Penn Medicine
Abramson Cancer Center

COVID19 and Lung Cancer: What we know and don't know

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Basic Terminology

- SARS-CoV2 – name of the virus that causes the infection
  - **S**evere **A**dult **R**espiratory **S**yndrome – **Co**rona**V**irus **2**

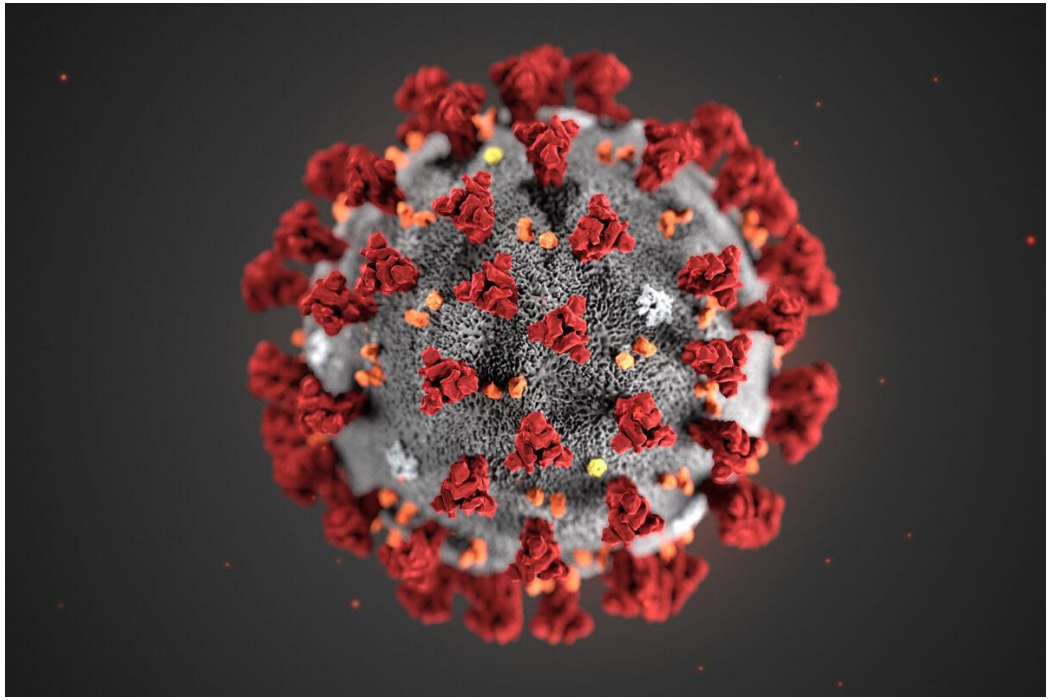
- COVID19 – disease caused by infection with SARS-CoV2
  - **CO**rona**VI**rus **D**isease 20**19**

What is a coronavirus?

Parainfluenza 1

Metapneumovirus

Influenza A



Parainfluenza 4

Influenza B

Enterovirus

Adenovirus

Rhinovirus

Parainfluenza 2

Parainfluenza 3

Respiratory Syncitial virus B

Respiratory Syncitial virus A

Has this ever happened before?

- SARS-CoV1 - first reported in February 2003
  - Affected 26 countries in Asia
  - 8,000 people affected with 774 deaths
  - Contained roughly 4 months

- MERS – **M**iddle **E**ast **R**espiratory **S**yndrome
  - First reported Saudi Arabia in September 2012
  - Spread to 27 countries
  - 2,519 confirmed cases, 866 deaths

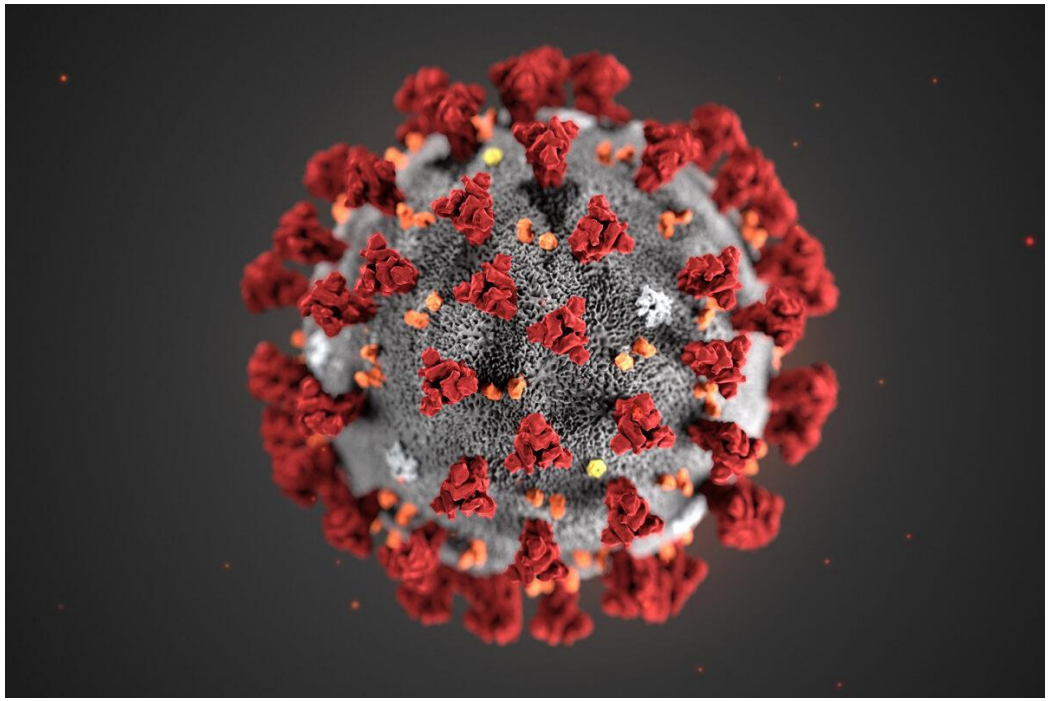
- SARS-CoV2 – 31,000,000 cases, nearly 1,000,000 deaths

What is different about SARS-CoV2?

- Spike proteins appear stickier than regular coronavirus
  - Lower exposure, spread more easily
- Hijacks the immune system
  - Recruits inflammatory cells
  - Blocks the substances that control its replication

Affects the blood vessel lining cells

impairs blood flow to organs



Who is at risk for infection?

- Patients with chronic diseases
  - Heart disease
  - Lung disease/COPD
  - Chronic kidney disease /dialysis
  - Obesity
  - Diabetic
  - Weakened immune systems (transplant)
  - Sickle cell disease
  - Cancer – highest risk blood cancers

Why might lung cancer patients be more at risk?

- Is it something about the cancer itself?
- Lung cancer patients may also have COPD
- Is it the treatments that patients get?
- Is it related to complications of the treatment patients get?
  - Suppressed immune systems from chemotherapy
  - Lung injury from prior radiation
  - Immunotherapy alterations in the immune system
- Does nutritional status matter?
- Are older lung cancer patients at greater risk?

What can you do to reduce your risk?

- Physical distance
- Avoid crowds, large gatherings
- Wash your hands
- Avoid touching your face
- Learn how to use virtual communication programs
- Make sure close contacts are forthcoming if they have symptoms
- Get the flu vaccine this fall

What can we do to minimize your risk?

- Patient symptom and temperature check at office visits
- Ensure no healthcare providers come to work with symptoms
- Maintain physical distancing in the office
- Change the timing of treatments when possible
- Use telemedicine whenever safely possible
- Work toward a vaccine for everyone

How do vaccines work?

- Block the interaction between the virus and
  - the cell
- Stimulate immune system
  - Antibody production
- Questions that remain
  - Will it work?
  - Will it be safe?
  - Will people take it?
  - How quickly can it be deployed?
  - How quickly can it be deployed?
  - Will it last?
  - Will other immune cells help in protection?

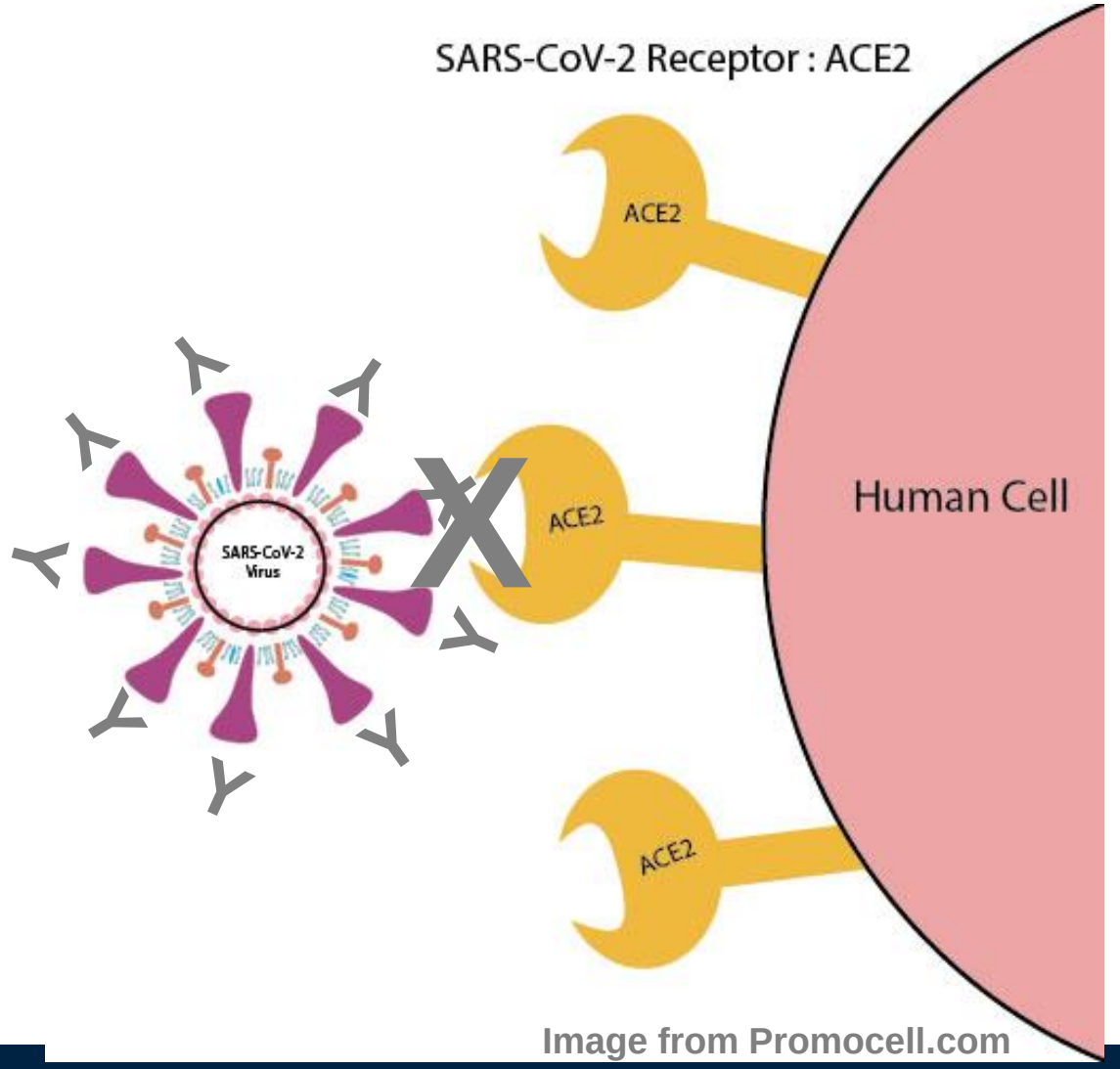


Image from Promocell.com

Final thoughts: Quotes to consider

- "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less. (Marie Curie)

- "Life isn't about waiting for the storm to pass. It's about learning how to dance in the rain.“ (Vivian Greene)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