

## ADVENTURE AWAITS: KEEPING HEALTHY WITH TRAVEL VACCINATIONS

Hayley Hubbs<sup>1\*</sup>, Martine Steiner<sup>1</sup>, Stephanie Anderson<sup>1</sup> and Maria Roura<sup>2</sup>

<sup>1</sup>School of Medicine, University of Limerick, Limerick, Ireland

<sup>2</sup>School of Medicine and Health Research Institute, University of Limerick, Limerick, Ireland

### YOUNG REVIEWERS:



**AASHRITA**

AGE: 13



**AYLESBURY  
HIGH**

AGES: 12–14



**HARSHAN**

AGE: 13



**HARSHNI**

AGE: 13

Getting travel vaccines is important so that you can have healthy adventures when traveling to interesting places all over the world. Your body's immune system, which defends against diseases to keep you healthy, can be strengthened by vaccines. Because of increased global travel, some diseases can spread between people more easily, through sneezing or coughing—but vaccines can help prevent the spread of many diseases. If you plan to travel around the world, some vaccines will be recommended and others may be required, as way to keep you and the communities around you safe by preventing the spread of diseases. Vaccines are only one part of the bigger picture of preventing the spread of illness and, if we all work together, our planet can become a healthier place.

## PATHOGEN

Tiny living things, like bacteria, viruses, or parasites, that cause diseases in a human or animal.

## INFECTIOUS DISEASE

An illness caused by a pathogen that can spread between people through person-to-person contact, food, water, air, or animals.

## IMMUNE SYSTEM

The body's fighters and defense system, which is made up of cells and substances that can fight against germs or pathogens that might harm you.

## VACCINATION

A medicine that helps your body develop an immune response to a specific pathogen and protects you from becoming sick in the future when exposed to that same pathogen.

### Figure 1

Your immune system has cells (shown here as ninjas) that can battle a pathogen (green) that enters your body. When you get a vaccine, your immune system becomes stronger, and you have more ninjas that can fight off the pathogen (Created with Canva.com).

## GERMS! HOW DO WE FIGHT THEM OFF?

Have you ever wondered why getting vaccinations before traveling on a big adventure is important? Well, it all starts with germs, like bacteria and viruses, that can enter our bodies and make us sick. Such dangerous germs are called **pathogens**. More specifically, pathogens cause **infectious diseases**. Luckily, our bodies have a group of cells and substances ready to battle any pathogen that launches an attack against us. These cells and substances work together and are called the **immune system**. The first time you are infected by a pathogen, your body will have a slow response. However, if you are infected a second time with the same pathogen, the immune system's response will be quicker because it remembers the pathogen from the first infection. Sometimes the immune system is not strong enough to fight off the pathogens that attack the body, causing people to become sick.

Infectious diseases can be spread between people through liquids like saliva, objects like door handles, or tiny drops in the air created by people sneezing or coughing. Infectious diseases can also spread to humans from insects, animals, food, or water. When you get an infectious disease, you may feel sick, have a fever, be tired, or have achy muscles. One way to keep yourself safe and prevent the spread of diseases is through **vaccinations**.

## WHAT ARE VACCINES AND HOW DO THEY WORK?

Vaccines are helpful in preventing disease caused by pathogens. Vaccines contain harmless pieces of pathogens, or sometimes a weakened form of a pathogen, along with a substance that stimulates the immune system to make the cells stronger and better able to stop infection. Vaccines build up the cells and substances in your body that are specific for a pathogen, so you can fight off that infectious disease (Figure 1) [1]. After vaccination, your body can recognize the pathogen if you encounter it again. Because of the immune system's

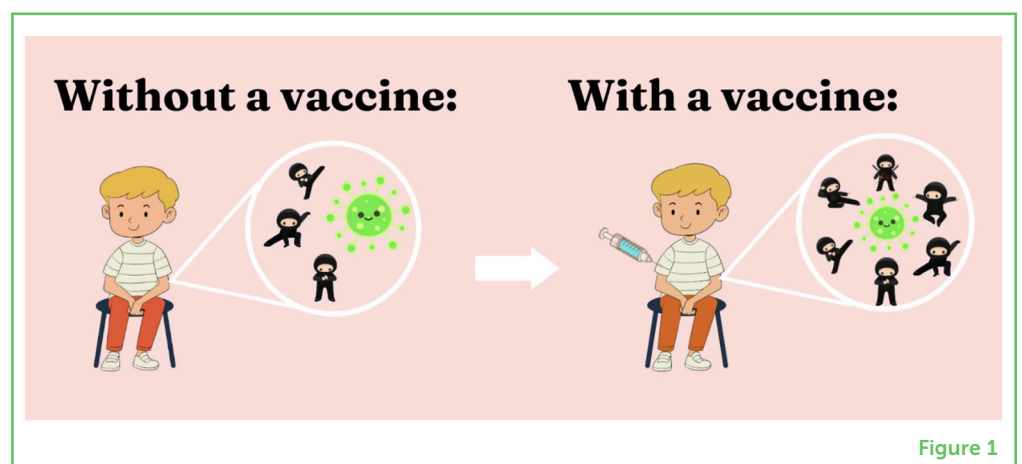


Figure 1

memory, the response will be stronger and quicker than it was to the vaccine.

Depending on the pathogen, some vaccines may need multiple shots before the body can adequately recognize and defend itself against the disease. For example, you need to get three shots of the Hepatitis B vaccine, whereas you only need one shot for the Yellow Fever vaccine [1]. Everyone's doctor will give them different advice on which vaccines they should get, depending on their age, health, travel plans, and where they live.

## WHY DO DISEASES SPREAD SO QUICKLY THESE DAYS?

One of the reasons that diseases can quickly spread worldwide is because of **globalization** [2, 3]. Imagine you have family members who live in another country. You could get on a flight to visit them—something people could not do 100 years ago. That is what globalization means—the connectedness of people, companies, and governments all over the world. These connections continue to become easier and faster due to planes, trains, and automobiles. Although globalization is a wonderful thing, there are also some negatives. Global connectedness allows diseases to travel quickly, too. Spread of infectious diseases can lead to international health emergencies. Remember when the COVID-19 pandemic began? It spread everywhere around the world quickly!

Places where lots of people spend time in a small area have an increased risk of diseases spreading quickly [3]. Such places include workplaces, homes, or public spaces where people are physically closer together. Both globalization and the tendency of people to spend time together contribute to the spread of infectious diseases that impact people all over the world. As a result, we need to find solutions to improve our environments and protect ourselves from the risk of infectious diseases. COVID-19 also highlights the importance of vaccines in stopping the spread of germs and keeping us safe from serious illnesses [3]. As people travel more and connect with others globally, it is important to consider how you can keep yourself and others safe. One step you can take is to get **travel vaccinations**.

## TRAVEL VACCINATIONS

Remember that getting sick while traveling not only affects the people who are traveling—it also impacts the people who live in the places we travel to and our communities back home. That is why people may be recommended or required to get vaccinated when they travel. Travel vaccinations are particularly necessary for people who are more likely to get sick, such as older adults, pregnant women, and babies. The cool thing about vaccinations is that the more people who are vaccinated, the less likely pathogens are to spread globally.

### GLOBALIZATION

The increasing connectedness of people, companies, and governments across the world, which creates more interactions between individuals globally.

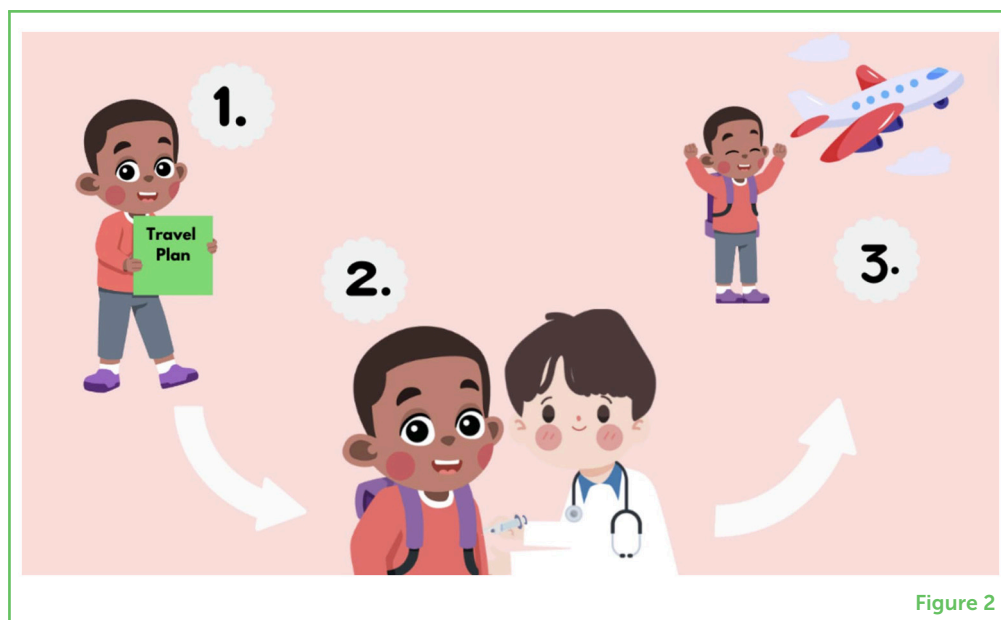
### TRAVEL VACCINATION

A vaccine that is recommended or required when traveling to another country to protect you from getting sick and spreading infectious diseases.

It is suggested that travel vaccines be given at least 2 weeks before leaving (Figure 2) [4]. Most vaccinations are given by nurses or doctors. A personal vaccine plan is necessary based on a person's travel destination, previous vaccines, and health status [4]. Certain countries may require specific vaccines for entry and travelers should review and follow these recommendations.

### Figure 2

If you are flying to a new country, first book an appointment with your doctor to ask any questions about staying healthy on your trip. Second, meet with your doctor and get any recommended or required vaccinations. Third, have fun and travel on! (Created with Canva.com).



Vaccines are only one part of stopping the spread of disease. Other factors, such as avoiding mosquito bites and handwashing, are still important while traveling. Some diseases impact many people around the world but do not have vaccinations available yet, such as Zika virus [4]. Scientists are working hard to create vaccines against these pathogens.

Let us look at one specific travel vaccines that you may run into. The pathogen named *Vibrio cholerae* causes a disease called cholera in humans. Cholera can spread through drinking water or eating food with the pathogen in it [4]. If it is not treated, people with cholera can have diarrhea, vomiting, and dehydration, and symptoms may be bad enough that they may need to go to the hospital [4]. Luckily, there is a vaccine to help prevent the spread of cholera. Anyone over the age of 5 should get two doses of the cholera vaccine when traveling to high-risk areas [4]. High-risk areas for cholera are places with poor water and bathroom systems (that is why it is also important to fix these problems in the countries that experience them, so everyone can have clean water and stay healthier). The cholera vaccine will give good protection for 6 months, but protection decreases after that [4]. Eventually, if you are traveling to an area of elevated risk again, you may need a **booster**.

### BOOSTER

Another dose of a vaccine you have already received to boost/enhance your protection against that pathogen.

## LOOKING FORWARD TO YOUR NEXT ADVENTURE!

Now you can see why it is important for people to get travel vaccinations before a big adventure. Getting vaccinated not only keeps *you* safe but also helps keep *everyone around you* healthy. You can make a significant impact in the world by getting vaccinated. However, remember that vaccines are only a small piece of the bigger picture. Improving access to healthcare, creating better living conditions, and keeping our planet green are other ways that we can help prevent the spread of infectious diseases and improve health outcomes for people all over the world [5]. While there are still improvements to be made to protect ourselves and others, do not let this stop you and your adventures to see the world and experience diverse cultures. So, pack your bags, get your vaccinations, and go on some amazing travels!

## REFERENCES

1. Iwasaki, A., and Omer, S. B. 2020. Why and how vaccines work. *Cell* 183:290–5. doi: 10.1016/j.cell.2020.09.040
2. Suk, J. E., van Cangh, T., Beauté, J., Bartels, C., Tsolova, S., Pharris, A., et al. 2014. The interconnected and cross-border nature of risks posed by infectious diseases. *Glob. Health Action* 7:25287. doi: 10.3402/GHA.V7.25287
3. Baker, R. E., Mahmud, A. S., Miller, I. F., Rajeev, M., Rasambainarivo, F., Rice, B. L., et al. 2022. Infectious disease in an era of global change. *Nat. Rev. Microbiol.* 20:193–205. doi: 10.1038/s41579-021-00639-z
4. World Health Organisation. 2020. "Chapter 6: Vaccine-preventable disease and vaccines", in *International Travel and Health*. Available online at: <https://www.who.int/publications/m/item/international-travel-and-health-chapter-6-vaccine-preventable-diseases-and-vaccines> (accessed November 25, 2024).
5. Marmot, M., Friel, S., Bell, R., Houweling, T. A., and Taylor, S. 2008. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet.* 372:1661–9. doi: 10.1016/S0140-6736(08)61690-6

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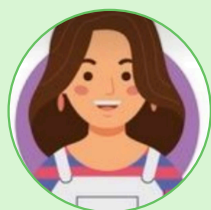
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## YOUNG REVIEWERS



### AASHRITA, AGE: 13

Myself, Aashrita, from grade 8. I am a creative person with a penchant for combining technical and non-technical activities. I love to cycle and spend time on various hobbies such as drawing, painting etc. I also love playing various musical instruments.



### AYLESBURY HIGH, AGES: 12–14

We are team Lofai and our names are Imogen (14), Amy (13), Francesca (13), Ophelia (13) and Lucy (12). We are all grateful to have been given this amazing opportunity to combine our passions for science and journalism. We are very interested in science and think that reviewing a science journal is a great way to get knowledge into the scientific world that incorporates journaling. We are excited to share our passions for science and hope that you enjoy our reflections.



### HARSHAN, AGE: 13

I am Harshan. I am from grade 8. I have good qualities such as honesty, calmness, gratitude, and self-awareness. I am interested in physics. My ambition is to become an automobile designer. My hobbies are to cycle, read and play guitar. My passion is to start a startup company and later turning it into a huge automobile company.



### HARSHNI, AGE: 13

I am Harshni. I am an enthusiastic and fun loving girl. I love learning, trying new things, singing, playing sports, and dancing. Subject wise, I love poetry and science because I want to be a neurosurgeon and I want my words to convey strong messages. I believe that I surely will fade one day but my words spread eternally. Few great values I feel, I have modesty, courage and patience as I never liked to boast and I am not afraid of facing any obstacles in my journey. I also wanted to find the cure for sclerosis. So, I will be working hard for it. I am really contented to the authors for publishing such an informative article.

## AUTHORS

### HAYLEY HUBBS

Hayley Hubbs is currently a medical student at the University of Limerick. Previously, she attended the University of Victoria where she graduated with a Bachelor of Science in kinesiology and competed as a varsity rower. She enjoys



biking, running, swimming, crossfit, and spending time with friends and family.  
[\\*23206101@studentmail.ul.ie](mailto:*23206101@studentmail.ul.ie)



### **MARTINE STEINER**

Martine Steiner is a medical student at the University of Limerick. She earned her Master of Public Health from the University of Toronto and her undergrad in kinesiology from McMaster University. In her spare time, she loves to play sports, including skiing and ice hockey, and be outside, spending as much time as she can near an ocean, lake or mountains.



### **STEPHANIE ANDERSON**

Stephanie Anderson is currently a medical student at the University of Limerick. Before this, she graduated from the University of Western with an honors degree in interdisciplinary medicine with a major in microbiology and immunology. In her free time, she enjoys reading, running, walking her dogs, and spending time with loved ones.



### **MARIA ROURA**

Dr. Maria Roura is Senior Lecturer in public health and a medical sociologist (PhD, 2002) with over two decades of experience teaching, supervising, and conducting research in diverse socio-cultural settings in Asia, Africa, the Americas, and Europe. Her work focuses on public health matters including HIV, COVID-19, Tuberculosis, Zika, Chagas, the social determinants of health, sexual and reproductive health, gender violence, occupational health, water and sanitation, health systems, migrant/ethnic minority health, and nosocomial infections. Specific interests include the development and use of results-oriented monitoring tools to qualitatively assess public/global health interventions and health system's performance, as well as innovative ways of delivering public health teaching.