The Role of Vaccinations Among Children for the Upcoming Flu Season

Recent updates on flu/viral illnesses during winter 2023-2024 and vaccines

By Dr. Niru PRasad

Introduction

There has been a sustained increase reported nationwide among children suffering from flu viral illnesses.

During the fall and winter months there have been more incidences of common cold, allergies, and flu cases among children due to them being unable to easily acclimatize to weather changes.

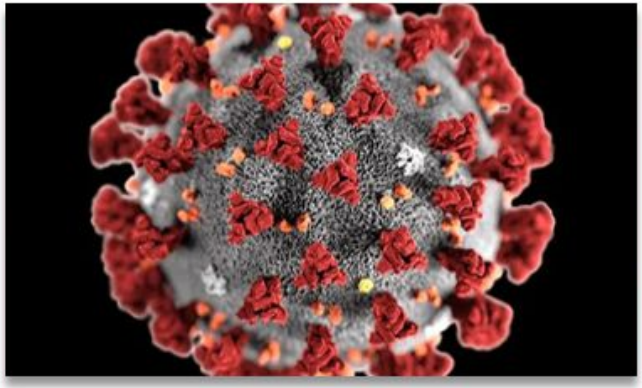
Fewer regular check ups by pediatricians during covid era, uninsured parents and caretakers due to loss of jobs, and missing regular immunizations updates.

What are the types of viruses involved?



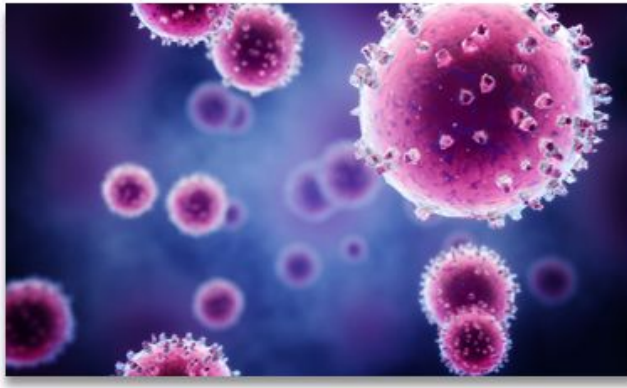
Influenza

PromoCell



COVID-19

Smithsonian



RSV

Willis-Knighton Health System

What is the Flu?



Flu (Influenza) is an extremely contagious respiratory illness caused by influenza A/B virus.

Symptoms of flu are more or less same as the common cold which are cold, sneezing, sore throat, congestions, running nose however these symptoms generally resolve in 3 to 5 days. Symptoms of persistent fever, chills, muscle aches , productive cough, trouble breathing prompts attention to further investigate a more serious viral illness.

A recent survey by the center of disease control in October reveals at least 780,000 people sick with flu so far this season resulting in hospitalization and death due to complications from flu among children and adults. (CDC)

What is COVID-19?

COVID-19 is a disease caused by the very contagious SARS-CoV-2 virus.

The virus specifically targets the lungs and can lead to symptoms similar to that of the flu or pneumonia. SARS also mutates very quickly and presents different variants such as omicron, delta, and alpha.

The total number of covid cases are getting less due to proper immunizations and early detection. However, recent data from Wastewater Scan - a group that receives data from waste water collection sites in 36 states 3 times a week looking for viruses shed in sewages - shows that covid remains widespread from north east through western parts of the US. (vaccineinformation.org).

What is RSV?

RSV (respiratory syncytial virus) is a highly contagious respiratory disease that causes cold-like symptoms.

Most kids sick with RSV have stuffy nose, cough or wheezing fever, and general weakness. More severe cases of RSV can lead to bronchitis and pneumonia. Infants and immunocompromised individuals are more at risk of developing more severe cases of RSV.

This year the RSV virus is hitting earlier than usual since the typical peak is around Jan-Feb due to lack of vaccinations. The lack of vaccinations may stem from heightened stigma and anti-vax ideologies surrounding vaccines during/post covid era.

What is Respiratory Syncytial Virus (RSV)?

RSV is a common respiratory virus that usually causes mild, cold-like symptoms. Most people recover in a week or two, but RSV can be serious, especially for infants and older adults.

Symptoms of RSV:



Coughing

Sneezing or runny nose

Decrease in appetite

Fever

Children's National

Vincent Wang Wellness Center

Innate Immunity vs Adaptive Immunity

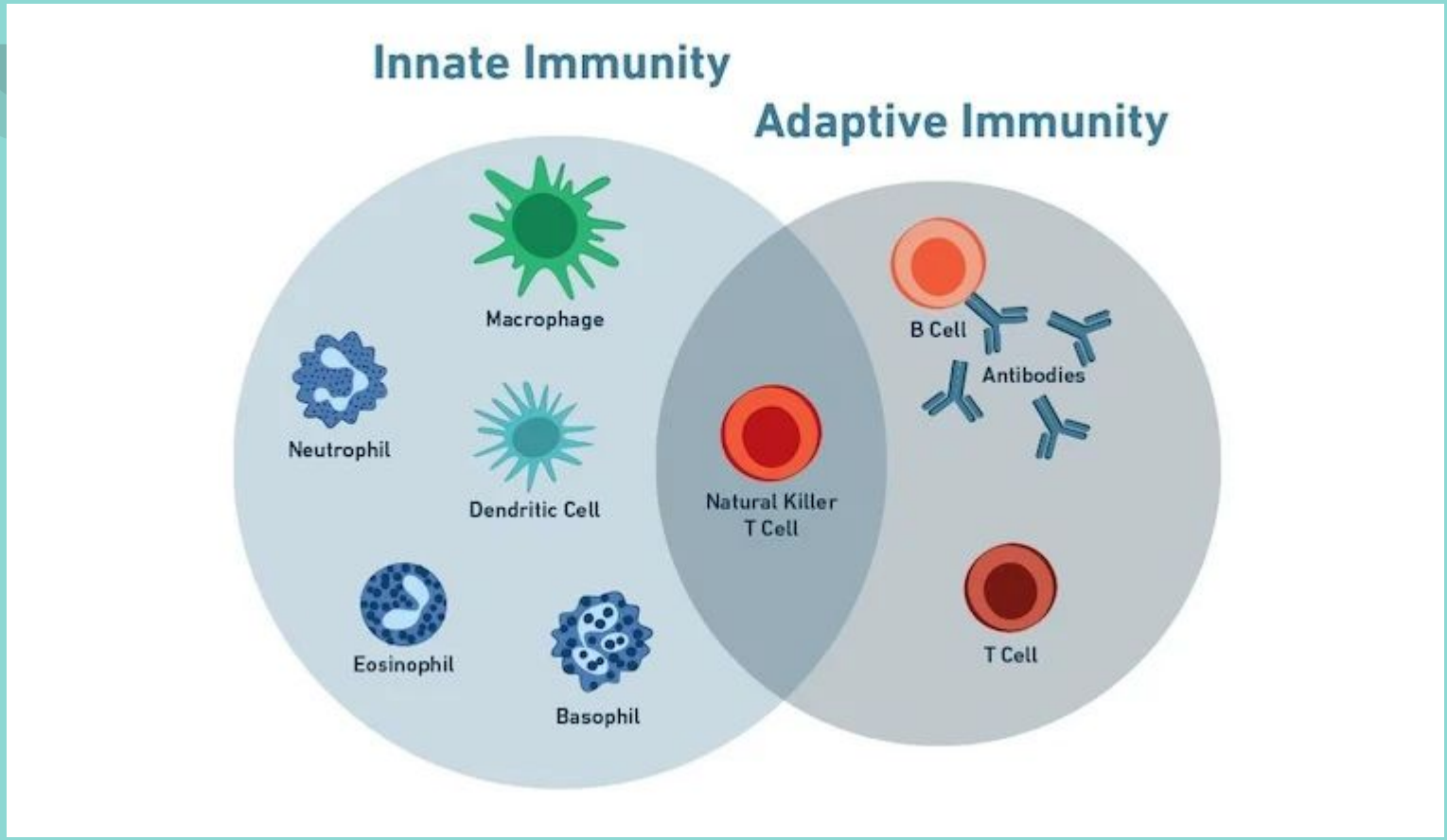
To discuss vaccines, we must first understand how vaccinations and immunizations work. Human beings have two kinds of immune system organizations; innate immunity and adaptive immunity.

Innate immunity refers to physical barriers that prevent pathogens from infecting the body. These physical barriers include the skin, mucus, lysozymes, and antibodies.

Children are born with innate immunity reflective of their mothers, who provide antibodies through breastfeeding.

Adaptive immunity refers to immune responses to specific antigens that get past any first-line barriers, and is the basis for vaccine immunizations.

Just as the name suggests, the immune system can learn to recognize specific antigens (markers specific to a pathogen) and utilize this information to synthesize antibodies against the foreign invader and store the information in case of later infection.



Cell Signaling Technologies, April Lowell

Vaccines

Vaccines take advantage of the adaptive immune system and provide a safer way of granting immunity.

Vaccines can contain dead, inactivated, or genetic material of viruses or pathogens. The vaccines contain only a tiny fraction of the pathogen, which is enough for the adaptive immune system to mark it as an antigen, synthesize antibodies, and store its specific information in the form of memory B-cells.

Vaccinations allows us the opportunity to avoid exposure to live viruses, giving us a much safer alternative to generating immunity against certain pathogens. Modern technologies have since advanced and improved vaccinations to be more effective against a wider variety of diseases and infections.

The following is the routine vaccines administration to children according to AAP and CDC guidelines for 2023-2024
https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html

Influenza recommended vaccine:

- Haemophilus influenzae type B by 2 months old
- Influenza (quadrivalent) IIV4 as annual flu vaccine

COVID-19 recommended vaccine

- 1vCOV-mRNA, 1vCOV-aPS once (updated 2023-2024 vaccine)
- RSV recommended vaccine
- RSV Abrysvo given to pregnant women before birth
- RSV-mAb Nirsevimab to mother or infant postpartum depending on immunization status

It is recommended that all individuals receive and stay up to date with their vaccinations. This is not only for personal safety, but also the safety of our communities and those who are most at risk - children and immunocompromised individuals - of serious complications due to infection of pathogens.