Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Measles outbreak in American Samoa: Alarm to strengthen vaccination post COVID-19 pandemic

On April 24, 2023, the Ministry of Health of American Samoa reported a measles epidemic after 31 suspected or probable cases and one confirmed case of the illness [1]. An 8-year-old child with illnesses starting on April 18 was the first case of measles, according to health officials. On April 28, 2023, they identified the second case of measles in a 4-year-old Tafuna child who attended the same school as the first case [2]. The cases were infants less than six months old, 53% of whom were male and 47% of whom were female (Fig. 1). The most likely ages of patients vary from two months to 13 years, and the majority of them are still young enough to get the MMR vaccine (measles, mumps, and rubella). The governor of American Samoa announced a public health emergency and instructed all schools and childcare centres to suspend classroom teaching for three weeks. Department of Education, which serves 12,000 students, has shut down schools until May 12, 2023 [3]. Parents have been told to pick up their virtual learning packs and food, if they are qualified, from schools. To get more people in the area to get vaccinated, the ministry held mass vaccine events for babies and children older than six months. Anyone who tests positive for measles or has been exposed to it must stay away from other people for 21 days [3]. As of May 3, 2023, there were 52 possible cases and 2 proven cases [1,4].

In 2019, a significant measles outbreak emerged in American Samoa. Samoan Ministry of Health was the first of Pacific island nation to declare an outbreak of Measles on October 16, 2019 admist of the global measles resurgence. As of January 22, 2020, there have been reported 5707 measles cases and 83 measles-related fatalities (an approximate attack rate of 285 cases per 10,000 people) [5]. Majority of the deaths (approx. 25 deaths per 10,000 individuals) old were attributed in children <5 years. A decline in child MMR immunization coverage below the WHO-recommended 95% needed to maintain herd immunity, global measles virus spread, increasing travel among affected countries and vaccine hesitancy caused this measles epidemic. After two vaccine-related pediatric deaths, the immediate suspension MMR vaccines in National Immunization Programme, related to community mistrust in vaccination safety contributed to vaccine hesitancy [6].

Over 1.7 million children in 28 countries and territories of the Americas had not received the first MMR vaccine in 2021, according to estimates. According to the Department of Health, American Samoa, regional coverage in the Americas was 85% in 2021 and 89% as of April 22, 2023. The recommended immunization rate is 95% [4,6]. Measles may spread in places with vaccination rates below 90%. Samoa's current MMR vaccination effort aims to reach 95% for the first dose and 80% for the second by June. The program aims for 100% school-age kid coverage [3]. Department of Health established 17 island-wide mass immunization locations in response to the current outbreak [7].

Samoan authorities confirmed that beginning May 1, 2023, American Samoans entering the country must be vaccinated and show evidence of vaccination before boarding. Section 29 of the Health Ordinance of 1959 mandates the Ministry of Health to strongly recommend immunization [8]. The new regulation applies to 6-month-old children. A single dosage is necessary for children aged 6–15 months. Between 15 and 24 months, two dosages are required. Infants under 6 months and pregnant women are excluded from this requirement. "All passengers should have completed 2 weeks (14 days) post-vaccination before travel and No boarding or entry into Samoa will result from failure to provide a valid vaccination certificate or meet the above conditions'' states the Samoan Ministry of Health. All passengers must wear face masks and are strongly advised to take preventive measures within the first seven days of arrival. Health officials at the airport may request a Nasal Pharyngeal Swab for PCR testing from passengers and have communicated to communities that if anyone in the house has these symptoms, get medical help right once and tell the doctor or nurse about your recent travels [4,8].

Measles is a severe, extremely contagious illness induced by a virus. The measles virus (MV) belongs to genus Morbillivirus of the family Paramyxoviridae. It is an enveloped, single-stranded nonsegmented, negative-sense RNA virus [9,10]. It is typically transmitted through direct contact and airborne. The virus infects the respiratory system before spreading to the rest of the body. Human disease has been documented, never reported in animals. Prior measles vaccine availability in 1963, measles attributed 2.6 million deaths annually. Measles mortality has been drastically reduced due to accelerated immunization efforts. Vaccination against measles prevented an estimated 23.2 million fatalities between 2000 and 2018. A seventy-three percent reduction in global measles fatalities has been documented between 2000 and 2018, from an estimated 536,000 to 142,000 deaths. In many developing nations, measles is still prevalent, particularly in sections of Africa and Asia [10].

Anyone who is not immune (has not been vaccinated or was vaccinated but did not develop immunity) is susceptible to infection Young children and Pregnant women who are not vaccinated are most susceptible to measles and mortality due to its complications. Measles is one of the most contagious diseases and is transmitted through sneezing, coughing, intimate personal contact, or contact with infected nasal or pharynx secretions. The virus remains active and contagious in the air or on infected surfaces for up to 2 hours [10]. In most cases, the first symptom of measles is a high grade fever that begins 10–12 days' post exposure and lasts for 4–7 days. Other symptoms may include a runny nose, red and watery eyes, cough, and small white patches on the inner side of the cheek. The rash appears on average 14 days after virus exposure (Incubation period range 7–18 days). A rash typically appears on the face and upper neck, then the rash extends to the hands and feet in next 3–4 days. The rash persists for five to six days before fading away.

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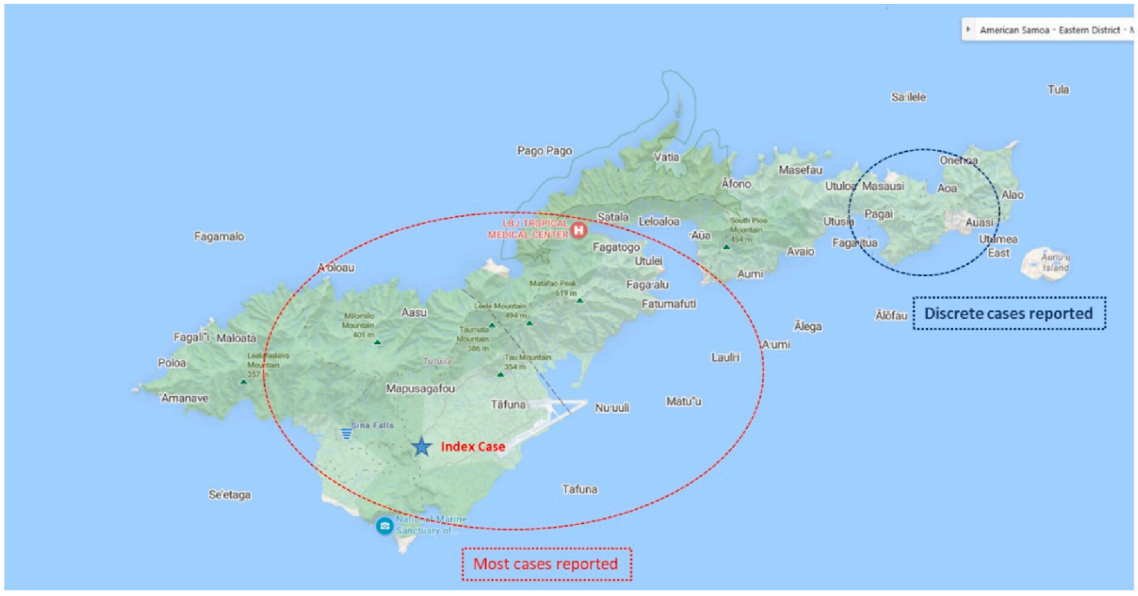

Fig. 1. Graphical representation of 2023 measles outbreak situation in American Samoa (Adopted as per American Samoan Office of Public Information presentation available at https://www.kvzktv.com/post).

Measles disease's complications lead to most deaths. Children under 5 and adults over 30 have more serious consequences. Pneumonia, severe diarrhoea and dehydration, ear infections, encephalitis, Blindness are the most serious consequences. Malnourished children especially those with vitamin A deficiency, HIV, or impaired immune system, are more likely to get severe measles [10].

No antiviral therapy exists for the measles virus. Supportive therapy with appropriate balanced diet, fluid intake, and WHO-recommended oral rehydration solution (ORS)using helps minimize measles complications. ORS restores fluids and other essentials lost via diarrhoea or vomiting. Antibiotics should treat eye, ear, and pneumonia infections. Vitamin A supplements should be given in two doses, 24 hours apart. This medication recovers low vitamin A levels in well-nourished children during measles, preventing eye damage, blindness, and measles-related deaths [10].

Anyone who has had measles or received two MMR vaccines is immune. Measles vaccination protects 93% and 97% after one and two doses, respectively. The first dose is given between 12 and 15 months, and the second between 4 and 6 years of age [5]. Global measles mortality may be reduced through routine child vaccination and large immunization programs in areas with high case and death rates. India, Nigeria, and Pakistan contributed for 6.1 million of the projected 19.2 million babies without a measles vaccination in 2018. High vaccination rates can limit measles but diminishing vaccination rates worldwide have enabled it to spread in previously eradicated regions. Measles and Rubella Initiative (M&R Initiative), launched in 2001 aims to eliminate measles deaths and congenital rubella syndrome. The initiative helps nations plan, finance, and assess measles and rubella elimination [10].

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