

World Health Report

March 2019



MEASLES | Outbreaks continue to spread worldwide...



Japan has joined many countries around the world in declaring the worst measles outbreak in over 10 years. A total of 167 cases were reported in 20 of Japan's 47 prefectures since the beginning of the year, with the largest outbreaks in the prefectures of Mie and Osaka.

Almost all of the 49 reported cases in Mie prefecture were people connected to a religious group that promotes alternative healing, while shunning antibiotics and vaccines in favour of naturally farmed food. The outbreak in Osaka was centred on a Valentine's Day festival that resulted in 21 confirmed cases.

While Japan is one of the world's richest countries, with a strong health system, it has relatively high levels of infections of diseases that could be prevented by vaccines. A vaccine for measles, mumps and rubella was discontinued in the early 1990s after it was linked to aseptic meningitis. Since then, the government has had a wary attitude toward promoting vaccines. That has changed somewhat in recent years though, and in 2006, Japanese health officials began recommending a second measles vaccination shot for children to increase immunisation rates.

The **Philippines** continues to report a steady growth in the number of cases and deaths this year, with the virus spreading beyond Manila to other parts of Luzon, the country's most populous island. In the first six weeks of 2019, more than 9,000 cases were reported, including 146 deaths.

In Europe's **French Alps** there have been unusually high numbers of measles cases reported, including 18 cases in the last few weeks in the popular ski destination of Val Thorens. Most cases have occurred in young adults residing in the resort for seasonal work.

Meanwhile, the **US** is tackling a growing number of cases in Texas, New York and Washington, with over 120 cases reported so far this year. Those outbreaks have prompted a drive to vaccinate children in places where parents have broader choice over such decisions. There appears to be a growing influence over the decision - 'whether or not to vaccinate?' by 'Anti-Vaxxer Groups' that proliferate on the very influential search engines on Facebook.

There are currently a total of 66,000 cases of measles reported in **Madagascar** but this is likely to be a gross underestimate - of these at least 922 children and young adults have died since the start of the outbreak in October 2018. The WHO has mounted an emergency vaccination program but in a country with the highest rate of children's malnutrition in Africa, this is a massive undertaking. Madagascar plans to standardise on a routine two-dose vaccination programme later this year.

Before travel, check that you are fully protected against measles (i.e. a known history of past infection or a record of two doses of a measles containing vaccine).

MEASLES | Isn't it just a childhood infection that spreads around schools and nurseries?

Well, no it isn't! Measles is one of the most contagious diseases in the world.

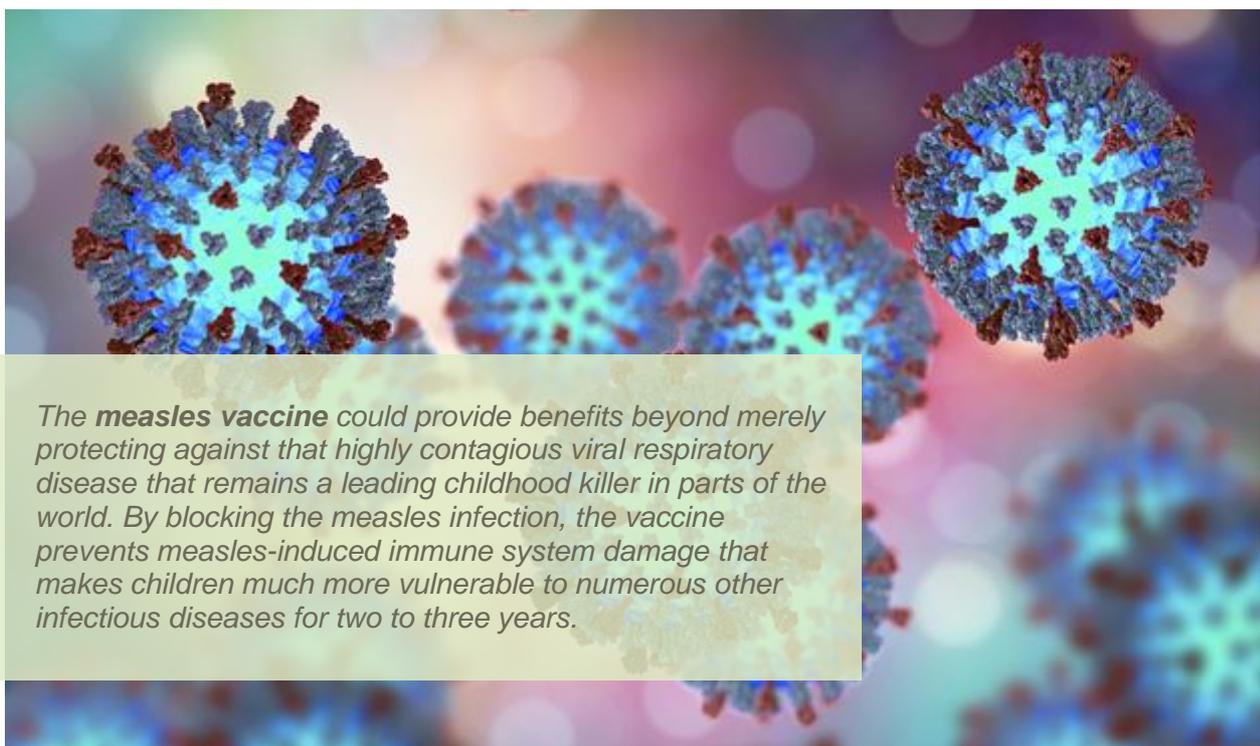
A person with measles is highly infectious for five days before symptoms develop and up to five days after the characteristic rash develops. It is an airborne disease that is spread through coughs and sneezes of infected people, just like a 'cold'. However, unlike a cold and other viral airborne illnesses, the virus remains in the air of the room for a further two hours once the infected person has left!

In epidemiology, infectivity is measured as a ratio called the basic reproduction number or R_0 ('r nought') of an infection. It can be thought of as the number of cases that one case generates on average over the course of its infectious period, in an otherwise uninfected population.

The measles R_0 ratio (measure of infectivity) rests between 12-18, multiples higher than the next most infectious diseases such as diphtheria, smallpox (now eliminated) and polio with ratios between 5-7. SARS, influenza and Ebola are much lower with ratios between 2-5. Remember, the higher the number, the more infectious the disease.

However, following ground breaking research, what has recently become apparent is that the measles virus is particularly dangerous because it destroys the body's 'immune memory'. Consequently, the body's immune system no longer "remembers" how to fend off previously encountered pathogens. It is now known that this lasts for between two to three years, much longer than the month or so that was previously assumed. During this extended period, children who get measles are more likely to die from other infections due to this long-lasting depletion of immune memory cells caused by the virus. The work also demonstrates that, in highly developed countries, prior to the introduction of measles vaccine, measles may have been implicated in over 50% of all childhood infectious disease deaths.

For every 1,000 children who are infected with measles there are one to two deaths, but there is also at least one child who becomes severely immunocompromised and who will die from other infections. It is estimated that, around the world, 90,000 children die of measles related illnesses every year.



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*The **measles vaccine** could provide benefits beyond merely protecting against that highly contagious viral respiratory disease that remains a leading childhood killer in parts of the world. By blocking the measles infection, the vaccine prevents measles-induced immune system damage that makes children much more vulnerable to numerous other infectious diseases for two to three years.*

VENEZUELA CRISIS | Could this be the focus of a new mosquito-borne epidemic in Latin America?



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There is an epidemic waiting to happen if the international community cannot intervene and urge the Venezuelan government to take urgent action to halt the worsening epidemics and prevent their expansion beyond Venezuelan borders.

The healthcare system in Venezuela is in a **state of breakdown** as a result of the political turmoil that has led to almost total economic collapse. Oil is the main export that drives the Venezuelan economy, but when oil prices fell the nation began to struggle. More than three million Venezuelans have left the country in the last three years including many doctors, nurses and other healthcare workers. As a result, the public health system has collapsed, and there is an acute shortage of vital medicines, as well as widespread essential food shortages. The Venezuelan government has denied entry at its borders to hundreds of tonnes of humanitarian aid, including food, hygiene and medical kits, from the US, Brazil and Colombia.

This has left the country in the grips of a potentially devastating epidemic of diseases such as malaria, dengue and Zika, and the neighbouring Latin American countries at risk of surrendering all the public health gains of the last 20 years.

Venezuela was once a regional leader in malaria control and was declared malaria-free in 1961. However, malaria cases rose from 30,000 to 136,000 between 2010 and 2015, and then surged to over 400,000 between 2016 and 2017, because of a decline in mosquito control and a shortage of antimalarial drugs. Now the country is facing the mass departure of trained medics on an unprecedented scale.

The epidemic has been intensified by the rise of illegal mining in the jungle near the southern border with Brazil, where reservoirs of the disease survived despite its official elimination nationwide. Venezuelan workers had flocked to the area in recent years to dig and pan for gold in wildcat mines, as the economy collapsed and hyperinflation eroded salaries for professionals and workers. Stagnant water in pits and unsanitary camps provided a perfect breeding ground for mosquitoes, and malaria was soon endemic at many of the mines. Some miners and their families have endured dozens of bouts of the disease. The transitory nature of mining work means the area's problems have gradually affected vast swathes of the country, as infected workers took the disease home with their gold, reintroducing malaria to areas where it had been previously eradicated.

These diseases have already extended into neighbouring Brazil and Colombia, and with increasing air travel and human migration, most of the Latin American and Caribbean region as well as some US cities, such as Miami and Houston, that are centres for the Venezuelan exodus, are at heightened risk for disease re-emergence. Dengue has risen more than fivefold between 2010-16. Six increasingly large epidemics were recorded between 2007 -16, compared with four in the previous 16 years. There were an estimated two million suspected chikungunya cases in 2014, more than 12 times the official estimate.

SLEEPING SICKNESS | Proposed eradication of the Tsetse fly throws up a moral dilemma

The **tsetse** (pronounced “TET-see”) fly is a blood sucking insect that transmits a parasite into the blood of its victims - both human and animal. This parasite travels, over weeks or months, into the nervous system of the victim resulting in a steep decline marked by disrupted sleep patterns, depression, aggression, psychotic behaviour and, if left untreated, death. This illness is known as “sleeping sickness” and is a nasty debilitating disease that is endemic to sub-Saharan Africa, both in humans and animals including livestock.

Sleeping sickness is classified by the World Health Organisation (WHO) as one of the ‘Neglected Tropical Diseases’ - this classification is an attempt to keep less exotic diseases in the spotlight. Sleeping sickness is near the top of the WHO’s list for elimination. This goal is on track for the end of 2020 due to a multinational effort that has reduced the incidence of disease from 26,000 in the year 2000 to just over 2,000 in 2016. During that same period the population of the tsetse fly dropped by almost two thirds.

At this critical juncture in the fight for elimination of the disease, ethical questions are being posed as to whether it is morally appropriate to eradicate an entire *taxonomic* family that consists of 31 species and subspecies of ‘fly’ native to Africa - this is the stated goal of the African Union’s campaign.

There are conflicting interests in the eradication the tsetse fly. On the one hand, for example, tsetse flies can be devastating for livestock as well as people; eliminating these insects on the island of Zanzibar made it possible for many more small farmers there to keep cattle, and thereby raise their income by 30 percent. On the other hand, getting rid of tsetse flies can lead to increased cattle encroachment into natural areas where they conflict with wildlife.



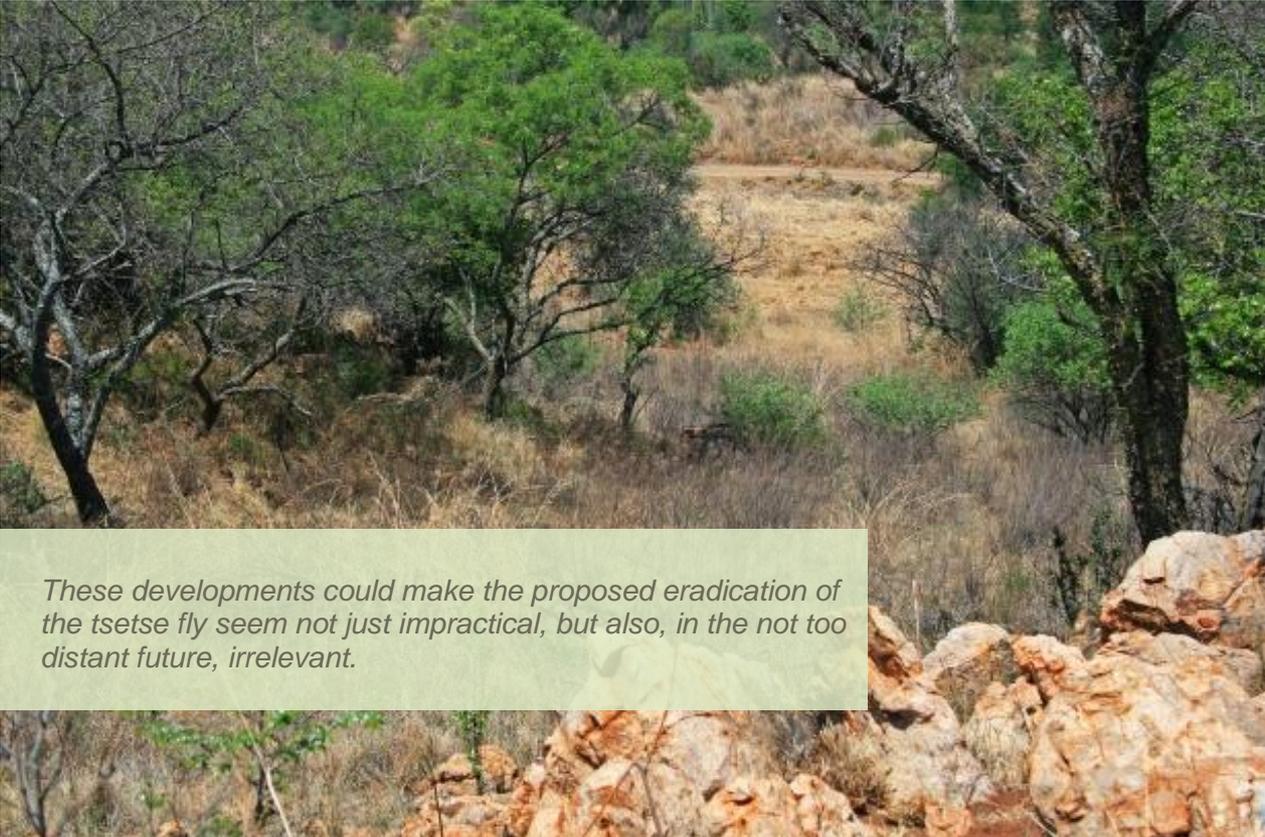
There are plenty of examples around the world where a change in the ecosystem has not necessarily been for the best. It may seem logical to eliminate leopards from a national park in the middle of the densely populated city of Mumbai that has grown around the park to number over 20 million people. However, it turns out that the leopards feed largely on the city's thriving population of feral dogs, so losing the predators could dramatically increase the incidence of dog bites and rabies. Another example can be found in South America where the deadly 'fer-de-lance' viper can be found. In the early 1980s its venom became the source for the first ACE inhibitor drugs, a life-changing treatment for cardiovascular disease.

It can often be argued that the eradication of an invasive species is justified in order to protect the indigenous wildlife but it is much more difficult to justify the elimination of a native species.

There is a drive to identify areas where tsetse flies pose a threat, and then control or eliminate local populations. There have been trials with "insecticide-impregnated tiny targets" - inexpensive handkerchief-size bits of blue fabric set out on sticks in areas infested by the tsetse fly. The flies are attracted to the colour and pick up the insecticide on landing, resulting in significant reductions in disease and the tsetse fly population.

There is a group working on mathematical modelling to determine what would be the required reduction in the fly population in order to reduce transmission down to zero.

Treatment of sleeping sickness currently requires multiple doses of intravenous medication for at least a week - this is just not possible in many isolated rural communities. However, there is an oral form of the drug that is expected to be granted regulatory approval imminently.



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These developments could make the proposed eradication of the tsetse fly seem not just impractical, but also, in the not too distant future, irrelevant.

ZIKA | A round-up of the latest advice

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The large outbreak in the Americas is over, but Zika is, and will continue to be, a potential risk in many countries in the Americas and around the world.



Zika virus (ZIKV) was first identified in monkeys in Uganda in 1947, after which Zika circulated for decades but was virtually ignored until an outbreak on the island of Yap, in the middle of the Pacific Ocean, in 2007.

Brazilian authorities first confirmed the virus in the north-eastern states of Brazil in May 2015 - before then, Zika had been unknown in Brazil and was often misdiagnosed as dengue fever.

Less than a year after the epidemic, doctors in the region began noticing a wave of new-born babies with the previously rare condition of '**microcephaly**' (abnormally small heads), understandably causing widespread panic across Brazil. The number of cases continued to grow and, as of November 2018, over 3,000 cases of "growth and development alterations possibly related to infection by the ZIKV and other infectious causes" had been confirmed by Brazil's health ministry, including over 2,000 in the north-east. Numbers later faded away.

The *Aedes aegypti* mosquito, which spreads ZIKV and related viruses like dengue and Chikungunya, is a day-biting mosquito that thrives in impoverished areas where sanitation is poor, often where there are open sewers, and garbage is left uncollected. A small number of cases of sexual transmission of ZIKV have also been reported.

Zika is found in parts of Africa, Asia, the Pacific Islands, Central and South America

and the Caribbean. All travellers to countries where ZIKV is known to occur are at risk of infection, although determining the actual level of risk is difficult. Travellers who spend a long period in areas where ZIKV is common are at increased risk. However, even short-term visitors may be exposed to the virus.

The majority of people infected with ZIKV have no symptoms at all. For those with symptoms, ZIKV infection is usually a mild and short-lived illness; severe disease is uncommon. Symptoms may include a combination of the following:

- ☐ Fever
- ☐ Headache
- ☐ Conjunctivitis (red, sore eyes)
- ☐ Joint and muscle pain
- ☐ A rash
- ☐ Swollen joints.

There is no specific treatment: rest, fluids and pain relief are recommended to help relieve symptoms. Serious complications and deaths from ZIKV are very uncommon. However, ZIKV is a cause of *Congenital Zika Syndrome* (microcephaly and other congenital anomalies) and, very rarely, neurological complications.

There is no vaccine to prevent ZIKV infection. Prevention is by minimising mosquito bites remembering that the mosquito that spreads ZIKV is most active in daylight hours. All travellers should be vigilant with insect bite precautions.

ZIKA | Special precautions in pregnancy

Most ZIKV infections are transmitted by mosquitoes, but the infection may occasionally be acquired by other routes such as sexual transmission and transmission to the foetus during pregnancy. Infection in the first trimester (up to week 12) of pregnancy appears to carry the greatest risk of congenital abnormalities, which can occur even if the woman had no symptoms at the time of her Zika infection. However, a risk exists throughout pregnancy.

Recently there has been a change to the recommendations for women in pregnancy.

Countries used to be classified as 'high' or 'moderate' risk of ZIKV but there has been a re-classification, as follows:

- 1. Evidence of a current outbreak with significant transmission** - pregnant women advised to postpone non-essential travel until after the pregnancy
- 2. No evidence of current transmission** - no travel precautions for pregnant women or those planning pregnancy.

ZIKV has been shown to be present in semen (and vaginal secretions) but the amount of time viable virus persists in semen is lower than originally thought - ZIKV persists longer in semen (three months) than in the female genital tract (two months), therefore the advice given to prevent sexual transmission is different for men and women. Consequently the UK authorities have changed the recommendations as follows:

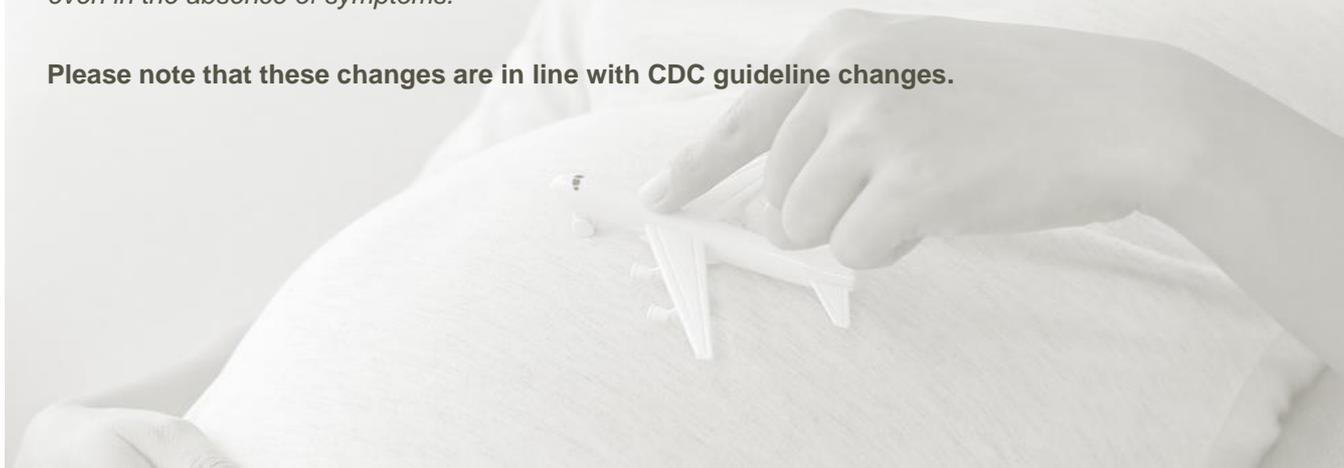
For couples considering pregnancy: Consistent use of effective contraception and condoms (or other barrier methods) for vaginal, anal and oral sex during and after travel. These measures should be used even in the absence of symptoms while travelling and if:

- ▢ both partners travelled to "risk" areas, for three months (previously six months) after return or after last possible ZIKV exposure*
- ▢ male traveller only travelled to "risk" areas, for three months (previously six months) after return or after last possible ZIKV exposure*
- ▢ female traveller only travelled to "risk" areas, for two months after return or after last possible ZIKV exposure.*

***Last possible ZIKV exposure is defined as the date of leaving an area with ZIKV risk, or the date on which unprotected sexual contact with a potentially infectious partner took place.**

There is no change to the guidance for pregnant women and their partner: Consistent and correct use of condoms (or other barrier methods) for vaginal, anal and oral sex is advised for the duration of the pregnancy if the couple both travelled to an area with risk of ZIKV, or if just the male partner travelled, even in the absence of symptoms.

Please note that these changes are in line with CDC guideline changes.



QUICK READ | Pet hedgehogs, an unlikely source of *Salmonella* infection



There has been a multi-state outbreak of *Salmonella* infections in the US that public health officials have confidently linked to contact with pet hedgehogs. There have been 11 reported cases, aged between two and 28yrs, in eight separate states, including one hospitalisation, but there have been no deaths.

The particular strain of the *Salmonella* has been identified by DNA fingerprinting techniques but, to date, there has been no single hedgehog supplier identified to link all these cases together.

Salmonella is a bacteria that causes diarrhoea, fever, and stomach cramps within a few days after exposure to the bacteria. The illness lasts four days to a week and usually recovers spontaneously. However, if the diarrhoea is particularly severe it may cause dehydration, requiring hospitalisation. If the infection spreads via the bloodstream around the body, it can cause death if antibiotics are

not given promptly. At particular risk are young children, the elderly and those with weakened immune systems.

Spread of salmonella is via contact with their droppings - this may be within bedding, toys or anywhere in their habitat that the bacteria can spread.

It is important to always wash hands thoroughly with soap and water right after touching, feeding, or caring for a hedgehog or cleaning its habitat. Adults should supervise hand-washing for young children. Hedgehogs should be kept away from all food preparation areas and kissing and cuddling should be discouraged.

Perhaps it would be wise to consider an alternative pet for young children, and hedgehogs should certainly be avoided if they may come into contact with anyone with a weakened immune system.

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