

# Global Health Newsletter

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## Americas

### Sued-Apple Watch Over Estimates Oxygen Level

The pulse oximeter is a vital piece of equipment used to calculate a patient's oxygen saturation. COVID exemplified this need as patients monitored their oxygen levels at home and medical interventions were driven by the pulse oximeter calculation. We also saw patients with good mentation with record low oxygen levels which perplexed medical professionals.

Pulse oximeters work by sending LED light through a person's finger and calculating the oxygen level by figuring out how much of the light was absorbed by hemoglobin in the blood. However, darker skin also absorbs light which results in an overestimation of the amount of oxygen in the blood.



<https://abcnews.go.com/Health/pulse-oximeters-fight-covid-19-inaccurate-people-color/story?id=76062678>

In the past year there have been many cohort studies comparing pulse oximetry readings among patients of different races and ethnicities. The results were that individuals with darker skin had higher readings of oxygen levels and were administered less supplemental oxygen than white patients. These oxygen readings were compared to hemoglobin oxygen saturation calculated on arterial blood.

Apple is facing a class-action lawsuit that claims the blood oxygen reader is inaccurate for people of color. It is unclear if technology used in the apple watch is the same as a standard pulse oximeter as it measures the blood oxygen at the wrist.

There are many new studies and companies researching new methods of monitoring oxygen saturations with new technology that is not affected by skin color.

### Further reading

[https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2794196?guestAccessKey=e4b8e496-5dfb-495b-b3fa-4bcd505bb482&utm\\_source=For\\_The\\_Media&utm\\_medium=referral&utm\\_campaign=ftm\\_links&utm\\_content=tf1&utm\\_term=071122](https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2794196?guestAccessKey=e4b8e496-5dfb-495b-b3fa-4bcd505bb482&utm_source=For_The_Media&utm_medium=referral&utm_campaign=ftm_links&utm_content=tf1&utm_term=071122)

<https://www.usatoday.com/story/tech/2022/12/27/apple-watch-blood-oxygen-oximeter-dark-skin-lawsuit/10955942002/>

<https://www.thelancet.com/action/showPdf?pii=S2589-5370%2822%2900158-4>

<https://www.nejm.org/doi/full/10.1056/nejmc2029240>

## Middle East/Northern Africa

### The World Cup in Qatar

The world cup is one of the most popular sporting events and occurs every four years. It evokes passion amongst people throughout the world. People become strongly nationalists as well as brings countries from all over the world together celebrating a common passion, soccer. This world cup; however, was one of the more controversial world cups in history due to the many human rights abuses committed by its host country, Qatar. Qatar has long standing human rights abuses against the LGBT community, women and Jews. There was great fear amongst these populations and deterred many people from attending the games. In addition, due to extreme heat the world cup, which is normally held in the summer time, had to be changed to the winter and interrupted the regular soccer season.



<https://www.dezeen.com/2022/10/20/qatar-blind-eye-abuse-migrant-workers-world-cup-amnesty/>

The population of Qatar is about 2.94 million people, with 380,000 citizens. The remainder of the population is foreign. Qatar spent \$200 billion on the world cup which included new stadiums, a new metro system and hotels. More than 6,500 migrant workers died in Qatar related to world cup since it won the right to host the event in 2010. The majority of these workers are from Pakistan, India, Nepal, Bangladesh and Sri Lanka. It is estimated that 90 percent of Qatar's work force is made of migrant workers. Many times, these migrant workers are the main breadwinners of their families and send their salaries back to their families in their home countries. Qatar claims that these deaths are primarily a result of natural causes.

### Further reading

<https://www.dezeen.com/2022/10/20/qatar-blind-eye-abuse-migrant-workers-world-cup-amnesty/>

## Asia/Pacific

### Dengue Outbreak in Bangladesh

Dengue is a viral infection transmitted by the *Aedes aegypti* and *Aedes albopictus* mosquitos. There are four Dengue serotypes and it is possible to be infected by each one. One develops immunity only to the homologous serotype and sequential infections are more severe and life threatening than the initial infection. Treatment is supportive care.

Bangladesh is currently fighting its second largest outbreak since 2000 (with the largest in 2019). As of November 2022, 52,807 laboratory confirmed dengue cases and 230 related deaths have been reported. This is a case fatality rate of 0.44%.

The median age is 25 years and 60% are male. Dhaka is the most affected division with 70.6% of reported cases and 60.4% of the deaths.

This high incidence of dengue is attributed to the unusual amount of rainfall with high humidity and higher than normal temperature which has increased the mosquito population throughout the country.

### Further reading

<https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON424>



<https://www.plenglish.com/news/2022/10/31/another-five-people-die-of-dengue-fever-in-bangladesh/>

## Sub-Saharan Africa

### Assistants to Migrants in West Africa

Senegal in West Africa has historically been a destination country for many Africans who travel to Europe to seek asylum. The journey to seek asylum in Europe is often dangerous, as asylum seekers often have to travel through war zones as well as difficult terrain and are often subjected to violence, sexual and gender-based violence, security risks, exploitations and other abuses. As a result, this has a great physical and psychological impact on the migrants.

Kolda Humanitarian Service Point (HSP) is an organization run by the Senegalese Red Cross and IFRC. The aim of the organization is to provide psychosocial support to these migrants on their journey. This organization also provides food and water as some migrants who arrive have gone days without as they journey through inhospitable areas. Kolda volunteers also assist migrants to organize and prepare important travel documents correctly, regain contact with family members and provide legal assistance. Since the organizations inception in 2020 over 1,500 migrants have received assistance.



<https://www.ifrc.org/article/west-africa-migration-red-cross-offers-oasis-help-and-hope-migrants-kolda-senegal>

### Further reading

<https://www.ifrc.org/article/west-africa-migration-red-cross-offers-oasis-help-and-hope-migrants-kolda-senegal>

## Europe

### Black Death Survivors have Genetic Mutations

The bubonic plague, known as the Black Death, arrived in London in 1348 and subsequently killed 30-50% of the population in parts of Europe. The Black Death not only changed Europe but also altered the evolution of the genome of surviving Europeans.

Those who survived the Black Death had mutations that helped protect them against the pathogen, *Yersinia pestis*. These mutations were passed on to their descendants and can be seen in the genomes of people living today. Studies have shown that this gene increases a person's risk of autoimmune diseases such as Crohn's disease.

Scientists extracted DNA from cemeteries of people who died of the plague and compared their DNA to people who died before and after.

The specific genes analyzed were genes involved with immunity. The results were four mutations which likely gave people an advantage in survival and one of the genes identified, ERAP2, gave people a 40% survival. These genes likely kill invading pathogens more quickly and enhanced an inflammatory process to help clear the infection. We see that these same genes increase the risk of autoimmune diseases most likely due to its proinflammatory stimulation.

This study specifically looked at those living in London and Denmark at the time of the Black Death and therefore this information might not be generalizable for the entire European descended population.

### Further reading

<https://www.npr.org/sections/goatsandsoda/2022/10/19/1129965424/how-black-death-survivors-gave-their-descendants-an-edge-during-pandemics>

<https://www.nature.com/articles/s41586-022-05349-x>



<https://www.discovermagazine.com/the-sciences/scientists-reveal-the-black-deaths-origin-story>

# What's New at Northwell's Center for Global Health?

Daniel Leon, MBA PMP  
Q4 2022

## Guyana

### Guyana Pilots "POCUS"

The Center for Global Health signed a five-year agreement with the Government of Guyana in November 2021 to improve the Emergency Medical Services system and introduce Point of Care Ultrasound (POCUS), a program designed to decrease patient transfers and support the long-term success of an EMS overhaul.

"The people of Guyana need a way to receive care where they are," says Eric Cioe Peña, MD, director of Northwell Health's Center for Global Health (CGH).

"Although we're working daily on new ways to enhance the way patients are transferred between regions, Point of Care Ultrasound gives us the tools to adequately serve patients locally and reduce unnecessary transfers," said Dr. Cioe Peña.

The CGH also joined forces in September with 'GUSI,' a foundation offering global ultrasound training. That partnership will help train 20 GPHC Family Medicine professionals using brand-new Butterfly IQ+ Ultrasound devices. The devices were part of a \$100,000 donation of supplies and equipment that Northwell Health made to Guyana's Ministry of Health of Guyana in January 2022.

"This training gives me a better understanding of how to use bedside ultrasound to improve primary healthcare," says Dr. Daniels-Williamson, MD, a family medicine specialist at Guyana's Georgetown Public Hospital. The CGH and GUSI plan to train more than 100 Guyanese medical professionals trained in Point of Care Ultrasound by the end of 2023.

Further Reading: <https://www.northwell.edu/news/the-latest/northwells-center-for-global-health-returns-to-guyana>



*Family Medicine Doctor's at Georgetown Public Hospital in Guyana practice using Butterfly IQ+ Ultrasound probes on each other.*

## Ecuador

### Quito Gets Surgical

Northwell's Global Surgery Team, led by Director Rafael Barrera, MD and Chair of Surgery Gene Koppa, MD also traveled to Quito with the CGH in September 2022 to clear a backlog of 100 surgeries and help train the country's surgical professionals in best practices. Their teams performed several procedures, including, hernias, cleft Lip, and bariatric surgeries.



Further reading: <https://www.northwell.edu/news/the-latest/northwell-health-performs-charitable-surgery-in-quito-ecuador>

## **Ecuador Raises Mental Health**

Northwell Health and medical leadership at La Universidad San Francisco de Quito (USFQ) are developing an initiative that would allow mental health screenings by non-licensed professionals. John Q. Young, MD, chair of psychiatry and vice president of behavioral health, traveled to Quito, Ecuador in September to discuss the program, which aims to relieve pressure on main hospitals by having a system to diagnose and refer mental health patients and boost mental health awareness.



*Dr. John Young and Dr. Cioe Pena meet with USFQ to discuss mental health reform*

“Our program will allow bachelor’s-level psychology trainees to identify those in the community with a mental illness, then refer them to assessment with either a primary care physician in Ecuador or a telehealth consultation with one of Northwell’s mental health professionals” Dr. Young explains.

Northwell’s telehealth program—which has plans to expand—has been operating successfully in Ecuador since its inception in 2019. It has been connecting patients with mental health professionals in two weeks. “We’re hopeful that the results we see with this approach might resonate with other countries,” Dr. Young says, and adds, “It has the potential to change the way we deliver mental health care globally.”

Further reading :<https://www.northwell.edu/news/the-latest/northwell-health-performs-charitable-surgery-in-quito-ecuador>

## **Ukraine**

### **Ukraine Phones a Friend**

The CGH has been supporting Ukrainian doctors and nurses with a pilot telehealth program that assists them as they treat patients. The CGH, the Center for Emergency Medicine, and medical professionals throughout the health system have been assisting Ukrainian medical staff by using the same telehealth technology that Northwell ambulances use to connect trauma patients with specialists throughout New York City.



"It was pretty clear that we have all these pieces, and, just by rearranging workflows, we could set up telehealth services to conduct consults between our doctors and surgeons and those in Ukraine," explains Jon Berkowitz, MD, director of Northwell’s Center for Emergency Medicine.

Since the pilot began in 2021, Northwell has consulted on more than 200 cases, including a volunteer Irish soldier whose heart had been punctured by shrapnel while fighting to defend Ukraine.

"Yesterday, our own Matthew Buck, MD, was training Guyanese surgeons in advanced trauma life support--and today he's saving Irish soldiers in Ukraine," Ms. Shari Jardine, the deputy director of the CGH, said.

"It's inspiring that the men and women of Northwell are able to donate their time to help people thousands of miles away. Every call we get makes our work ten times more rewarding."

Further reading: <https://www.statnews.com/2022/12/13/ecuador-lessons-increasing-access-mental-health-care/>