

# THE ALCIVAX

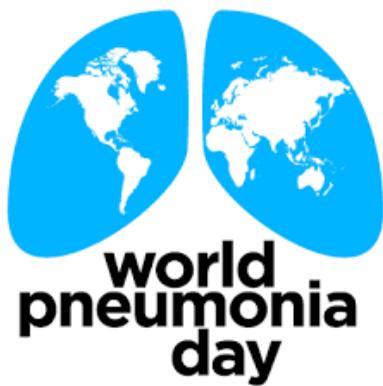
**Alcimed** revives the Alcivax for a special look at respiratory disease in honor of World Pneumonia Day, because every breath counts.

[www.alcimed.com](http://www.alcimed.com)



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## Every Breath Counts



Pneumonia = an infection of the lungs.

This year's theme for world pneumonia day is "Every Breath Counts" to highlight the important role that air pollution has to play as a risk factor for dying of pneumonia. **World Pneumonia Day is being celebrated this year at the COP26, the UN Climate Change Conference in Glasgow Scotland.**

Can we reduce air-pollution related pneumonia deaths by 50% by 2030?



Every 13 seconds

someone in the world dies of pneumonia.

**2.5 million** people die of pneumonia every year.



## Pneumonia & COVID-19

Pneumonia is the leading infectious cause of mortality in the world. This inability to control pneumonia is a major stumbling block for many countries to achieve their Sustainable Development Goals (SDGs) by 2030. According to a new report by the public-private partnership, Every Breath Counts Coalition, having better systems in place for pneumonia treatment would have left the world better prepared for the current COVID-19 pandemic, and would not have left the world scrambling for ventilators and medical oxygen.

Are we ready to fill in these missing pieces? [Read the report here.](#)

## PREVENTING PNEUMONIA

**THE MOST EFFECTIVE WAY TO PREVENT PNEUMONIA IS THROUGH VACCINATION**

**PNEUMONIA-FIGHTING VACCINES:**  
 PNEUMOCOCCAL CONJUGATE VACCINE (PCV)  
 HAEMOPHILUS INFLUENZAE TYPE B VACCINE (HIB)  
 DIPHTHERIA, TETANUS, AND PERTUSSIS (DTP)  
 MEASLES VACCINE (MCV)  
 INFLUENZA VACCINE  
 COVID-19 VACCINE

**AWARENESS AND EDUCATION ARE AN IMPORTANT PART OF PNEUMONIA PREVENTION**



[www.NEUMOI.ORG/INICIO/NEUMONIA](http://www.NEUMOI.ORG/INICIO/NEUMONIA)

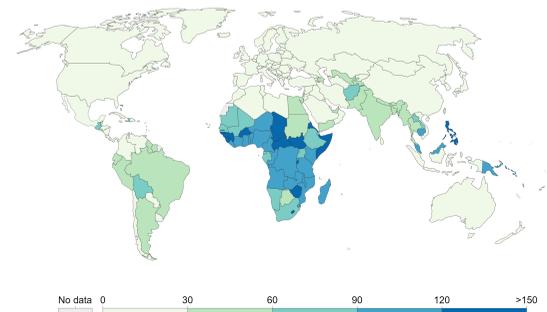
Image Credit: [apsresp.org](http://apsresp.org)

## The Global Burden of Pneumonia

Pneumonia deaths come mainly from 20 countries

### Death rate from pneumonia, 2017

The annual number of deaths from pneumonia per 100,000 people.

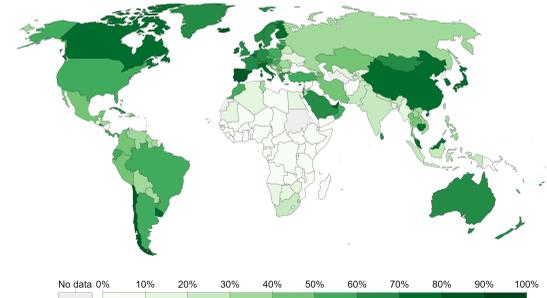


Source: Global Burden of Disease Study, IHME (2018) OurWorldInData.org/pneumonia • CC BY  
 Note: To allow comparisons between countries and over time this metric is age-standardized. Deaths from 'clinical pneumonia', which refers to a diagnosis based on disease symptoms such as coughing and difficulty breathing and may include other lower respiratory diseases.

Many of the countries with high pneumonia mortality are still lacking COVID-19 vaccination

### Share of the population fully vaccinated against COVID-19

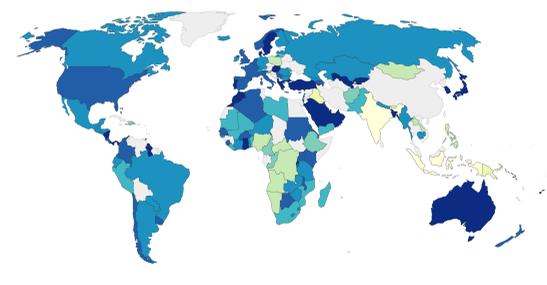
Total number of people who received all doses prescribed by the vaccination protocol, divided by the total population of the country.



Source: Official data collected by Our World in Data - Last updated 11 November 2021, 05:30 (London time)  
 Note: Alternative definitions of a full vaccination, e.g. having been infected with SARS-CoV-2 and having 1 dose of a 2-dose protocol, are ignored to maximize comparability between countries.  
 OurWorldInData.org/coronavirus • CC BY

Many of these same countries also struggle to achieve good pneumococcal vaccination rates

### Share of one-year-olds vaccinated against pneumococcal conjugate (PCV3)



Source: World Health Organization (WHO); UNICEF OurWorldInData.org/pneumonia • CC BY  
 Note: Streptococcus pneumoniae is a bacterium that causes a number of common diseases including meningitis, septicaemia and pneumonia. It is most common in young children and the elderly.



# The Struggle for Oxygen

One of the main, but often unavailable, treatments for pneumonia is oxygen. The COVID-19 pandemic has really brought the shortage of medical oxygen to the forefront, as COVID patients rapidly increased the number of patients that needed oxygen and the volume that is normally used per patient. The scarcity of medical oxygen exists every year in some countries limiting their ability to combat pneumonia and driving up mortality rates, but the current pandemic has made the rest of the world aware just how scarce medical oxygen can be.

The problem of oxygen scarcity is made up of a complex list of issues from supply chain to last mile delivery, to storage and cost. Solving this problem permanently will be crucial for the world to not only be ready for the next respiratory virus pandemic but more equitably treated the annual pneumonia burden as well. Ethiopia's prior investment in oxygen supplies to treat pneumonia left it more prepared than it's neighbors to handle the pandemic.

This demonstrates that pandemic preparedness, likely for all countries, needs to take into account it's medical oxygen supplies as a priority. In fixing this problem now as the COVID-19 pandemic fades out, the global healthcare system can also be better prepared to handle the annual burden of pneumonia and significantly reduce mortality.

According to a large investigation done by Gasworld, an industrial news outlet, there are several solutions to consider in solving the oxygen scarcity problem.

- Public-Private partnerships such as Every Breath Counts Coalition partnerships with Air Liquide and Linde
- Breaking down silos between industrial and medical oxygen, by increasing standards for industrial oxygen
- Making better estimates of how much oxygen is needed for medical treatments
- Disrupting the traditional the supply chain and balancing the use of cylinders versus PSA, pressure swing adsorption, systems which generate oxygen on site



# COVID VS. Influenza Vaccination

The heavy pandemic restrictions from last year made cases of seasonal flu almost non-existent, but this may actually make this year's flu season worse than the average season. According to the WHO 17% of respiratory swabs are positive for seasonal flu in during an average year, but in 2020 only 0.2% of swabs were positive. This could lead to lowered rates of immunity among the general population and lead to an earlier and longer flu season for 2021, infecting more people than normal.

So this would seem like the perfect year then to get a flu shot. Now that COVID restrictions have largely been lifted almost guaranteeing that people will be exposed to the flu. Yet the world is now facing a flu vaccine shortage. Flu vaccine shortages have been reported from Japan, the US, and the UK.

Reasons for the shortage include, increased demand from government urging the population to get vaccinated, as seen in the UK, to a global shortage of ingredients.

Most effected is the quadrivalent FluMist, a nasal spray given to children instead of needles, which will not be available in countries such as Canada this year due to the supply shortage.



# The Treatment Solution

Throughout the pandemic, though vaccine development efforts were largely trumpeted as a success, good treatments for COVID have languished, especially for those not hospitalized as the antibody treatments such as the antibody combos from Eli Lilly and Regeneron, need to be provided through IV infusion.

But Pfizer and Merck are now in direct competition to supply the world with COVID antiviral pills to prevent the onset of severe illness and prevent hospitalization and mortality. Merck's Lagevrio reduces the risk of hospitalization by 50% and Pfizer's Paxlovid cut hospitalizations by 89%. Merck already has approval in the UK. The US and UK already have deals in place to secure millions of doses of both antiviral therapies.

There are some questions that remain:

- How effective are these treatments in real world settings?
- Do they prevent transmission or the development of symptoms in those exposed?
- As Lagevrio, a nucleoside analogue, works through causing mutations, will it drive the development of new variants?
- Will wealthy countries buy up the whole supply as they did with the vaccines?



# All Joking Aside

Based on a recent study by Penn State University, the SARS-CoV-2 virus may be on its way to setting up long term zoonotic cycling. What does this mean exactly?

80% of white-tailed deer in the mid-west, Iowa specifically, were infected with SARS-CoV-2 during the surge of infection in humans. This may establish a reservoir for the virus to cycle back into the human population periodically. Researchers are waiting to confirm that deer can transmit back to humans much like minks, as observed earlier in the pandemic. This would mean reintroduction of new variants into the population from animals, similar to Influenza.



# COVID: The Kids Got it Right!

Setting a Good Example



Image Credit: Dave Whamond

Will Jab for Candy



Image Credit: John Darkow

Kids are Smart



Image Credit: Tim Campbell

Acting as an Adult



Image Credit: Mike Thompson