recent years has been mainly attributed to the increased administration of the novel oral polio vaccine type 2 (nOPV2).

Pertussis

- Surveillance is challenging and there are limited official statistics with which to understand global trends. Reported cases are influenced by factors including healthcare access and access to testing services, availability of testing supplies, and prevalence of asymptomatic/mildly symptomatic cases; hence disease burden is largely underestimated.
- Since early 2022, increasing trends of pertussis have been reported in multiple regions. Declining vaccine confidence and low rates of pertussis vaccine coverage in some countries indicate an increased risk of future activity in additional locations.
- Most regions show trends that remain below pre-pandemic levels, except for the Western Pacific Region which appears to have a similar trend. The highest burden in the Western Pacific Region was reported in China.
- The highest burden in the European Region was held by Russia, which reported approximately 3,000 cases in 2022. A nine-fold increase in cases occurred in 2023, with approximately 27,800 cases reported.

Rubella

- Provisional data reported to the WHO (Geneva) as of 12-Feb-2024 indicate a 25% increase in the total number of rubella cases reported globally in 2023 (15,045) compared to 2022 (12,010).
- Among the 10 countries with highest national rubella incidence, four have an estimated national rubella immunization coverage reported and only Bhutan is above the recommended level of 95%.
- In total, 381 rubella cases were reported in the European Region in 2023, which is a 76.4% increase in the region compared to 2022 when 216 cases were reported.
- An increase of 5.3% in rubella cases was also reported for the Eastern Mediterranean Region in 2023 (2,824 cases) compared to 2022 (2,682).
- A 3.9% decline in rubella cases is currently reported in the South-East Asia Region in 2023 (3,382 cases) compared to 2022 (3,519).
- While there appears to be a decrease in rubella cases in 2023 compared to 2022 in the African Region this may be due to a delay in reporting (official data available in July2024).

VPD Outlook

- Despite being a critical public health intervention, global immunization coverage has remained stagnant over the past decade.
- The challenges and disruptions associated with the COVID-19 pandemic and the extensive efforts to vaccinate against COVID-19 strained health systems throughout 2020 and 2021, leading to routine vaccination setbacks in many regions.
- These setbacks are augmented by the multiple low- and middle-income countries experiencing instability, creating downstream issues regarding vaccine procurement, dissemination, and health care accessibility.
- High-income countries (HIC) are not immune to the rising number of VPD outbreaks. Increased population movement, through travel and migration, paired with reduced vaccination coverage and increased vaccine hesitancy have created pockets of populations within the HIC populations that are at increased risk of infection due to VPDs such as measles and diphtheria.

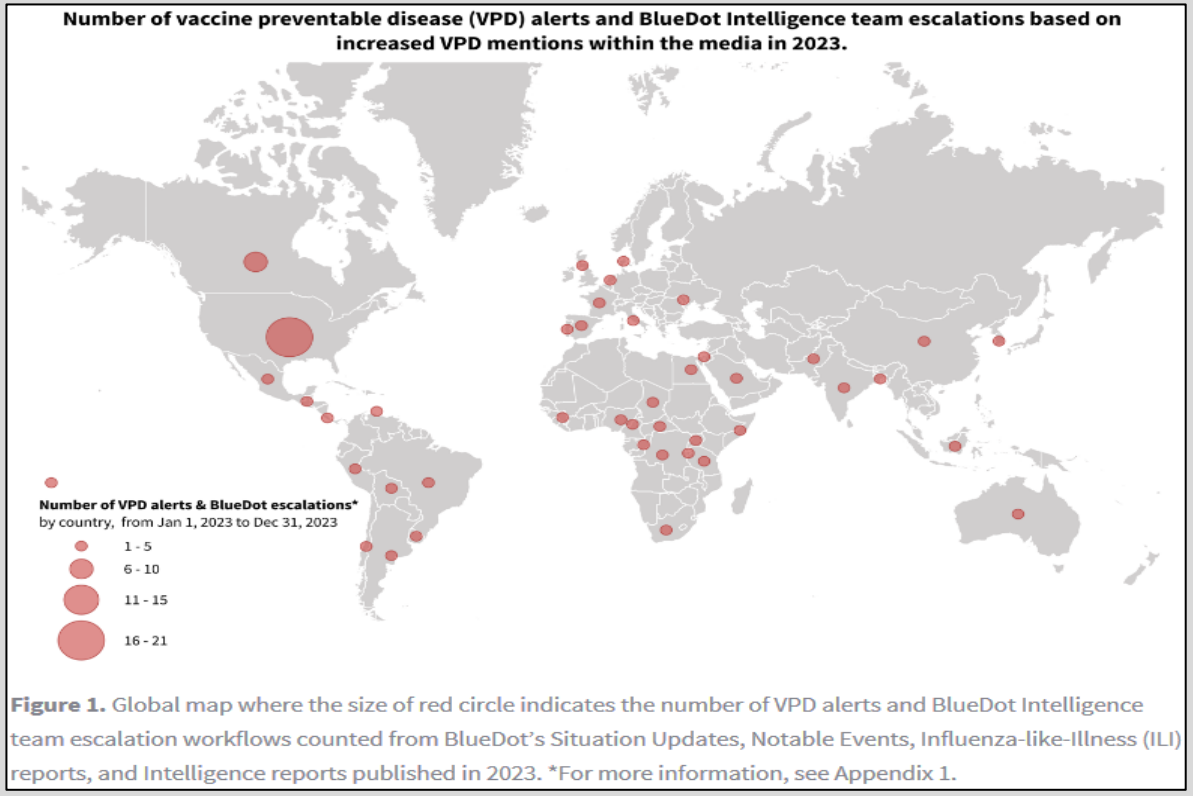


Figure 1. Global map where the size of red circle indicates the number of VPD alerts and BlueDot Intelligence team escalation workflows counted from BlueDot's Situation Updates, Notable Events, Influenza-like-Illness (ILI) reports, and Intelligence reports published in 2023. *For more information, see Appendix 1.

Mumps vaccines

World Health Organization

Overview

In accordance with its mandate to provide normative guidance to Member States on health policy matters, WHO issues a series of regularly updated position papers 1 on vaccines and combinations of vaccines against diseases that have an international public health impact. These papers are concerned primarily with the use of vaccines in large-scale vaccination programmes.

Context

- Prior to the introduction of routine mumps vaccination, mumps was primarily a mild, childhood viral disease.
- Although mumps is endemic globally, in most countries it is not a notifiable disease and, as such, there are limited to no routine surveillance data available.
- Large outbreak, many of which more than 50 years ago, often occurred in military settings.

Impact

- In countries which have introduced mumps-containing vaccines and have high 2-dose mumps coverage, the incidence of mumps cases has dropped dramatically from about 100–1000 cases per 100 000 population to <1 case per 100 000 population.
- However, a few large, localized outbreaks of mumps have been reported in highly-vaccinated populations, especially in settings with a high population density or prolonged person-to- person contact.
- Despite long-lasting immunity following infection or vaccination, mumps viruses continue to circulate globally.
- Low childhood vaccination coverage (of less than 80%) against mumps can result in an epidemiological shift of disease incidence to older age groups. Reduced (but not interrupted) circulation of mumps virus in the community may result in an increased number of cases in adults without immunity from infection and at greater risk for mumps-related complications.
- Besides vaccine coverage, factors such as number of doses of vaccine, age at vaccination, vaccine failure and vaccine effectiveness may contribute to this epidemiologic shift.

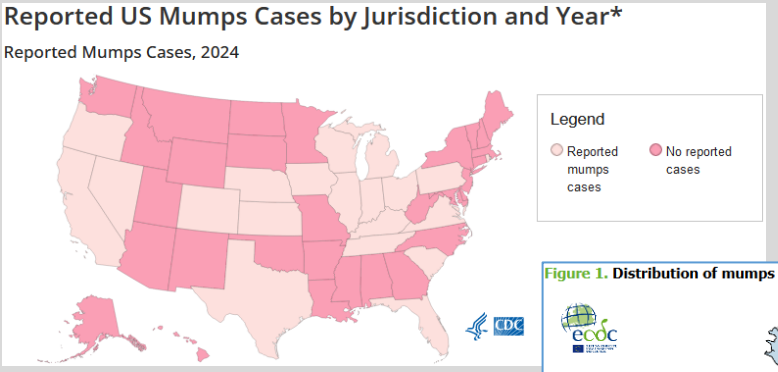
Vaccines

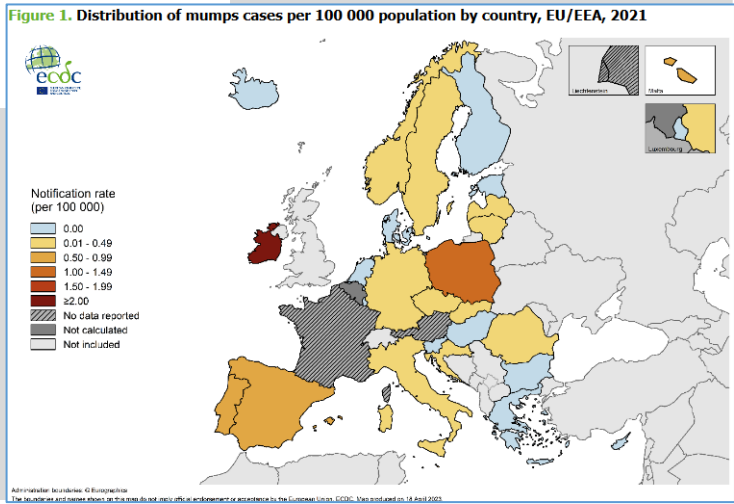
- As of December 2023, 123 of the 194 (63%) WHO Member States had included mumps vaccine in their national immunization programmes, most commonly using the combined MMR vaccine.
- Mumps-containing vaccines are available as monovalent vaccines, bivalent measles–mumps (MM) vaccines, trivalent MMR vaccines and quadrivalent measles– mumps–rubella–varicella (MMRV) vaccines.
- Different mumps virus strains are used to develop mumps-containing vaccines. The virus strains used in WHO prequalified mumps-containing vaccines are Jeryl–Lynn, RIT 4385 and Leningrad–Zagreb.

- Adverse reactions to mumps vaccination are generally rare and mild.
- Contraindications to mumps vaccination are few. As with all live attenuated vaccines, mumps-containing
- vaccines should not be administered during pregnancy or to individuals with advanced immune deficiency or severe immunosuppression.
- Allergy to vaccine components is a contraindication to administration of the vaccine.
- WHO recommends the use of MMR vaccines for countries with mature immunization programmes, in accordance with the coverage targets recommended for MR vaccination.
- Strategies to control mumps should be closely integrated with existing goals for measles and rubella control and elimination.

Country / Region	Disease	2022	2021	2020	2019	2018
Global	Mumps	380,224	241,406	279,289	169,799	502,027

Globally reported Mumps cases, WHO 2023





Source: WHO

What does recent research highlight about the effectiveness of the updated XBB.1.5-variant targeted COVID-19 vaccine?

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Now that large proportions of the global population have been either vaccinated for COVID-19 and/or previously infected by SARS-CoV-2, research is required to determine the additional benefits of vaccine doses targeted to new circulating strains.

In September 2023, CDC's Advisory Committee on Immunization Practices recommended the updated 2023-24 COVID-19 vaccination (monovalent XBB.1.5) for individuals 6 months or older.1 An updated vaccination was recommended as the XBB lineage became globally dominant throughout 2023.1 Recently, the JN.1 sublineage of another variant (BA.2.86) is the dominant circulating strain globally.1 The continual evolution and emergence of immune invasive SARS-CoV-2 variants illustrates the importance of assessing vaccine effectiveness against all circulating variants.

Current relevance

- **Current variants**: Globally, between September to December 2023, majority of the circulating strains belonged to the XBB lineages. Later in that time period we saw the emergence of the BA.2.86 sublineages (JN.1*), which are currently the dominant circulating variants.[1]
- **Vaccination:** COVID-19 vaccination remains the key pharmaceutical intervention for preventing severe outcomes in older adults and provides an incremental benefit against symptomatic infections.[2]
- The study by **Link-Gelles et al. (2024)** noted that protection against symptomatic infections did not substantially differ between JN.1 or XBB variants (approximated by S-gene target failure) and the overall vaccine effectiveness was 54% in vaccinated individuals with updated dose.[1] It should be noted that the study population reported fewer comorbidities than the average US population.
- A high vaccine effectiveness against hospitalization and ICU use was demonstrated by **van Werkhoven et al. (2024)** in adults 60 years and older in Netherlands.[3]

STUDY 1	SCREENING STUDY
Early COVID-19 vaccine effectiveness of XBB.1.5 vaccine against hospitalization and admission to intensive care, the Netherlands, 9 October to 5 December 2023	
PUBLISHED ON	04-Jan-2024 **STUDY PERIOD** Oct 2023 to Dec 2023
OBJECTIVE	To provide an early estimate of the vaccine effectiveness (VE) of the 2023 seasonal vaccination campaign against COVID-19 hospitalization and ICU admission
STUDY POPULATION	• Persons aged 60 years and older in the Netherlands hospitalized 09-Oct-2023 and 05-Dec-2023 (N=2,050). • Hospitalizations were collected from the National Intensive Care Evaluation (NICE) COVID-19 database. • COVID-19 vaccination status was registered in the national COVID-19 vaccination database (CIMS) and linked to the NICE via citizen number. • **Inclusion criteria:** at least one previous COVID-19 vaccination registered in the database who were included in the Netherlands population register on 25-Sep-2023.
OUTCOME	• Risk of hospitalization and ICU admission for SARS-CoV-2. • Among hospitalized patients for COVID-19, the proportion of those who were vaccinated in the 2023 campaign were calculated, stratified by calendar date, sex, geographical region and 5-year age group. • **Comparison groups:** those with an updated vaccine (i.e. vaccinated in the 2023 campaign) vs. those with a non-updated vaccine (i.e. vaccinated with at least one dose not in the 2023 campaign).
METHODS	
Analysis: The VE and 95% confidence intervals (95% CI) were estimated using a logistic regression model, with vaccination status as dependent variable.	

STUDY 2	CASE CONTROL STUDY
Early Estimates of Updated 2023–2024 (Monovalent XBB.1.5) COVID-19 Vaccine Effectiveness Against Symptomatic SARS-CoV-2 Infection Attributable to Co-Circulating Omicron Variants Among Immunocompetent Adults — Increasing Community Access to Testing Program, United States, September 2023–January 2024	
PUBLISHED ON	01-Feb-2024 **STUDY PERIOD** Sept 2023 to Jan 2024
OBJECTIVE	To assess the VE of the updated COVID-19 vaccine against symptomatic COVID-19 infection in the US
STUDY POPULATION	• Adults 18 years and older who reported one or more symptoms of COVID-19 (N=9,222). • Exclusion criteria: self-reported variables such as immunocompromised status, manufacturer and timing of last dose, and COVID-19 infection preceding 90 days of test. See original study for full list.
OUTCOME	• Symptomatic individuals for COVID-19 • The proportion of those who were vaccinated were calculated and stratified by age and time since last dose. NAAT test scores were also reported and stratified by age, sex, race, and ethnicity, testing site, testing date, underlying conditions, and vaccine manufacturer. • **Comparison groups:** those with an updated vaccine vs. those with a non-updated vaccine. This value was also calculated separately based on SGTP and SGTF status (approximate JN.1 vs non-JN.1 infection).
METHODS	

Study takeaway

Study 1: Screening method

The study presents preliminary results supporting the updated monovalent COVID-19 vaccine against severe illness in older adults within two months of vaccination. The study suggests that vaccination prevented about 70% of COVID-19 hospitalizations that would have occurred in this group had they not been vaccinated late in the 2023 campaign.

Additional research in other populations and ages is required because the researchers were unable to comprehensively control confounding variables. This limits the generalizability beyond the Netherlands study population.

Study 2: Test-negative case-control

The study provides early real-world evidence for the initial added protection provided by the updated monovalent COVID-19 vaccine against symptomatic infections and currently circulating variants. The study suggests that the updated vaccine prevents about 54% of symptomatic COVID-19 infections that would have occurred had they not received the updated vaccine. Furthermore, results support that updated vaccines provide protections against both JN.1 and XBB lineages, 60-119 days since last dosage.

Ongoing monitoring of vaccine effectiveness is required to assess the waning immunity and effectiveness against emerging variants.

Overall

On a population level, the updated COVID-19 vaccine targeting XBB.1.5 provides additional benefit by reducing the risk of symptomatic and severe illness. The level of incremental benefit may differ by population because of the baseline heterogenous immunological landscape across countries (i.e. frequency and timing of vaccine or infection-derived immunity). Given the current research, it is unclear how much protection is gained due to the updated composition or recency of vaccination. However, research continues to support the safety and effectiveness of COVID-19 vaccinations over the acute and long-term consequences of SARS-CoV2 infections.

In both studies, the emerging variant JN.1 (and sublineages) became the dominant circulating variant (>50%) near the end of the study periods, providing some uncertainty in the level of protection against current circulating variants. Ongoing research is required to evaluate the added benefit of the current vaccine against severe disease in different demographic populations and against emerging variants. However, there is increasing evidence that an updated COVID-19 vaccine increases protection against COVID-19 to some degree despite the changing variant landscape.

Populationsdichtegraduierung Vektormonitoring	
bis 0,99	sehr geringe Dichte
1-4,99	geringe Dichte
5-9,99	mittlere Dichte
10-19,99	erhöhte Dichte
20-23,99	hohe Dichte
24-29,99	hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)
ab 30	sehr hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)

Vector monitoring in MINUSMA I

Legend:
The population density assessment is based on the following values:
max. temporary, local peak values as well as average camp area:
Σ per Σ ♀total nights of trapping

Source: German Armed Forces, Department of Microbiology and Hygiene, part of the Military Hospital in Koblenz.

The German Armed Forces Preventive Medicine team is undertaking routine surveillance and prevention for West Nile vector control on their mission in Niamey, Niger.

The catch results from 4 trap sites (light traps and scent traps) were sent for further investigation.

They identified a total of 1336 mosquitoes (Anopheles spp., Ades vaxans, *Culex spp., Culicoides spp., Sergentomyia spp., Phlebotomus spp., Culicoides spp)* in Camp Vie Allemand in MINUSMA in four samplings of three days each between 05 Feb and 08 Feb, 12 Feb and 15 Feb, 19 Feb and 22 Feb, 26 Feb and 29 Feb, and and 25 Jan, and 04 Mar and 07 Mar 24 with following result:

***Population density of relevant female vectors (selection) during the monitoring period, related to the trap sites*:**

Monitoringzeitraum	weibliche Stechmücken	Fangort	Anzahl	max. temporäre, lokale Spitzenwerte: Anzahl ♀/ Falle/Fangnacht	Bewertung des Spitzenwertes	Durchschnitt Campbereich: Σ ♀ pro Σ Fallenfangnächte gesamt	Gesamt-bewertung
vom:	**Culex spp.** ♀	Sportzelt DF	6	6,00	mittlere Dichte	0,88	sehr geringe Dichte
05.02.2024		DFAC DF	1	1,00	geringe Dichte		
bis:							
08.02.2024	**Sergentomyia spp.** ♀	DFAC DF	1	1,00	geringe Dichte	0,13	sehr geringe Dichte
Beobachtungszeitraum in Tagen:							
3							

Assessment of the available catch results or the vector pressure in the areas of monitoring carried out:

- Detection of *Culex* spp. and *Sergentomyia spp. in* the monitoring period 05 Feb to 08 Feb.
- **Detection** of female ***Culex spp.*** in **very low density.** During the monitoring period, a **very low risk** of transmission of corresponding infectious agents (e.g. West Nile virus, Wuchereria bancrofti) can be assumed.
- **Detection** of female ***Sergentomyia spp.*** in **very low density**. Due to the assumed zoophilia of these mosquitoes, a **very low risk** of transmission of Leishmania can be assumed during the monitoring period.

***Population density of relevant female vectors (selection) during the monitoring period, related to the trap sites*:**

Monitoringzeitraum	weibliche Stechmücken	Fangort	Anzahl	max. temporäre, lokale Spitzenwerte: Anzahl ♀/ Falle/Fangnacht	Bewertung des Spitzenwertes	Durchschnitt Campbereich: Σ ♀ pro Σ Fallenfangnächte gesamt	Gesamt-bewertung
vom:	**Culex spp.** ♀	Sportzelt DF	68	32,00	sehr hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)	7,08	mittlere Dichte
12.02.2024		Sportzelt LF	2	2,00	geringe Dichte		
bis:		DFAC DF	15	7,00	mittlere Dichte		
15.02.2024							
Beobachtungszeitraum in Tagen:	**Sergentomyia spp.** ♀	Sportzelt DF	1	1,00	geringe Dichte	0,25	sehr geringe Dichte
3		DFAC DF	2	1,00	geringe Dichte		

Assessment of the available catch results or the vector pressure in the areas of monitoring carried out:

- Detection of *Culex* spp. and *Sergentomyia spp. in* the monitoring period 12 Feb to 15 Feb 2024.
- **Detection** of female ***Culex*** spp. in **medium density**. During the monitoring period, a **low risk of transmission** of corresponding infectious agents (e.g. West Nile virus, *Wuchereria bancrofti*) can be assumed.

***Population density of relevant female vectors (selection) during the monitoring period, related to the trap sites*:**

Monitoringzeitraum	weibliche Stechmücken	Fangort	Anzahl	max. temporäre, lokale Spitzenwerte: Anzahl ♀/ Falle/Fangnacht	Bewertung des Spitzenwertes	Durchschnitt Campbereich: Σ ♀ pro Σ Fallenfangnächte gesamt	Gesamt-bewertung
vom:	**Anopheles spp.** ♀	Sportzelt DF	1	1,00	geringe Dichte	0,08	sehr geringe Dichte
19.02.2024							
bis:	**Culex spp.** ♀	Sportzelt DF	59	37,00	sehr hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)	8,33	mittlere Dichte
22.02.2024		Sportzelt LF	14	12,00	erhöhte Dichte		
Beobachtungszeitraum in Tagen:		DFAC DF	27	19,00	erhöhte Dichte		
3							
	Culicoides spp. ♀	Sportzelt DF	2	1,00	geringe Dichte	0,17	sehr geringe Dichte
	Aedes vexans ♀	Sportzelt DF	1	1,00	geringe Dichte	0,08	sehr geringe Dichte

Assessment of the available catch results or the vector pressure in the areas of monitoring carried out:

- Detection of *Anopheles spp., Aedes spp., Culex spp., Sergentomyia* spp. and *Culicoides spp.* In the monitoring period 19 Feb to 22 Feb 2024.
- **Detection** of female ***Anopheles spp.*** in **low density.** During the monitoring period, a **very low risk** of transmission of malaria pathogens can be assumed.
- **Detection** of female ***Aedes vexans*** in **very low densities.** During the monitoring period, a **very low risk** of transmission of corresponding infectious agents (e.g. Rift Valley fever virus) can be assumed.
- **Detection** of female ***Culex spp.*** in **medium density.** However, in view of negative West Nile virus PCR detections over the last few years, a very low risk of transmission can be assumed even during the monitoring period. However, a **higher risk** must be assumed with regard to *Wuchereria bancrofti* filariae.
- **Detection** of female ***Sergentomyia spp.*** in **very low density.** Due to the assumed zoophilia of these mosquitoes, a **very low risk** of transmission of Leishmania can be assumed during the monitoring period.
- **Detection** of female ***Culicoides spp.*** (biting midges) in **very low density.** A **very low risk** of transmission of filariae (e.g. Mansonella perstans) can be assumed during the monitoring period.

Populationsdichtegraduierung Vektormonitoring	
bis 0,99	sehr geringe Dichte
1-4,99	geringe Dichte
5-9,99	mittlere Dichte
10-19,99	erhöhte Dichte
20-23,99	hohe Dichte
24-29,99	hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)
ab 30	sehr hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)

Vector monitoring in MINUSMA II

Legend:
The population density assessment is based on the following values:
max. temporary, local peak values as well as average camp area:
Σ per Σ ♀total nights of trapping

Source: German Armed Forces, Department of Microbiology and Hygiene, part of the Military Hospital in Koblenz.

***Population density of relevant female vectors (selection) during the monitoring period, related to the trap sites*:**

Monitoringzeitraum	weibliche Stechmücken	Fangort	Anzahl	max. temporäre, lokale Spitzenwerte: Anzahl ♀/ Falle/Fangnacht	Bewertung des Spitzenwertes	Durchschnitt Campbereich: Σ ♀ pro Σ Fallenfangnächte gesamt	Gesamt-bewertung
vom:	Anopheles gambiae-Komplex ♀	Sportzelt DF	1	1,00	geringe Dichte	0,08	sehr geringe Dichte
26.02.2024							
bis:	Culex spp. ♀	Sportzelt DF	140	72,00	sehr hohe Dichte; oberhalb der Seuchenschwelle (nach CDC)	15,58	erhöhte Dichte
29.02.2024		Sportzelt LF	1	1,00	geringe Dichte		
Beobachtungszeitraum in Tagen:		DFAC DF	46	18,00	erhöhte Dichte		
3							
	Sergentomyia spp. ♀	Sportzelt DF	1	1,00	geringe Dichte	0,08	sehr geringe Dichte
	Culicoides spp. ♀	Sportzelt DF	1	1,00	geringe Dichte	0,08	sehr geringe Dichte

Assessment of the available catch results or the vector pressure in the areas of monitoring carried out:

- **Detection** of female ***Anopheles spp.*** in **very low density**. A **very low risk** of transmission of malaria pathogens can be assumed during the monitoring period.
- **Detection** of female ***Culex spp.*** in **increased density**. During the monitoring period, **an increased risk** of transmission of corresponding infectious agents (e.g. West Nile virus, Wuchereria bancrofti) can be assumed.
- **Detection** of female ***Sergentomyia spp.*** in **very low density.** Due to the assumed zoophilia of these mosquitoes, **a very low risk** of transmission of Leishmania can be assumed during the monitoring period.
- **Detection** of female ***Culicoides spp.*** (biting midges) in **very low density**. A **very low risk** of transmission of filariae (e.g. Mansonella perstans) can be assumed during the monitoring period.

***Population density of relevant female vectors (selection) during the monitoring period, related to the trap sites*:**

Monitoringzeitraum	weibliche Stechmücken	Fangort	Anzahl	max. temporäre, lokale Spitzenwerte: Anzahl ♀/ Falle/Fangnacht	Bewertung des Spitzenwertes	Durchschnitt Campbereich: Σ ♀ pro Σ Fallenfangnächte gesamt	Gesamt-bewertung
vom:	Culex spp. ♀	Sportzelt DF	22	15,00	erhöhte Dichte	1,65	geringe Dichte
04.03.2024		Sportzelt LF	1	1,00	geringe Dichte		
bis:		DFAC DF	4	3,00	geringe Dichte		
07.03.2024		DFAC LF	1	1,00	geringe Dichte		
Beobachtungszeitraum in Tagen:							
3							

Assessment of the available catch results or the vector pressure in the areas of monitoring carried out:

- Detection of *Anopheles spp.,Culex spp., und Culicoides spp.*. In the monitoring period 04 Mar to 07 Mar.
- **Evidence** of a male ***Anopheles spp.*** A **very low risk** of transmission of malaria pathogens can be assumed during the monitoring period.
- **Detection** of female ***Culex spp.*** in **low density**. During the monitoring period, a **low risk** of transmission of corresponding infectious agents (e.g. West Nile virus, Wuchereria bancrofti) can be assumed.
- **Detection** of a male ***Culicoides spp.*** (biting midges). A **very low risk** of transmission of filariae (e.g. Mansonella perstans) can be assumed during the monitoring period.

Recommendations:
Continued consistent and optimized application of personal, specified protection and prophylactic measures (use of repellents, field blouses and long trousers from the afternoon onwards, insect protection on windows and doors or impregnated mosquito nets on the sleeping area). Continued continuous vector monitoring as well as identifying and removing (draining) potential mosquito breeding sites; If necessary, vector control measures (e.g. mosquito larvae control) at the OPA Niamey.

General Information:

Culex mosquitoes are known to transmit a number of pathogens, including, in Africa, Rift Valley fever virus, West Nile virus and Wuchereria bancrofti filariae. Culex mosquitoes of the “pipiens group” are generalists in terms of their occurrence, and their larvae have a high tolerance to water pollution, which is why they are also common in urban environments as “house mosquitoes”.

Aedes spp.: This large genus of culicines with over 900 species is of great medical importance. These include in particular the so-called yellow fever and tiger mosquitoes as carriers of numerous arboviruses, e.g. dengue, yellow fever, chikungunya and Zika viruses. In Africa, some Aedes species are also considered to be the main vectors of the Rift Valley fever virus, e.g. Ae. vexans. Aedes species are usually active during the day and can therefore hardly be avoided using bed nets.

Anopheles spp. are the sole vectors of the human malaria pathogen (Plasmodium spp.) in Africa and worldwide. The genus includes over 400 species, of which around 50 species worldwide can act as carriers of Plasmodium. Depending on the species, Anopheles mosquitoes breed in various water bodies such as river banks and ponds, but also in the smallest ponds and residual water bodies. Depending on the species, the flight radius is up to around 5 km.

Culicoides spp. Depending on the species, they can also sting humans. Known in the area of operation as a transmitter of rare human pathogenic parasitic filariae (Mansonella spp.).

Sergentomyia spp. usually do not sting humans as they are rather zoophilic. An increased occurrence is often associated with reptiles, but also rodents, settling there. A vector competence of Ser-gentomyia spp. for humans cannot be ruled out.

Other Infectious Disease Outbreaks and disasters – Asia

Lyme – India

On 13-Mar-2024, multiple news media sources reported one confirmed case of Lyme disease in the Ernakulam district in the southern state of Kerala, India. The affected individual is a 56-year-old male who presented to the hospital with a high fever on 06-Dec-2023. The patient presented with knee arthritis, neck stiffness, skin ulcers, and seizures. Blood samples were sent to the National Institute of Virology in Bengaluru and resulted positive for Lyme disease on 12-Mar-2023. The patient has since recovered from the initial illness following treatment for neurological Lyme disease.

There is limited information on the prevalence and distribution of Lyme disease in India. Gaps in knowledge include the lack of national or large-scale seroprevalence studies and the prevalence of vector species or animal reservoirs. Sporadic cases have been described in the literature from 1990 to 2018 with the majority of case studies located in the northern regions of India. The first document cases in Kerala state was reported in 2013 in Wayanad district (>200 km away from the current event) where a cluster of cases was identified among coffee plantation workers. Outbreak investigation identified an elevated risk due to the close proximity of forested land and expanding deer populations. High seroprevalence of the causative agent of Lyme, Borrelia burgdorferi, was reported in 2017 among forest workers in the Nagarahole and Bandipur forest ranges in the neighbouring state Karnataka. These forest ranges are adjacent to the Wayanad district at the north-east border.

Source: NewsMedia, NewsMedia, Journal, Study, Study

Nipah – Bangladesh –UPDATE-

On 27-Feb-2024, the World Health Organization (WHO) released additional information regarding the Nipah virus (NiV) cases reported in Bangladesh at the end of January 2024.

The WHO confirms the details of the 38-year-old male from Manikganj district, Dhaka division, reported to have died due to NiV infection. Including that this individual had a history of consuming raw date palm sap and that all 90 close contacts under monitoring have tested negative for NiV by PCR or anti-NiV IgM by ELISA. No further details have been provided by the WHO or news media about the death of the 27-year-old also from Manikganj district, who was suspected to have died due to NiV infection.

The WHO does provide details about a second confirmed death due to NiV infection in Shariatpur district, Dhaka division. The deceased is a three-year-old female who regularly consumed fresh raw date palm sap and died on 31-Jan-2024 after admission to a hospital isolation ward in Dhaka city. All 67 close contacts under monitoring tested negative for NiV by PCR or anti-NiV IgM by ELISA.

There are no vaccines or licensed treatments available for NiV disease. However, on 11-Jan-2024, the University of Oxford announced the launch of the first-in-human vaccine trial to test the efficacy of the ChAdOx1 NipahB vaccine. This vaccine uses the same viral vector vaccine platform used for the Oxford/AstraZeneca COVID-19 vaccine.

Source: WHO, Ox.Ac.UK

Avian Influenza - Hong Kong

On 21-Feb-2024, the Centre for Health Protection reported an avian influenza H9 case in Hong Kong in a 22-month-old child with no known exposure to poultry. However, the specific subtype description was pending.

An update statement from public health said that the influenza subtype identified by genome sequencing resulted in influenza A H9N2 virus of avian origin. Importantly, the virus showed no reassortment with genes of human influenza origin.

It also showed sensitivity to oseltamivir, an antiviral medication used to treat and prevent influenza A and B.

The statement also added that the infected individual's clinical condition has improved and that the nasopharyngeal aspirate sample from the home contact, which experienced upper respiratory tract infection symptoms, tested negative for influenza A virus.

This event is consider to be of low concern at the local and regional levels given:

- No new close contacts have experienced symptoms compatible with the disease and/or tested positive for influenza.
- While close contacts and other individuals who could have been exposed to the virus should continue to be monitored, there is no evidence of sustained human-to-human transmission.
- The source of exposure remains unknown. With unidentified sources of infection, implementation of prevention and containment measures becomes limited.
- Any disease activity about avian influenza should be monitored closely due to the disease's potential to cause significant disruption.

Source: ProMed

Dengue - Indonesia

In 2024, dengue (dengue hemorrhagic fever) cases are increasing in Indonesia with a total 15 977 cases including 124 deaths (case fatality rate (CFR) = 0.78%) reported nationally as of week eight (25 February 2024).

This compares to 6 938 cases including 50 deaths (CFR=0.72%) reported during the same period in 2023. A total of 114 435 cases including 894 deaths (CFR=0.78%) were reported in 2023.

Dengue - Thailand

During February 2024 (as of 28 February), a total of 5 235 dengue cases (inclusive of dengue (n=3 818, 72.9%), dengue hemorrhagic fever (DHF) (n=1 382, 26.4%) and dengue shock syndrome (DSS) (n=35, 0.7%)) and three dengue deaths (DSS=2 and DHF=1) were reported in Thailand.

During 2024, (as of 28 February) a total of 16 319 cases including 16 deaths (CFR=0.1%) have been reported. This is 2.1 times the number of cases (n=7 832) cases and 1.6 times the number of deaths (n=10) reported during January and February in 2023

Source: WHO SEAR

Other Infectious Disease Outbreaks - Americas

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Yellow Fever - Colombia

On 17-March-2024, a publication from Health.IO highlighted that Colombia's Ministry of Health obtained at least three laboratory-confirmed cases of yellow fever across rural areas in the department of Putumayo, located in the south-west of the country, bordering Ecuador and Peru. Available information indicates that all affected individuals worked in agriculture, had an unknown status of yellow fever immunization, and no recent history of displacement or travel. These cases were notified to the national dengue and leptospirosis surveillance.

Similar to other Latin-American countries, Colombia is experiencing upward trends on dengue disease activity, which is also transmitted by *Aedes spp* (yellow fever vector). Co-circulation of arboviruses increases the chance of misdiagnosis or delays since the initial symptomatology is non-specific, while it also requires more specific and available laboratory tests. There are concerns of further yellow fever spread not only within Colombia, but across bordering countries such as Peru and Bolivia which are experiencing unprecedented dengue upward trends.

Source: NewsMedia, NewsMedia

Oropouche - Bolivia

There is limited information about at least four recent cases with laboratory confirmation of Oropouche virus (OROV) infection. Local media reports indicate that all cases have been found in the department of El Pando, in Northern Bolivia. Additionally, these reports indicate that all samples were taken from cerebrospinal fluid and were sent to a central laboratory in Brazil. Presumably, all individuals therefore developed aseptic meningitis.

There is limited information around previous outbreaks in Bolivia. Similar to other countries in the region, outbreaks have generally been identified by retrospective population-based or laboratory epidemiological studies.

Given that its clinical presentation is similar to other arboviral infections, that there is no systematic surveillance of cases, and that laboratory diagnosis is not widely disseminated, it is possible that the true burden of the disease in Bolivia is underestimated.

Source: ProMed, NewsMedia

Dengue – Peru

The Government of Peru declared a health emergency in 20 regions of the country for a period of 90 days due to a sharp increase in dengue cases. The country experienced a similar situation last year when disease activity surpassed healthcare capacity. So far this year, the country has registered over 31,000 dengue cases. This represents a 105% increase compared to the same time period last year when the country registered over 15,000 cases in the country's largest historical outbreak of dengue. According to health officials, this declaration of a health emergency will allow for a higher budget to be allocated towards the healthcare system in the most affected regions.

The regions in which the state of emergency is being declared are Amazonas, Áncash, Ayacucho, Cajamarca, Cusco, Huánuco, Ica, Junín, La Libertad, Lambayeque, Lima, Loreto, Madre de Dios, Pasco, Piura, Puno, San Martín, Tumbes, Ucayali, and the constitutional province of Callao.

Media sources have also stated that of the dengue serotypes circulating, the most common is serotype 1 (54.57%), followed by serotype 2 (43.29%), and serotype 3 (2.14%).

Source: PAHO

Dengue in Uruguay

On 05-Mar-2024, health authorities confirmed the second case of locally-acquired dengue fever in Uruguay, diagnosed in Montevideo, the nation's capital and largest city. Health officials specify that this second case involves the DEN-1 variant, contrasting with the DEN-2 variant observed in the first case. The detection of both serotypes circulating in the country is significant, indicating potential risks for infection and complications, especially as it marks the occurrence of two locally-acquired cases and may elevate the overall disease burden.

Source: NewsMedia

Plague - United States

After the case of human plague contracted by a cat, was confirmed in rural Oregon in February 2024. On March 8, 2024 New Mexico Department of Health (NMDOH) announces a Lincoln County man has died of plague after being hospitalized for the disease. The case is the first human case of plague in New Mexico since 2021 and the first death since 2020.

According to the CDC an average of seven human plague cases are reported each year in the USA.

The bubonic plague is the most common form of the plague and is characterized by painful, swollen lymph nodes known as "buboes." While not totally eradicated, "human to human transmission of bubonic plague is rare," according to the WHO. Typically, the plague spreads from infected animals to humans through contaminated blood, often via a scratch from an infected house pet or during the handling of a hunted animal.

Source: NMHealth, NewsMedia, NewsMedia

Measles – Canada

As of 8-Mar-2024, there are 19 measles cases reported across four provinces of Canada (British Columbia, Ontario, Quebec, and Saskatchewan), according to media and official sources.

Most recently, on 7-Mar-2024, two additional cases of measles were confirmed in Montreal, bringing the total number infected in Quebec to 12. The Montreal Regional Public Health Department confirmed that both cases were due to community transmission. Additionally, of the nine cases reported in Montreal, just three are reported to have been linked to international travel.

In Ontario, most cases have been linked to international travel with the exception of the case reported in Newmarket, York Region, Ontario on 29-Feb-2024. This case was in a man in his 30s who had no recent history of travel and had not been in contact with anyone who was symptomatic. Additionally, the individual was fully vaccinated against measles. This case is of concern, as the confirmation of measles in a fully vaccinated individual with no known exposure history suggests that there may be a high level of community transmission ongoing.

Measles cases in Canada in 2024 have already exceeded the total number reported in 2023 (12 cases). The 2023 adult National Immunization Coverage Survey conducted by the Public Health Agency of Canada found that across Canada, 87.4% of adults 18 years of age and older had received at least one dose of a vaccine against measles (87.4% in Ontario, 86.4% in Quebec, 86.7% in British Columbia, and 89.8% in Saskatchewan). The 2021 childhood National Immunization Coverage Survey showed that 91.6% of 2-year-olds in Canada have received at least one dose of a vaccine against measles and 79.2% of 7-year-olds had received two doses.

Source: GovCan, NewsMedia

Measles – United States Update

As of 6-Mar-2024, there are at least 52 measles cases across 16 jurisdictions and states within the U.S., according to media and official sources. From our most recent assessment on 27-Feb-2024, there are 17 additional measles cases, and a new reporting state: Michigan.

Source: NewsMedia, NewsMedia

Other Infectious Disease Outbreaks - Africa

Source: WHO

Measles - Mauretania

Mauritania is currently grappling with a measles outbreak that has escalated since the beginning of 2024. Three additional Moughataas (districts) – Atar, Nouadhibou, and Ould Naga– surpassed the epidemic threshold in week 7 of 2024, joining Zouerate and Birr Oumgrein, which crossed the threshold in the preceding week. This brings to 17 the total number of willayas currently experiencing the outbreak.

The observed increase in cases is concerning as it highlights a rapid spread across the nation. The response to the measles outbreak faces several challenges, including a delayed measles follow-up campaign expected since 2023 and a low national vaccine coverage. The functionality of isolation units for suspected cases in health centers is suboptimal, and there is a lack of sensitization to vaccination in remote areas and among special populations. Additionally, the country's multiple border crossings complicate control efforts, and there is insufficient data reporting from some health facilities.

Poliomyelitis (cVDPV2) - Zimbabwe

Zimbabwe is currently responding to an outbreak of a circulating Vaccine Derived Poliovirus type 2 (cVDPV2). The cVDPV2 outbreak was first detected through Environmental Surveillance (ES) in October 2023 in Harare City. In total, there are three human cases of vaccine deprived polio type 2 (cVDPV2) . The first human case of cVDPV was detected in Sanyati district through Acute Flaccid Paralysis (AFP) surveillance; two cVDPV2 isolates were detected from healthy children whose samples were collected as part of the initial detailed outbreak investigation. The country is now responding through strengthened routine immunization, enhanced surveillance and nOPV2 vaccination campaigns. First round of the nOPV2 campaign was conducted from 20 to 23 February 2024.

Cholera – United Republic of Tanzania

The ongoing cholera outbreak in Tanzania, which began in September 2023, persists. On 26 February 2024, 42 new cases and no deaths were reported across four regions: Mwanza (30 cases), Simiyu (6 cases), Shinyanga (4 cases), and Kagera (2 cases). From 23 December 2023 to 26 February 2024, a cumulative total of 1 317 cholera cases, including 26 deaths (CFR 2.0%), were recorded across ten regions, namely Dodoma, Katavi, Kagera, Manyara, Morogoro, Mwanza, Simiyu, Singida, Shinyanga, and Tabora.

The challenges in addressing the current cholera outbreak in Tanzania include insufficient funds for response activities, limitations in WASH facilities, poor road infrastructure hindering access to affected areas, and inadequate supply of clean water. Additionally, low latrine coverage and nomadic communities contribute to water contamination, while limited engagement of community leaders affects awareness and prevention efforts. There's also a lack of knowledge about water treatment methods among affected communities. Addressing these challenges requires increased funding, infrastructure development, community engagement, and education on cholera prevention measures.

Crimean-Congo hemorrhagic fever – Uganda

According to the Week 4 epidemiological bulletin from Uganda, there is an ongoing outbreak of Crimean-Congo hemorrhagic fever in Kampala and Lyantonde. The outbreak was identified through routine surveillance of viral hemorrhagic fever. As of 5 February 2024, a total of 13 cases have been reported, including five confirmed cases and four deaths, resulting in a case fatality ratio of 30.8%.

Rift Valley Fever - Comoros

An unusual disease outbreak began in the Comoros around late October 2023. 471 suspected cases hospitalized distributed between Ngazidja and Moili, in nine health districts. Symptoms included flu-like illness and gastroenteritis; 2% had meningoencephalitis, epistaxis, and petechiae. 16 blood samples were taken from these cases for biological analyses and lab results ruled out dengue, Rift Valley fever, influenza, and COVID-19. Mohéli Island also reports cattle and goat deaths. As of January 5, 2024, four samples (3 cattle, 1 human) tested positive for past RVF infection but negative for IgM. Further investigation continue.

Dengue and Zika - Mali

On 9 September 2023, the Malian Ministry of Health reported a case of dengue in a 44-year-old female resident of Bacodjicoroni Golf, commune V, Bamako district. The case had onset of symptoms on 31 August 2023. On 9 September 2023, the sample collected from the case was confirmed positive for dengue virus by real-time polymerase chain reaction (RT-PCR) at the University Clinical Research Center (UCRC) laboratory. As of 7 January 2024, 5 532 suspected cases, including 846 confirmed cases and 34 deaths have been reported.

On 6 December 2023, the Ministry of Health of Mali reported 12 cases and zero deaths of Zika virus disease confirmed by real time polymerase chain reaction (RT-PCR) at the Molecular and Genomic Biology Laboratory of the University Center for Clinical Research (UCRC) of Point G. Three cases were confirmed on 1 December 2023 and nine cases on 4 December 2023. As of 24 December 2023, a total of 22 confirmed cases and zero deaths were reported from 10 health districts in Koulikoro region (9), Sikasso region (1), and Bamako district (12).

Malaria in Ethiopia

Ethiopia has been grappling with malaria outbreak since 2022. Cumulatively in 2024, from 1 January to 11 February, a total of 525 790 malaria cases and 120 deaths were reported nationwide (CFR 0.02%). Most malaria cases, over 70.0%, were reported from four regions: Oromia (35.5%), Amhara (19.5%), Southwest Ethiopia (SWEPRS) (11.8%), and South Ethiopia (10.3%).

Malaria prevention and control efforts are facing significant challenges stemming from various factors within the political, social, economic, and natural factors. For instance, the ongoing internal conflict in certain regions of the country has impacted the healthcare system, displacement of healthcare workers, damage to and non-functionality of health facilities. Additionally, road blockades have impeded the last-mile delivery of anti-malarial medications and other essential supplies. Natural hazards like droughts and floods exacerbate the situation, alongside other disease outbreaks including cholera, measles, dengue fever, and COVID-19.

Measles in Uganda

Kyenjojo District in Kitega sub county in the Western region of Uganda reported a measles outbreak at the beginning of 2024, adding to the ongoing measles outbreak in Uganda which has affected two regions Kyenjojo and Kasese in the Western region and Arua and Obongi in the Northern regions. As of 4 February 2024, a cumulative 139 (47.9%) suspected cases had been reported with two suspected deaths (CFR 2.5%).

A very Low vaccination coverage, for the second dose of measles vaccines throughout the district, with most catchment areas recording zero coverages, could also be a risk for outbreak spread. Insufficient funds for community-based active case search and training gap of health workers have also been a concern.

Other Infectious Disease Outbreaks – Middle East/Europe

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Measles - United Arab Emirates

Exported cases of measles (origin in the United Arab Emirates (UAE)) have been confirmed across at least three different geographies since early December 2023:

1. **Israel**: On 15-Dec-2023, the Ministry of Health in Israel indicated that an individual arriving in Tel Aviv's Ben Gurion Airport on 09-Dec-2023 from Dubai, UAE had tested positive for measles.
2. **Japan**: On 08-Mar-2024, The Japanese Minister of Health, Labor and Welfare reported two confirmed cases of measles amongst individuals who arrived at Osaka's Kansai International Airport on 24-Feb-2024 aboard a flight from the UAE, with the initial case in Higashi-Osaka City reported on 01-March-2024. This was followed by at least seven secondary local infections confirmed in Osaka prefecture in Japan. The second and most recent case was confirmed on 08-March-2024, a woman in her 20s who was on that same flight, had received just one does of a measles vaccine and is currently hospitalized in Tokyo.
3. **Ireland**: On 12-March-2024, health authorities in Ireland confirmed a measles case among an individual who was onboard on a flight from Abu Dhabi and arrived in Dublin on 09-March-2024.

These implies that there is an undetected level of measles transmission in the UAE that is allowing for exportation of cases.

There is limited official information available in regard to current measles vaccine coverage in the UAE. The most recent official information indicates that UAE had a 98% measles coverage in 2022 and at least five confirmed cases in the same year.

Source: NewsMedia, NewsMedia, NewsMedia

Poliomyelitis – Pakistan

A child has been paralyzed by wild poliovirus type 1 (WPV1) in Dera Bugti district of Balochistan, marking the first polio case of 2024 and the first in Dera Bugti in nearly 13 years. Last year, six polio cases were reported in the country.

Two nationwide polio vaccination campaigns have already been conducted in 2024 vaccinating more than 45.4 million children under five and following this detection the Programme has planned a case response starting from March 26 in affected districts.

Separately, 10 environmental samples collected during February 19 to February 21 have also tested positive for WPV1 from six districts – five from Karachi East and one each from Karachi South, Nasirabad, Quetta, Dera Bugti, Dir Lower, bringing the total number of positive samples to 56 in 2024.

Sources: Reliefweb

Measles - Romania

Health officials in Romania continue to report an increasing number of measles cases within the country. Since 2023, over 74% of the confirmed measles cases reported to the ECDC have been from Romania.

From 01-Jan to 10-Mar-2024 5,125 confirmed cases and five deaths due to measles have been reported.

All 40 counties and the Municipality of Bucharest have reported cases of measles. Counties with the highest incidence include Brasov (251.20 cases per 100,000 population), Mures (194.14 cases per 100,000 population), and Covasna (171.30 cases per 100,000 population).

Of the 8,020 affected individuals, 82.6% (6,626) are unvaccinated.

In February 2023, the Romanian National Center for Surveillance and Control of Communicable Diseases conducted a study to estimate vaccination coverage of second-dose MMR in children who were five-years of age (born in 2017). They estimated that no county had a second-dose MMR vaccination coverage at or above 95%. Only Covasna County had a second-dose MMR vaccination coverage above 80%, all other counties were below 80% (the lowest being Hunedoara county with 40% second-dose coverage).

This week, Romania's neighbouring country of Moldova reported an outbreak of measles amongst Ukrainian refugees at a migrant centre, which highlights the immunity gaps in refugee populations. Romania is experiencing large immunity gaps within its population and has also accepted a large number of refugees; this stresses the need for increased vaccination and increases the risk of importation/exportation of cases to other regions.

Source: GovROU, MinistryROU, ECDC

Psittacosis – European region

In February 2024, Austria, Denmark, Germany, Sweden and The Netherlands reported an increase in psittacosis cases observed in 2023 and at the beginning of 2024, particularly marked since November-December 2023. Five deaths were also reported. Exposure to wild and/or domestic birds was reported in most of the cases.

The concerned countries have implemented epidemiological investigations to identify potential exposures and clusters of cases. Additionally, implemented measures include the analysis of samples from wild birds submitted for avian influenza testing to verify the prevalence of *C. psittaci* among wild birds.

The World Health Organization assesses the risk posed by this event as low.

Source: WHO