COVID-19 Update & Cardiovascular, Influenza Nexus

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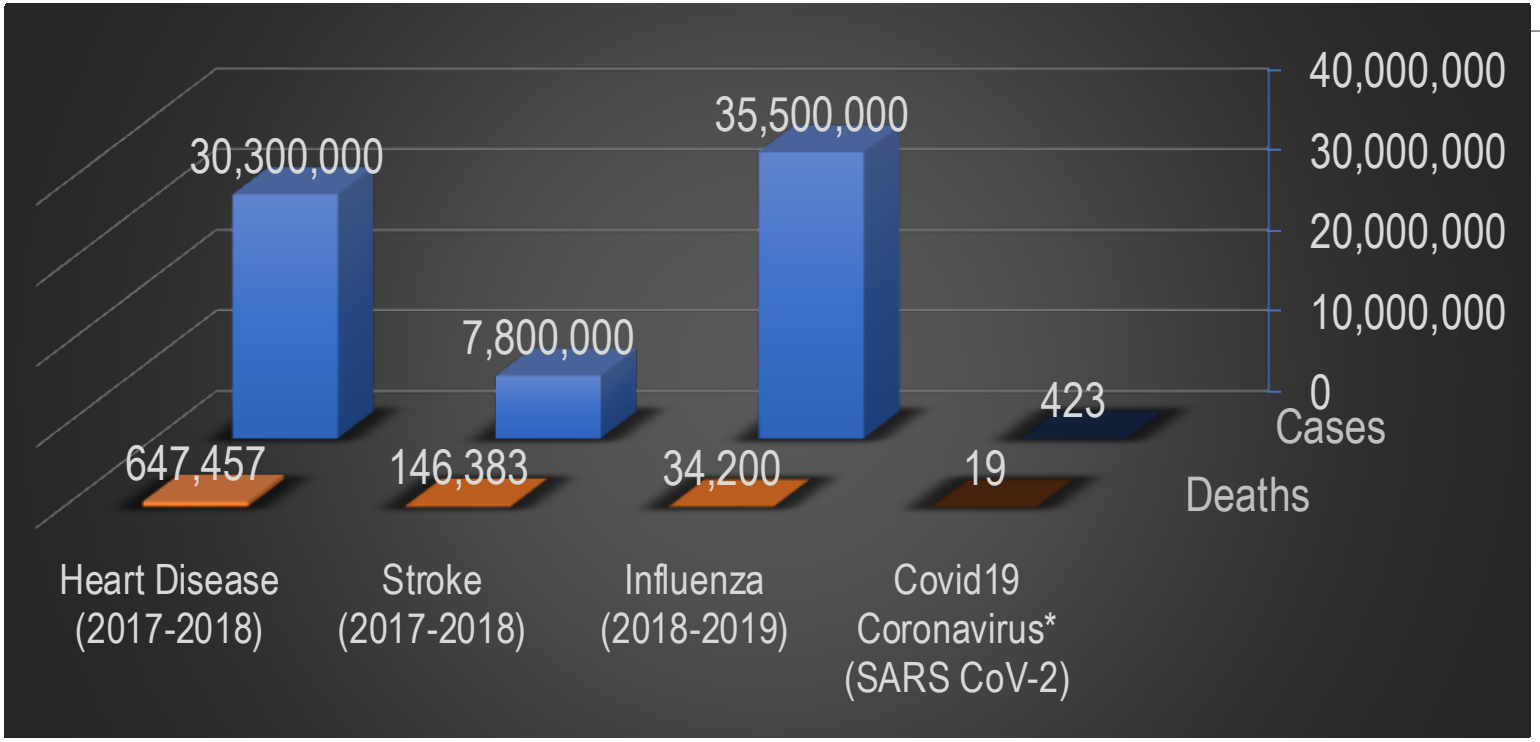
Current COVID-19 Clinical Context

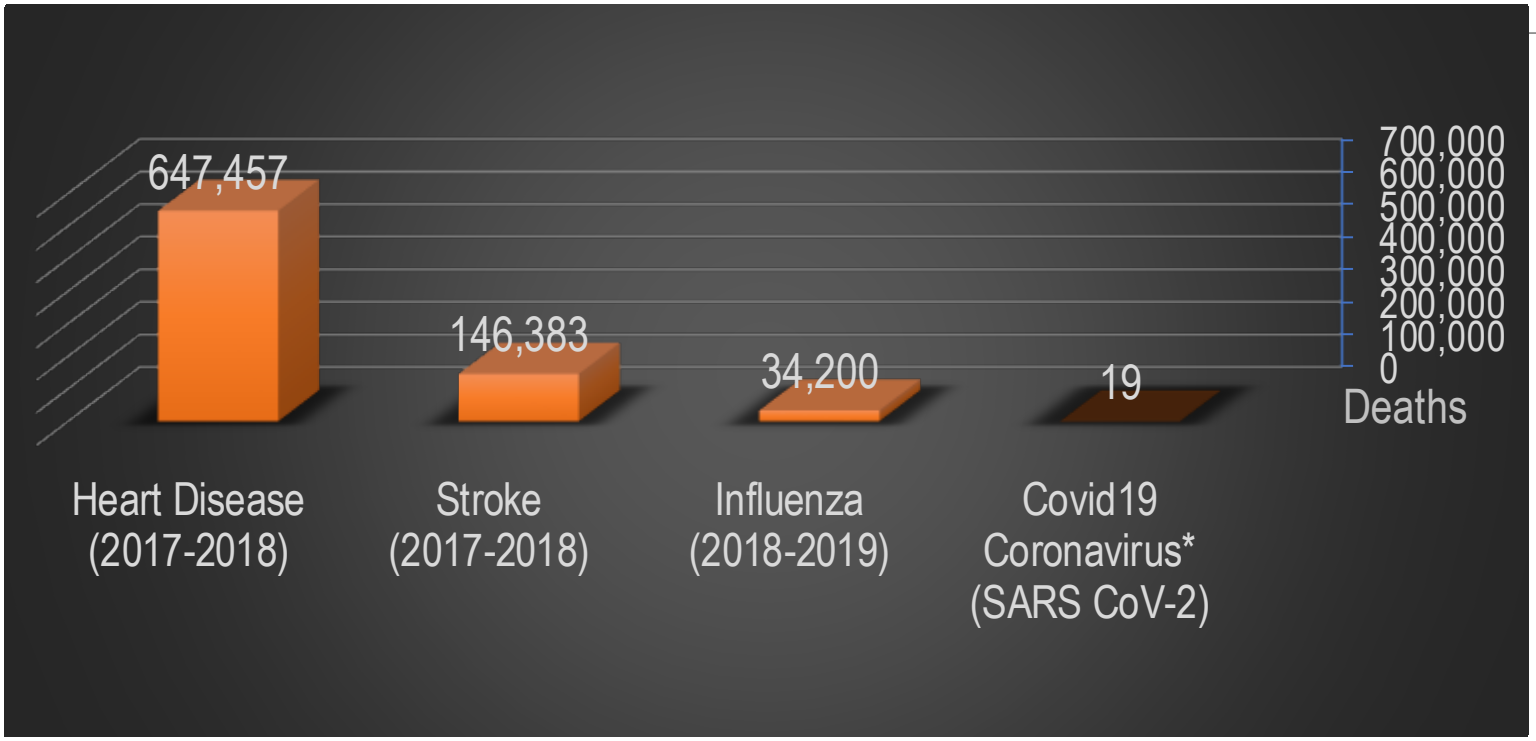
- The overall case fatality rate (CFR) of COVID-19 based on published reports remains low at 2.3%, with data indicating lower overall Chinese mortality outside of the outbreak epicenter in Hubei, China[i]
- Beyond China, real-time reporting indicates CFRs between 2.7% (Iran) and 0.5% (South Korea); however, this information is provisional and likely to change[ii]
- More than 80% of infected patients experience mild symptoms and recover without intensive medical intervention[i]
- However, morbidity and mortality increase significantly with age, rising to 8.0% among patients 70-79 and 14.8% in patients over 80 in large-scale Chinese case reporting[i]
- Published case reports from the Chinese Centers for Disease Control indicate patients with underlying comorbid conditions have a heighted risk for contracting COVID-19 and a worse prognosis; depending on the report, between 25% and 50% of COVID-19 patients present with underlying conditions[i,iii]
- Case fatality rates for comorbid patients are materially higher than the average population:[i]
    - Cancer: 5.6%
    - Hypertension: 6.0%
    - Chronic respiratory disease: 6.3%
    - Diabetes: 7.3%
    - Cardiovascular disease: 10.5%

Number of Cases & Deaths in the USA



Source: National Center for Health Statistics, Centers for Disease Control and Prevention.
*World Health Organization/CDC/CDPH/Johns Hopkins/News estimates early March 2020

Deaths in the USA



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	Cases (Deaths) in USA	Preventive Inoculations and Medications Available?	Effective Antidote/ treatment available if found quickly?
Covid 19 Coronavirus* (SARS CoV-2)	423 (19)	No	No**
Influenza (2018-2019)	35,500,000 (34,200)	Yes	Yes
Stroke (2017-2018)	7,800,000 (146,383)	Yes	Yes
Heart Disease*** (2017-2018)	30,3000,000 (647,457)	Yes	Yes

Source: National Center for Health Statistics, Centers for Disease Control and Prevention.
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**Progress is being made in testing antivirals and vaccines, investigational at this time.
***Includes Heart Attacks and Heart Failures.

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1) Heart attacks increase after influenza infections (and some other infections), so cover your cough and sneeze to prevent droplet spread. For your own health and the safety of loved ones, it is essential to wash hands more regularly and thoroughly for at least 20 seconds (e.g. upon coming home; after using a restroom; and after you cough, sneeze, or blow your nose). During flu season and especially this global coronavirus outbreak, stop shaking hands, a major vector of germ transmission.

Right Care Initiative

2) Get a flu shot. It will reduce your chances of having a flu associated heart attack and lessen the severity of the flu if you contract it. Since flu and coronavirus symptoms are similar, the less influenza we have circulating due to prevention with flu shots, the easier and quicker it will be on our healthcare system in terms of both volume of patients in need, and understanding the cause of symptoms.

Right Care Initiative

3) Knowing your temperature is a very important indicator to monitor if concerned about infectious disease such as coronavirus or influenza.

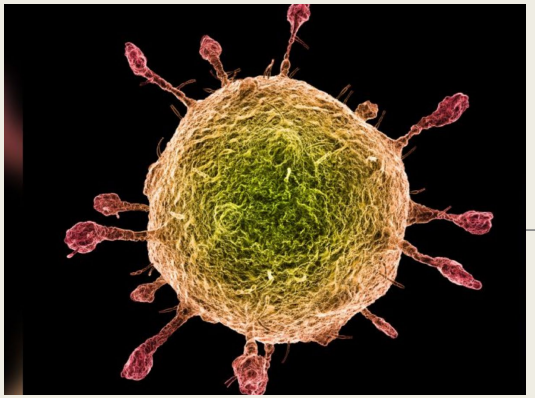
Right Care Initiative

4) Remember the basics: It is always a good idea, and especially now, to keep a couple of weeks of supplies such as non-perishable foods on your shelves (oatmeal, applesauce, unprocessed peanut-butter, crackers, canned soup, beans, rice, pasta, spaghetti sauce, bottles of tea, etc.). Keep self-care items at home that you would need if you got a cold or flu. If you start getting symptoms, if stocked up, you can stay home and not infect others in this highly infectious period of contagious illness. If you don't have supplies at home and start getting symptoms, consider having someone else go to the store for you who will not infect others, or have supplies delivered. Other Items you might consider keeping on your shelves: extra supplies of tissues, aspirin, acetaminophen, cough, heartburn, and prescription medicines as well as rehydration drinks, disinfectants, cleaning supplies, etc.)

Right Care Initiative

5) To address your risks of non-communicable diseases, Know Your Numbers. Just like your temperature for Corona Virus or Flu, there are three more numbers we'd like you to keep an eye on that are essential to your health:

a) *Keep LDL cholesterol less than 100;*
b) *Your blood pressure should be less than 120/80;*
c) *Hemoglobin A1 C, an indicator of long-term blood sugar should be less than 8%.*



COVID 19

- **First, increased risk of acute coronary syndromes associated with the severe inflammatory response to the infection.**
- **Second, myocardial depression leading to heart failure.**
- **Third, under-recognized risk of arrhythmias, also related to acute inflammation.**

Acute Cardiac Complications of COVID-19

- In a recent case report on 138 hospitalized COVID-19 patients, 16.7% of patients developed arrhythmia and 7.2% experienced acute cardiac injury, in addition to other COVID-19 related complications[iv]
- Published and anecdotal reports indicate cases of acute onset heart failure, myocardial infarction, myocarditis, and cardiac arrest; as with any acute illness, higher cardiometabolic demand can precipitate cardiac complications
- Current reporting does not yet describe prevalence of cardiac complications in CVD-naïve versus cardiac comorbid patients
- Cardiac complications of COVID-19 are approximately commensurate with SARS, MERS, and influenza analogs
- Cardiologists should be prepared to assist other clinical specialties in managing cardiac complications in severe cases of COVID-19
- Critical care and cardiology teams should confer to guide care for patients requiring extracorporeal circulatory support with veno-venous (V-V) versus veno-arterial (V-A) ECMO
- Patients demonstrating heart failure, arrhythmia, ECG changes or cardiomegaly should have echocardiography

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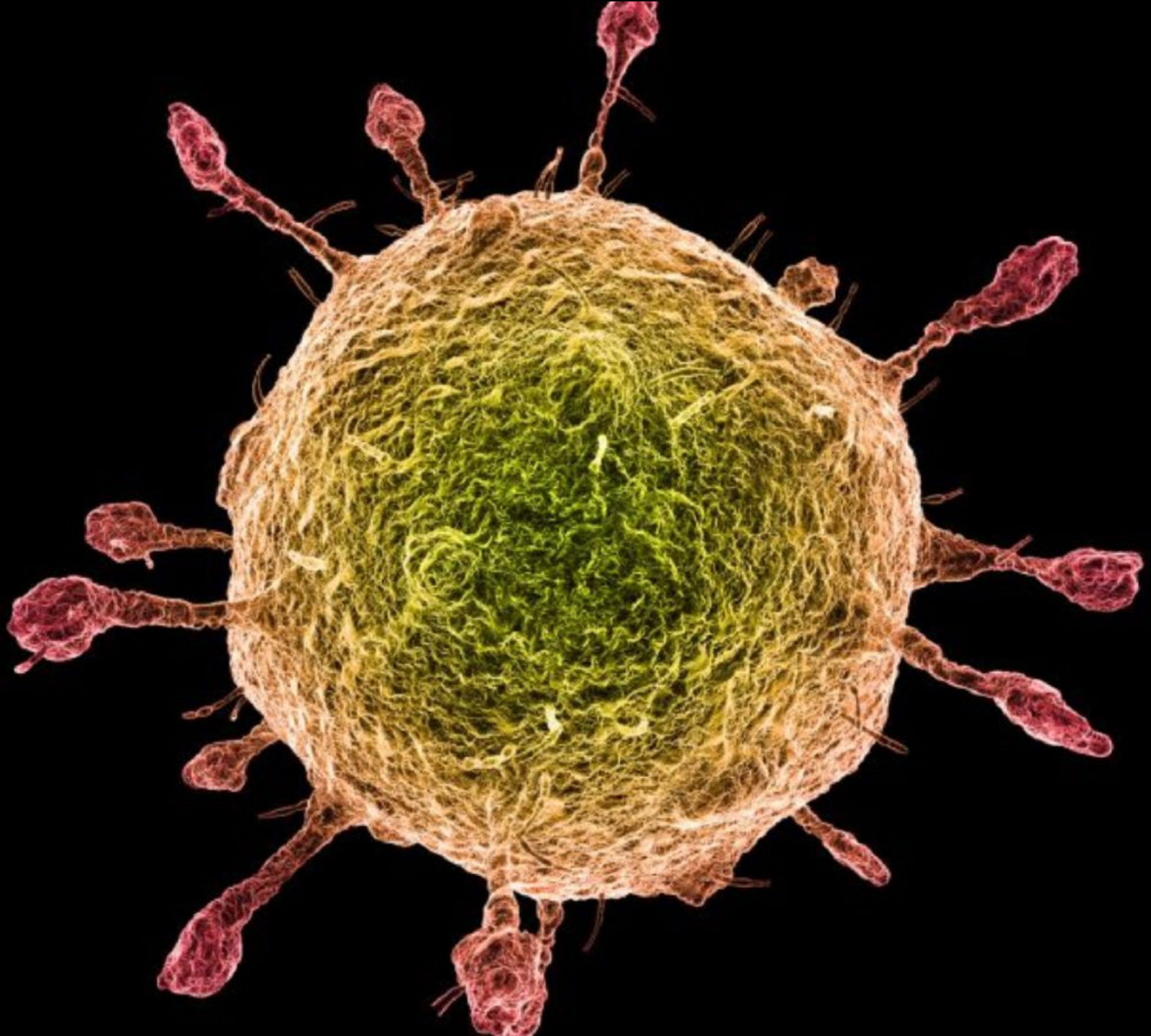
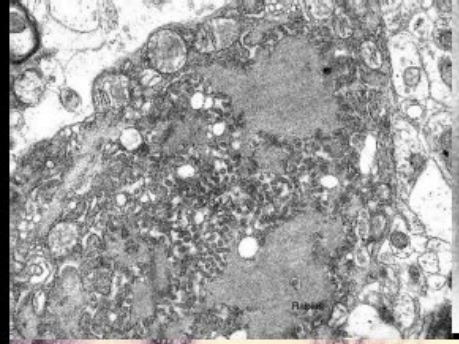
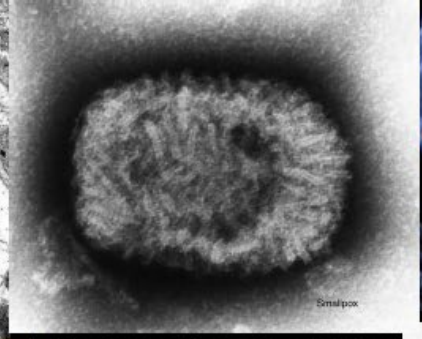
American College of Cardiology Guidance on COVID 19

- Make plans for quickly identifying and isolating cardiovascular patients with COVID-19 symptoms from other patients, including in the ambulatory setting
- It is reasonable to advise all cardiovascular patients of the potential increased risk and to encourage additional, reasonable precautions in accordance with CDC guidance
- It is important for patients with CVD to remain current with vaccinations, including the pneumococcal vaccine given the increased risk of secondary bacterial infection with COVID-19; CVD patients should be vaccinated against influenza in accordance with current ACC/AHA guidelines
- In geographies with active COVID-19 outbreaks, it may be reasonable to substitute telephonic or telehealth visits for in-person routine visits for stable CVD patients to avoid possible nosocomial COVID-19 infection; planning for emergency telehealth protocols should begin now
- For patients with heart failure or volume overload conditions, copious fluid administration for viral infection should be used cautiously and carefully monitored
- General immunological health remains important for both providers and patients, including eating well, sleeping and managing stress

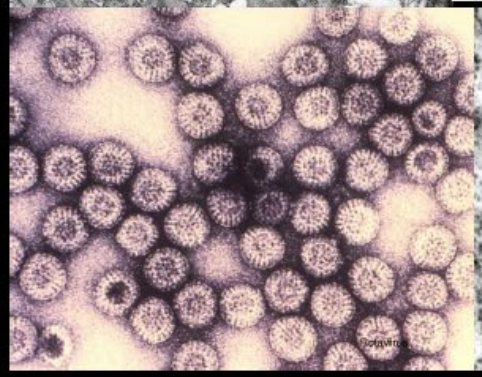


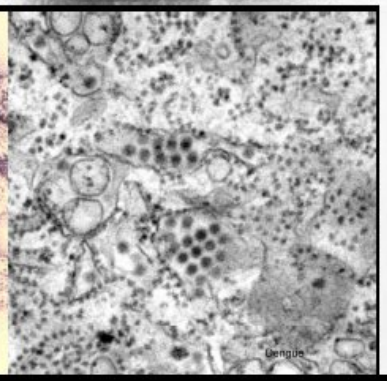

Rubeola

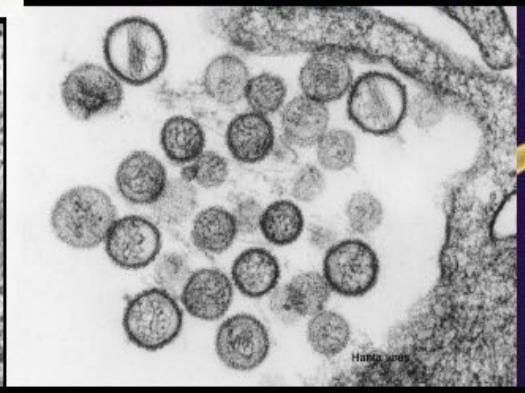

Smallpox

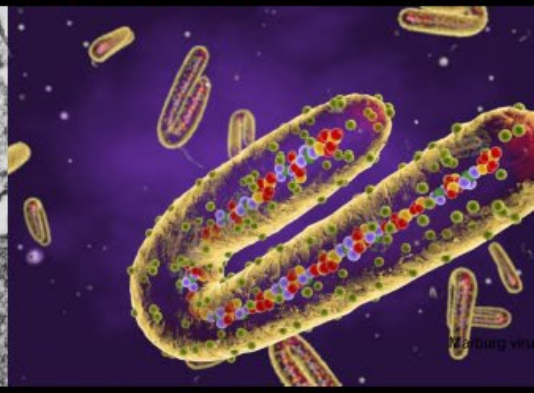

HIV

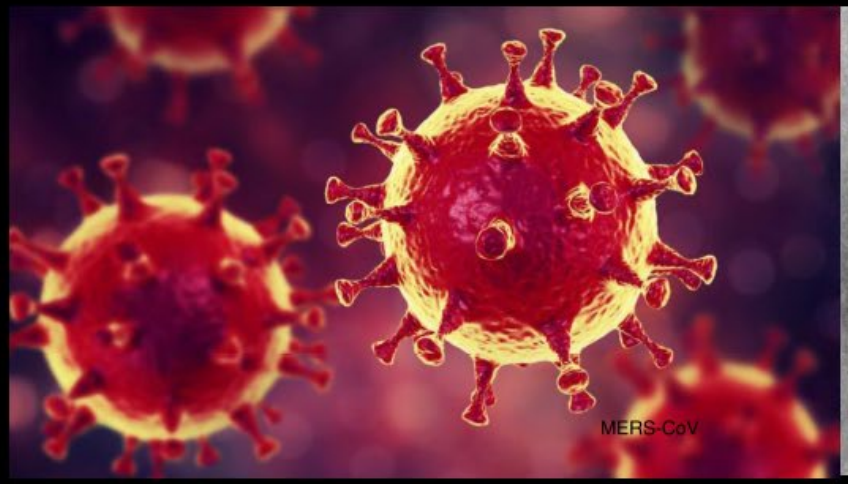

Ebola virus

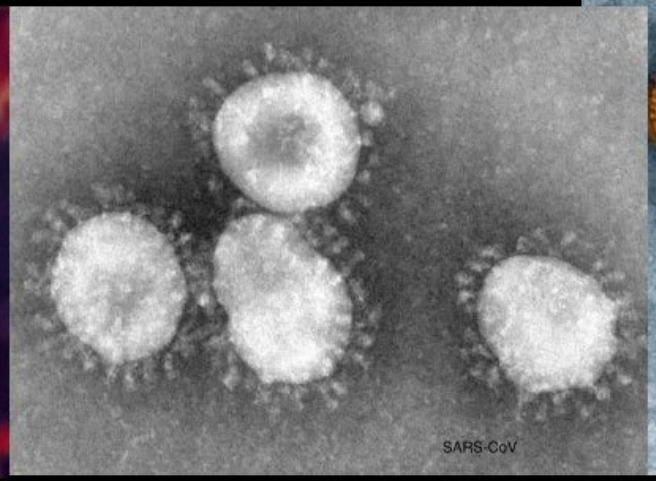

Rotavirus

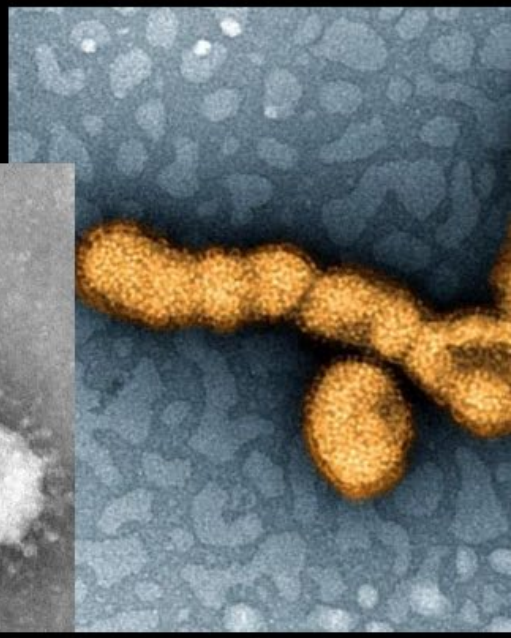

Dengue


Hanta virus

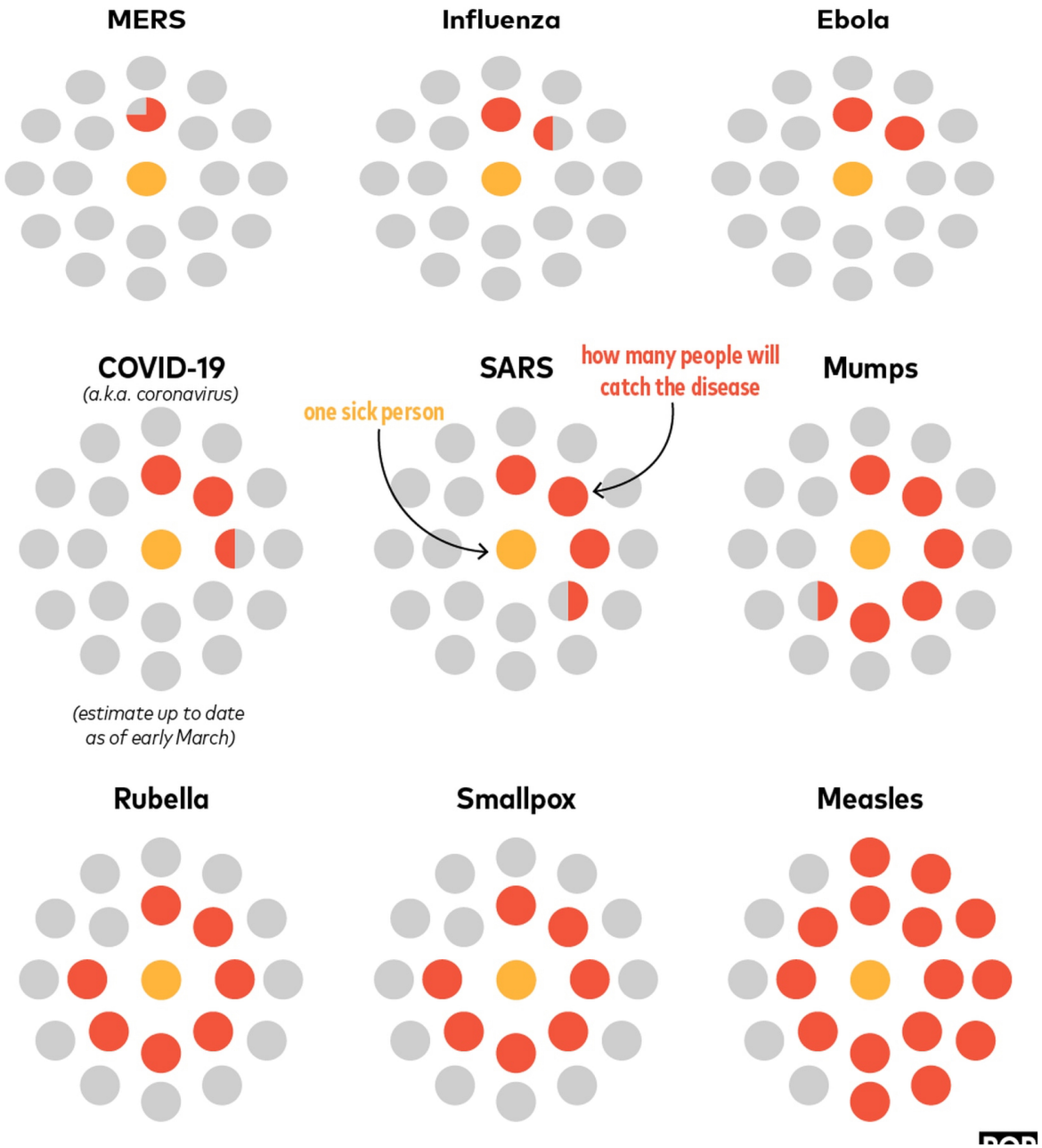

Marburg virus


MERS-CoV


SARS-CoV



INFECTION Rate R0



Coronavirus total cases and deaths by region