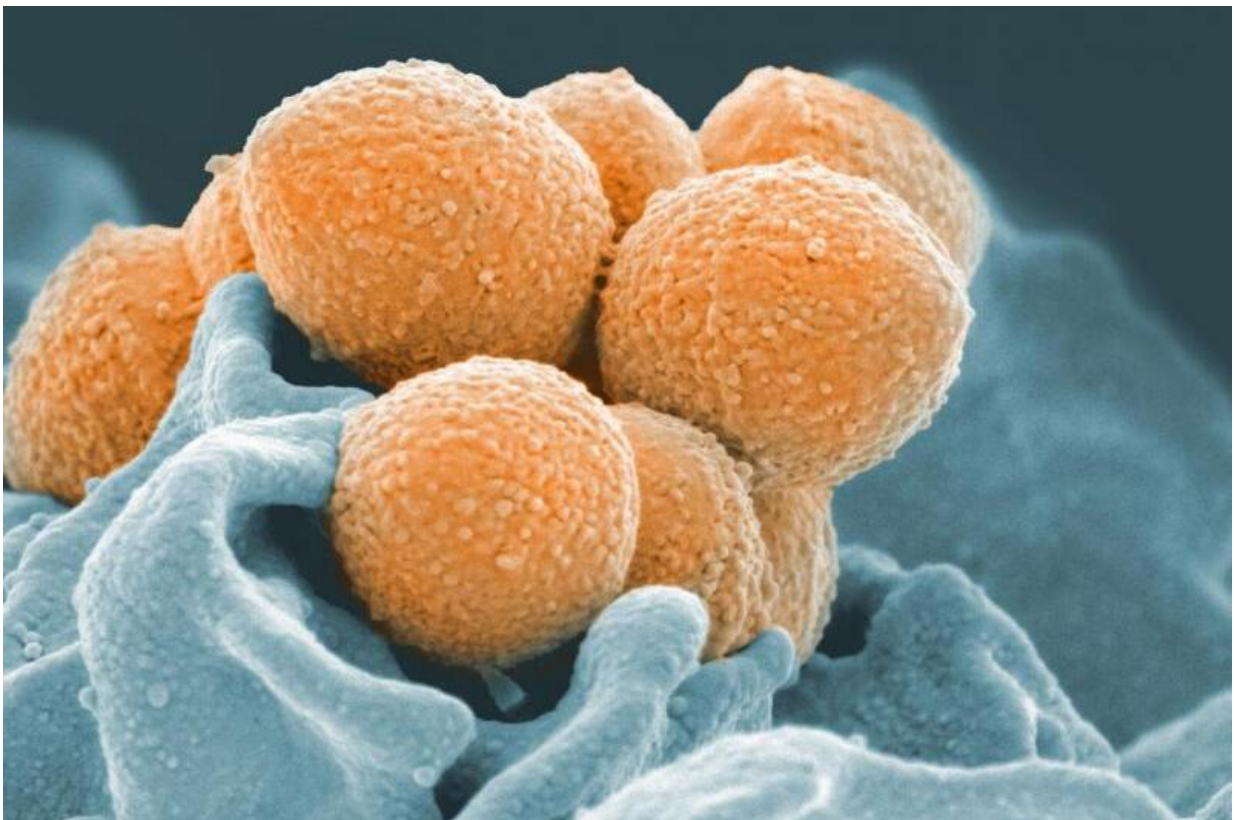


Strep A explainer: Why invasive cases are increasing, how it spreads and what symptoms to look for

January 24 2024, by John McCormick and Juan Manuel Diaz



A scanning electron microscope image of Group A Streptococcus (orange) during phagocytic interaction with a human neutrophil (blue). Credit: NIAID

A jump in the number of people with serious illness caused by group A

Streptococcus—also referred to as Streptococcus pyogenes or Strep A—has made headlines recently. There has also been a [higher than usual number of deaths](#) from group A Streptococcus infections, including in children, leaving people with questions about why and how these infections are spreading, and what symptoms to be aware of.

Shortly after the number of COVID-19 infections diminished worldwide, a [considerable increase](#) in patients diagnosed with diseases caused by group A Streptococcus began in different parts of the world.

Specifically in Canada, Public Health Ontario is currently reporting a large increase in [invasive group A Streptococcus cases](#). A similar [increase in cases](#) has also been reported in multiple countries across Europe, mainly affecting children under 10 years old.

Why did these bacteria suddenly become a global concern?

To answer this question, it is essential to know some specifics of this disease to gain a better understanding of its cause. Group A Streptococcus exclusively affects humans, and its spread occurs [via airborne droplets as well as person-to-person contact](#).

Among the different illnesses caused by this organism are [respiratory tract infections](#) such as tonsillitis and pharyngitis (symptoms of classic [strep throat](#)), as well as superficial skin infections and skin infections [known as pyoderma](#).

However, Group A Streptococcus can sometimes develop into invasive infections that put patients' lives at risk, such as [necrotizing fasciitis](#), [septicemia](#) (blood poisoning) and [streptococcal toxic shock syndrome](#).

To generate this wide range of diseases in different parts of the body, the organism has several factors that promote [infection](#) and allow the bacteria to invade, colonize and survive in different tissues. These include molecules such as superantigens, exotoxins and adhesins that help pathogens evade the host immune system.

A new variant of group A Streptococcus called M1UK was [first reported in the United Kingdom](#), where it has been linked to an increase in scarlet fever cases as well as an increase in invasive infections.

[Members of the M1UK sublineage](#) exhibit an ability to enhance the expression of the superantigen SpeA due to a single genetic mutation. The over-production of SpeA may be responsible for increased transmission and survival, as well as the aggressiveness of these infections, although this is currently being studied.

What could account for the current spike in cases?

Up to [approximately 10% of school-aged children](#) will commonly carry these bacteria in their throats and [upper respiratory tract](#) without having any symptoms, and over time will develop some level of immunity to it.

It is likely that during the COVID-19 pandemic, children were at home and not being exposed to the bacteria as much as before and so their immune systems are probably [not as good at fighting these infections](#). Without this exposure, some children are likely to be more susceptible to infection.

The spread of the new M1UK strain is also probably why there's an increased number of cases, although this is something that is currently being studied.

Should people be concerned about these rising numbers?

Generally, Canadians should not be overly concerned because serious infections with group A Streptococcus are still quite rare.

However, people should also not ignore strep throat, and should get treatment from a doctor and be wary of symptoms that might suggest an invasive infection.

Strep throat requires treatment, as untreated [strep throat](#) can lead to other problems including invasive infections.

How to protect yourself and when to seek medical care

Because group A Streptococcus are common and many carriers are asymptomatic, it can be difficult to avoid exposure. Practicing good hand hygiene, covering coughs and sneezes, staying home when you're sick and not sending children to school if they have a very sore throat are all good measures.

If you believe you have a strep infection such as [strep throat](#) with painful swallowing, fever, swollen tonsils or a rash, talk to a family physician to determine if the infection is caused by group A Streptococcus. A [rapid strep test](#) can be done with a throat swab. If the test is positive, antibiotics can be prescribed.

Invasive group A [strep](#) infections are very dangerous and are a medical emergency, although initial symptoms may not be obvious. These could include fever, chills, flu-like symptoms and nausea or vomiting, but in particular red and warm skin infections that may be very painful and

spread rapidly.

There is strong evidence that [prior viral infections such as chickenpox](#) can predispose people for developing invasive group A Streptococcus. Children with chickenpox should be watched carefully for symptoms of invasive group A Strep.

Currently, there is no vaccine against group A Streptococcus, although there is a vaccine for chickenpox. Multiple research teams around the world, [including our own lab](#), are working towards developing an effective vaccine against this human pathogen.

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