

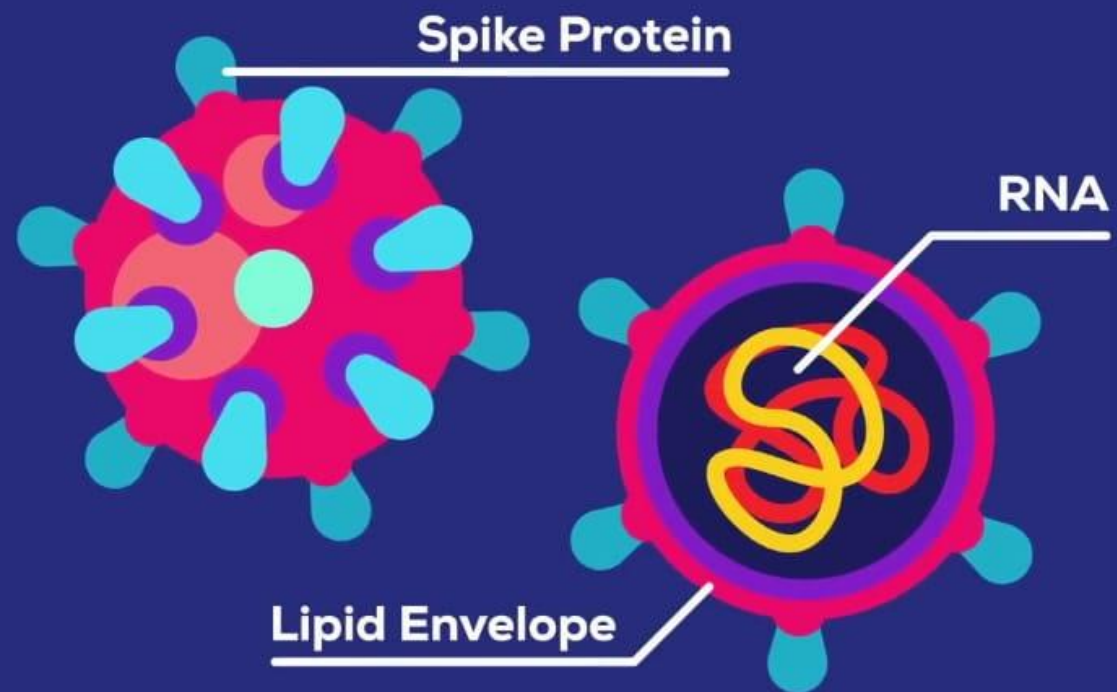
COVID-19: Prevention and Management in Children

Dr. Hardat Persaud

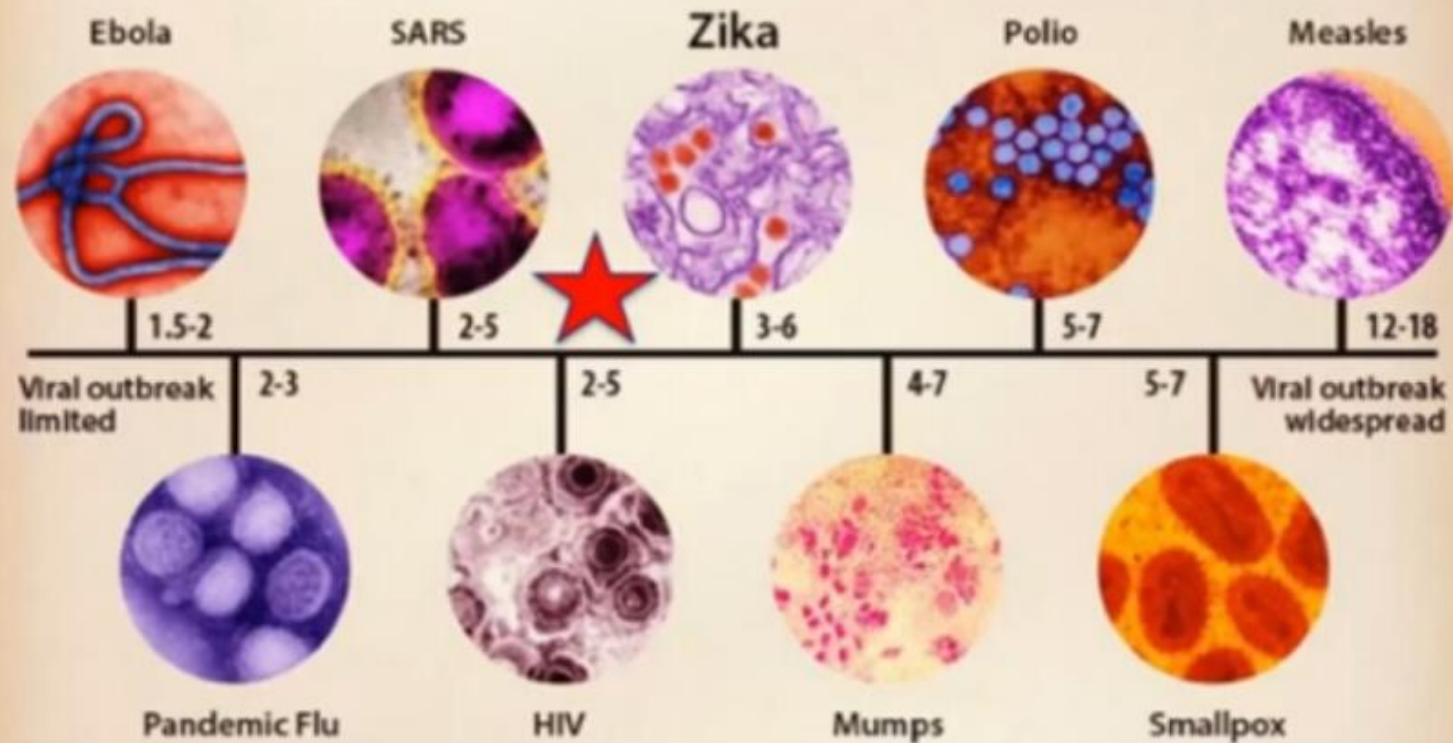
Paediatrician

Woodlands Hospital, Guyana

Corona

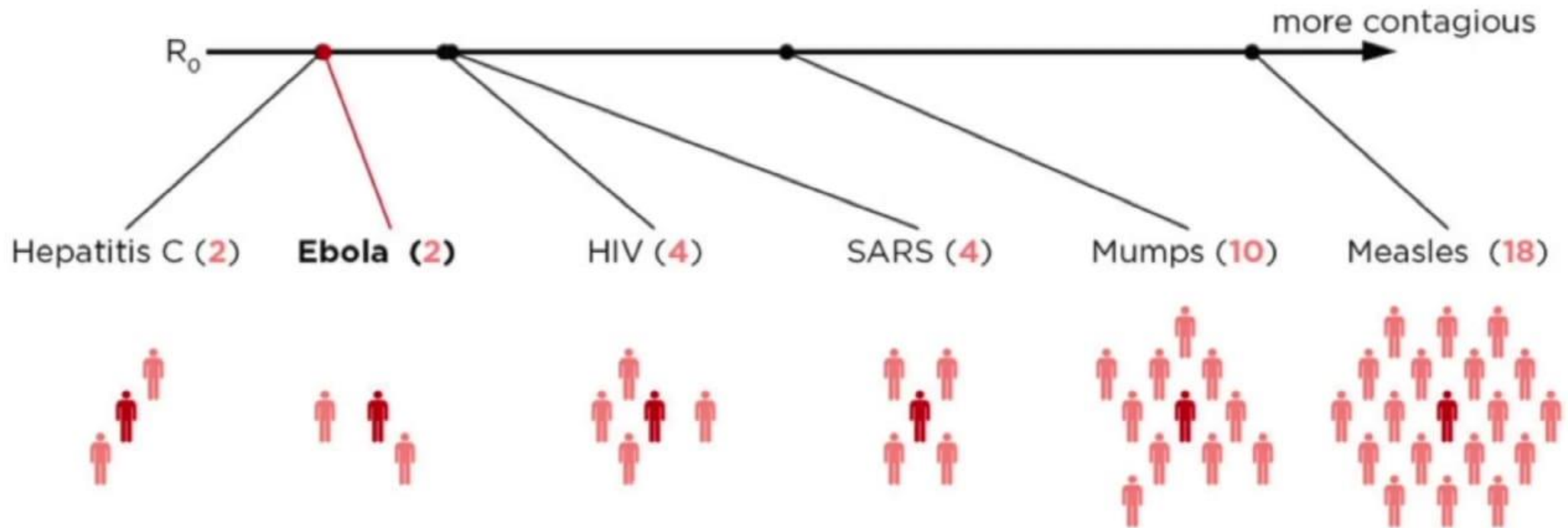


Well-known viruses by R_0 value



Source: Centers for Disease Control, World Health Organization

The number of **people** that **one sick person** will infect (on average) is called R_0 . Here are the maximum R_0 values for a few viruses.



Seasonal flu

$R_0 = 1.3$



Zika
 $R_0 = 3-6.6$

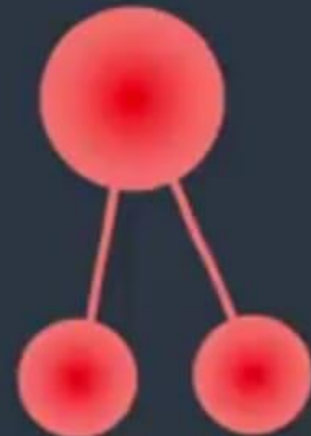


Measles
 $R_0 = 12-18$



Covid-19

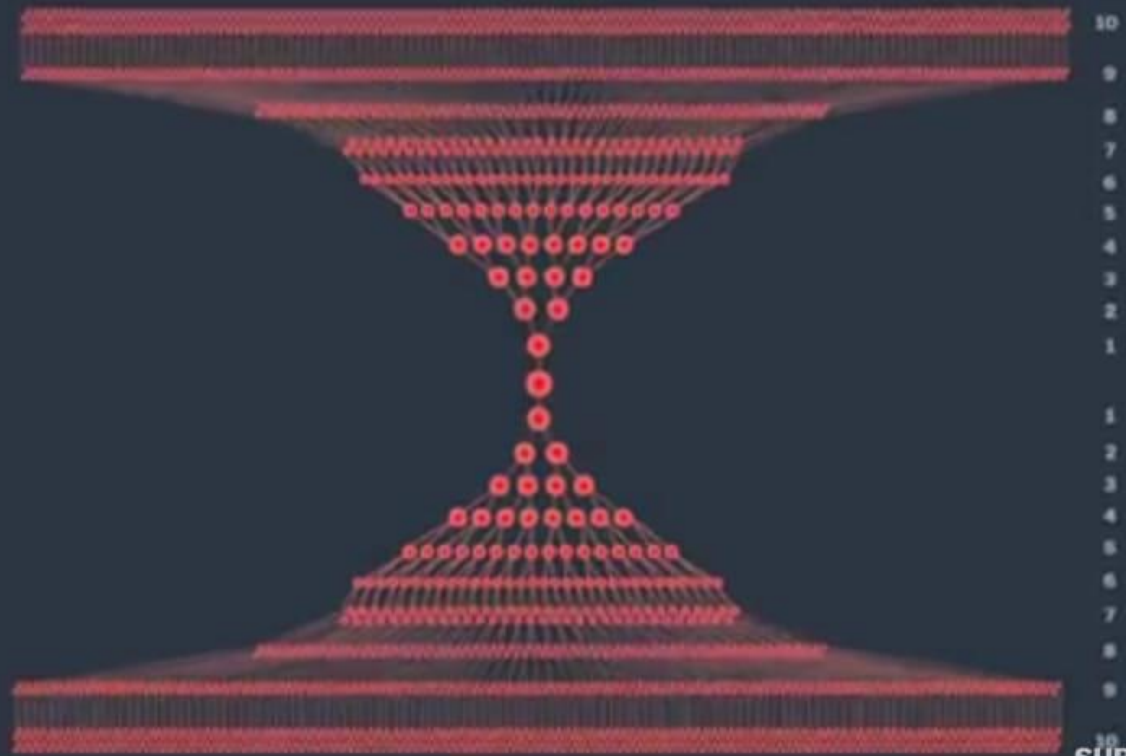
$R_0 = 2-2.5$



Covid-19

$R_0 = 2$

Flu

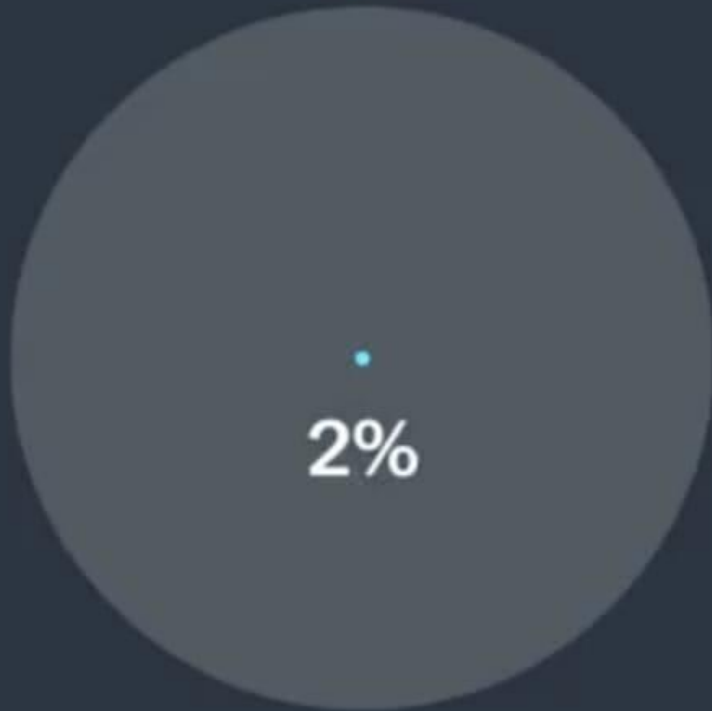
 $R_0 = 1.3$ 

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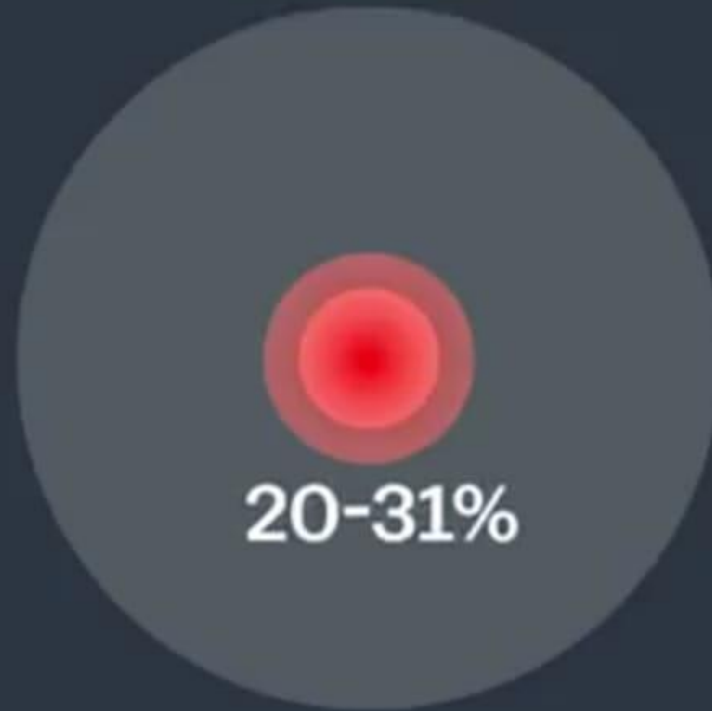
Hospitalization rate

CDC

Flu



Covid-19





Vox

Fatality rate

CDC

Covid-19

1-3%

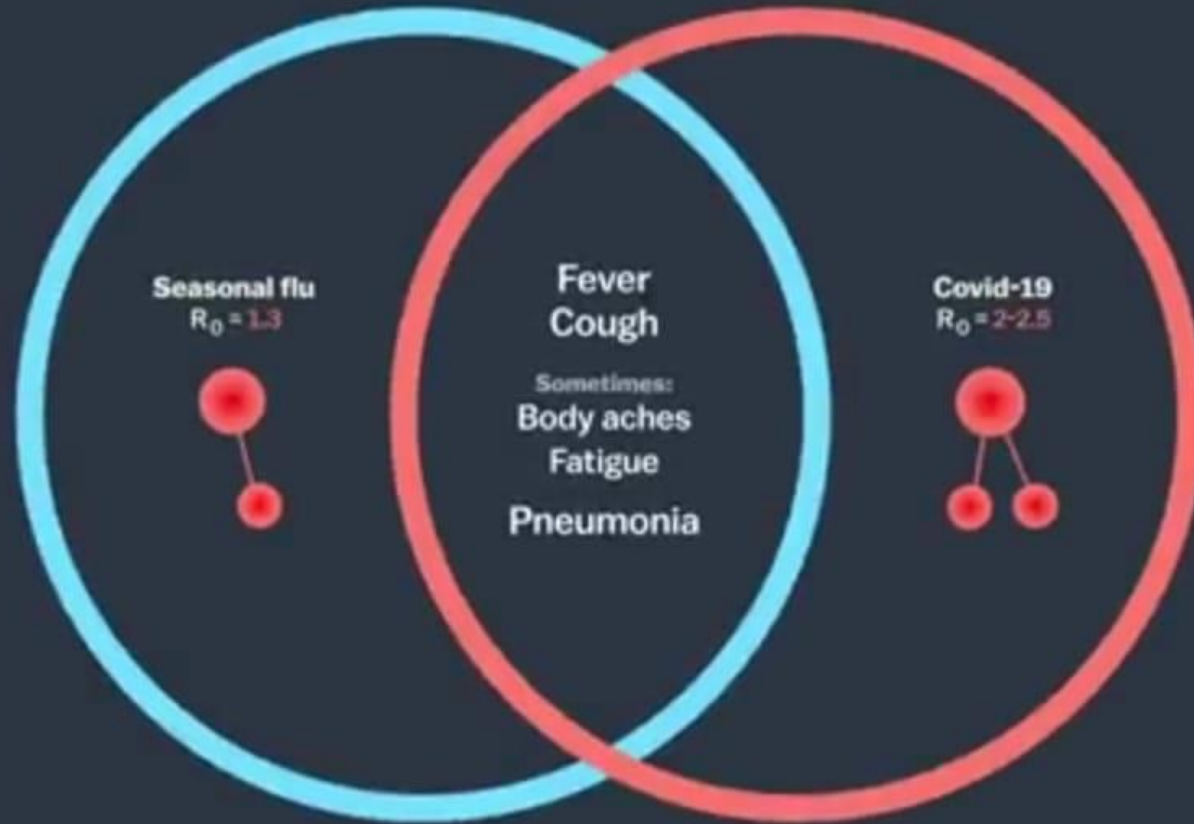
Flu

0.1%

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Flu

Covid-19



Flu

Become infected

Feel sick



Covid-19

Become infected

Feel sick



Vox

20-60%
of the world could become infected

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The Math Behind Social Distancing

NOW



1 PERSON

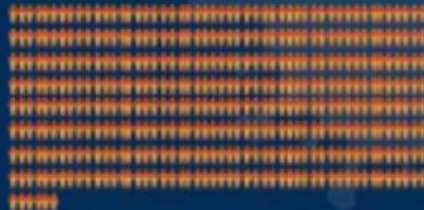
INFECTS

5 DAYS



2.5 PEOPLE
INFECTED

30 DAYS



406 PEOPLE
INFECTED

50% LESS EXPOSURE



1 PERSON

INFECTS

5 DAYS



1.25 PEOPLE
INFECTED

30 DAYS



15 PEOPLE
INFECTED

75% LESS EXPOSURE



1 PERSON

INFECTS

5 DAYS



.625 PEOPLE
INFECTED

30 DAYS



2.5 PEOPLE
INFECTED

Vox

Social distancing

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LOCKDOWN IMPACT



Forecast Data Lockdown

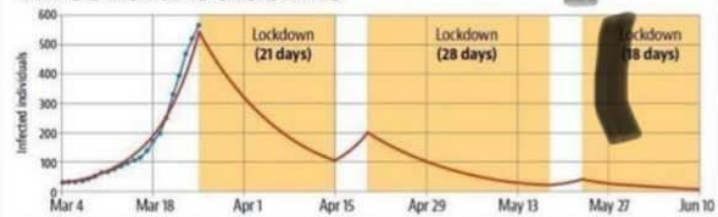
Single hard lockdown



Twin lockdowns separated by 5 days



Three hard lockdowns



Single 49-day lockdown



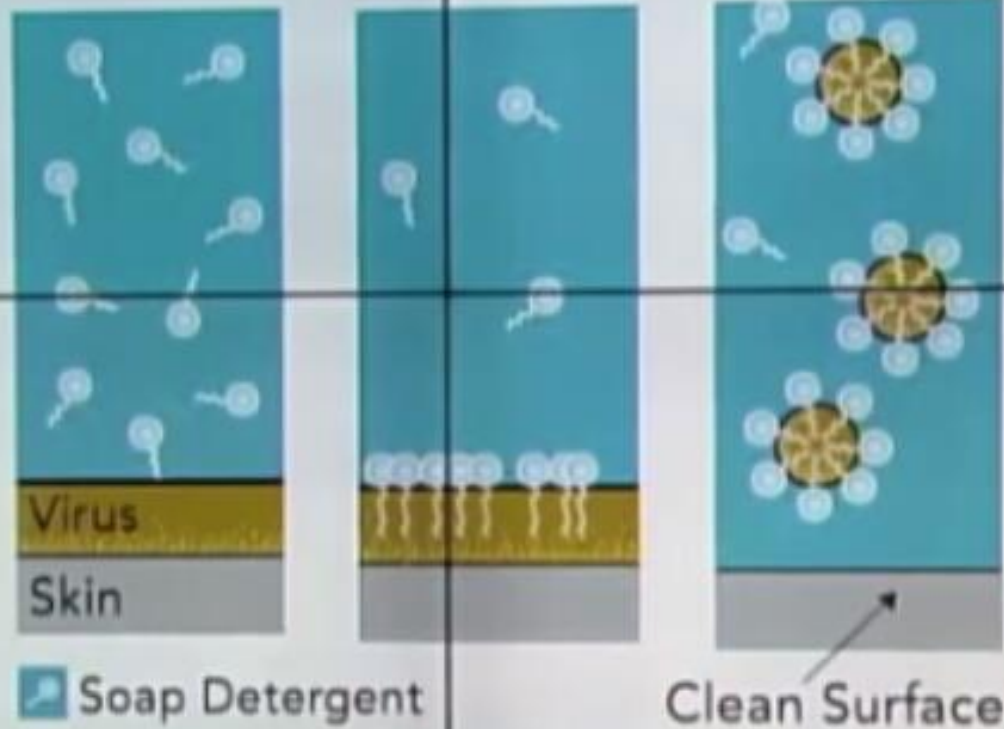
Survival of the Virus in the Environment

- . Viable up to 72 hours after being placed on stainless steel and plastic.
- . Viable up to four hours after being placed on copper, and up to 24 hours after being put on cardboard.
- . Remained viable for three hours in aerosols.

Doremalen et al. <https://www.nejm.org/doi/10.1056/NEJMc2004973>



The Science of Soap

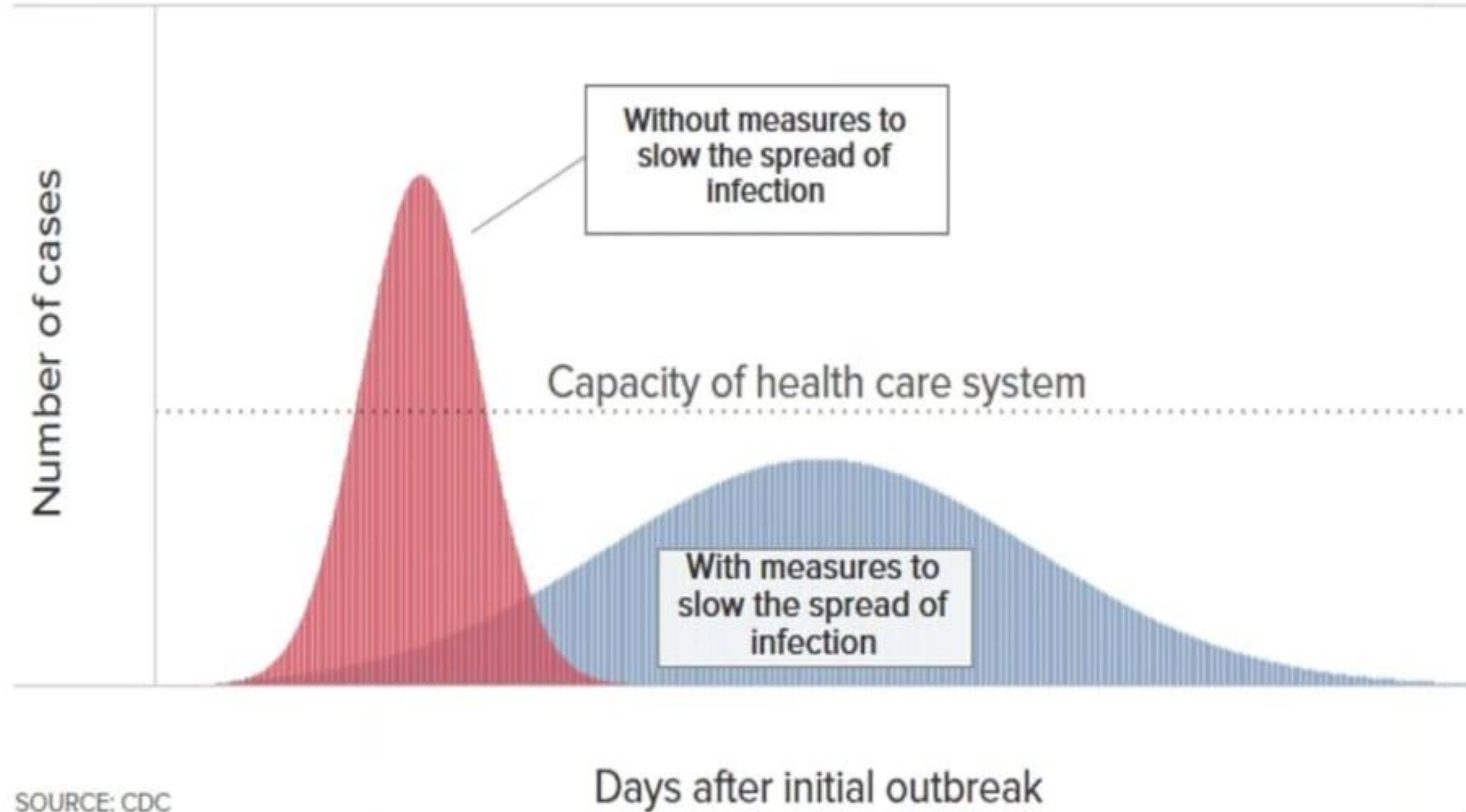


Cracking the Virus Envelope

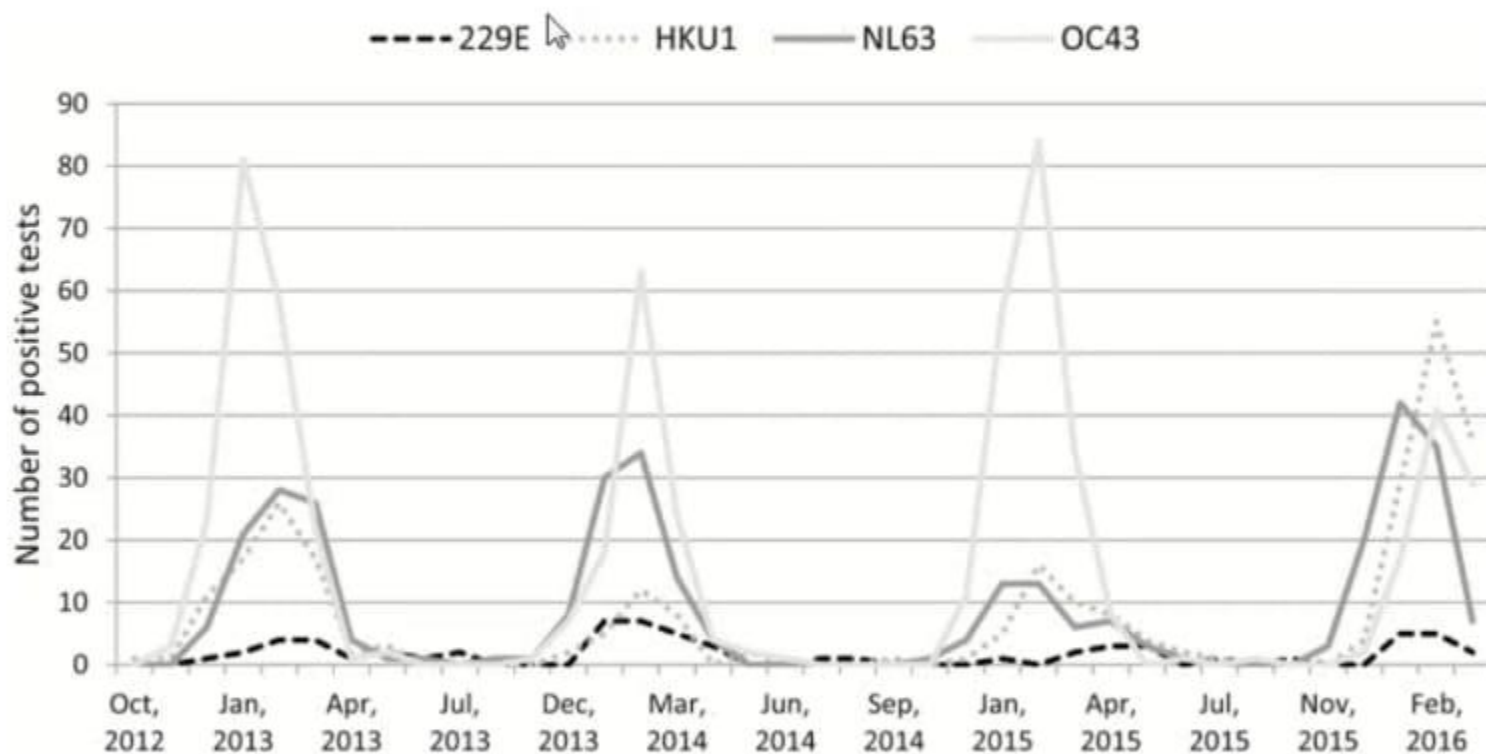




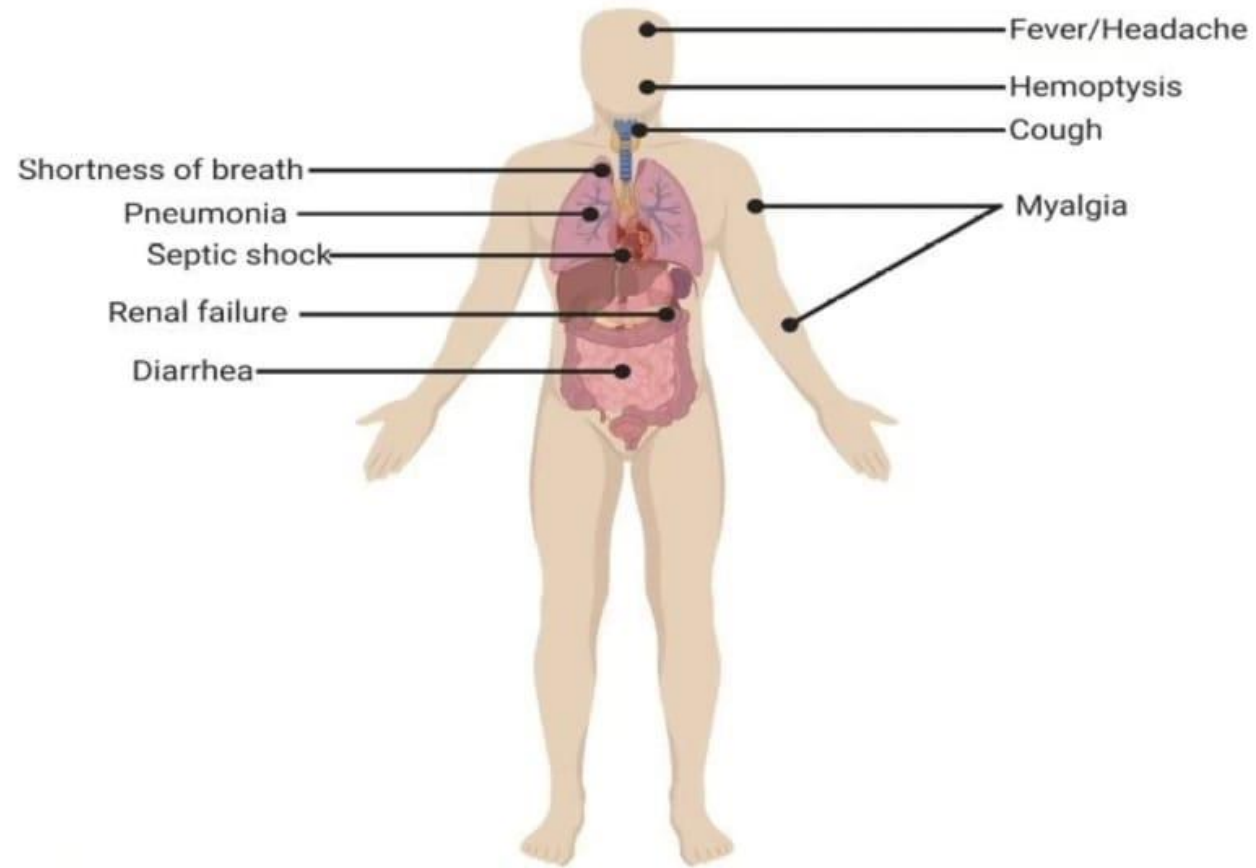
Flattening the curve



Seasonal Frequencies of Human Coronavirus strains, Seattle Children's Hospital, 2012–2016



Clinical presentation of patients with CoVID-19



Clinical Presentation

Symptoms	%
Fever	99
Fatigue	70
Dry cough	59
Anorexia	40
Myalgias	35
Dyspnea	31
Sputum production	27

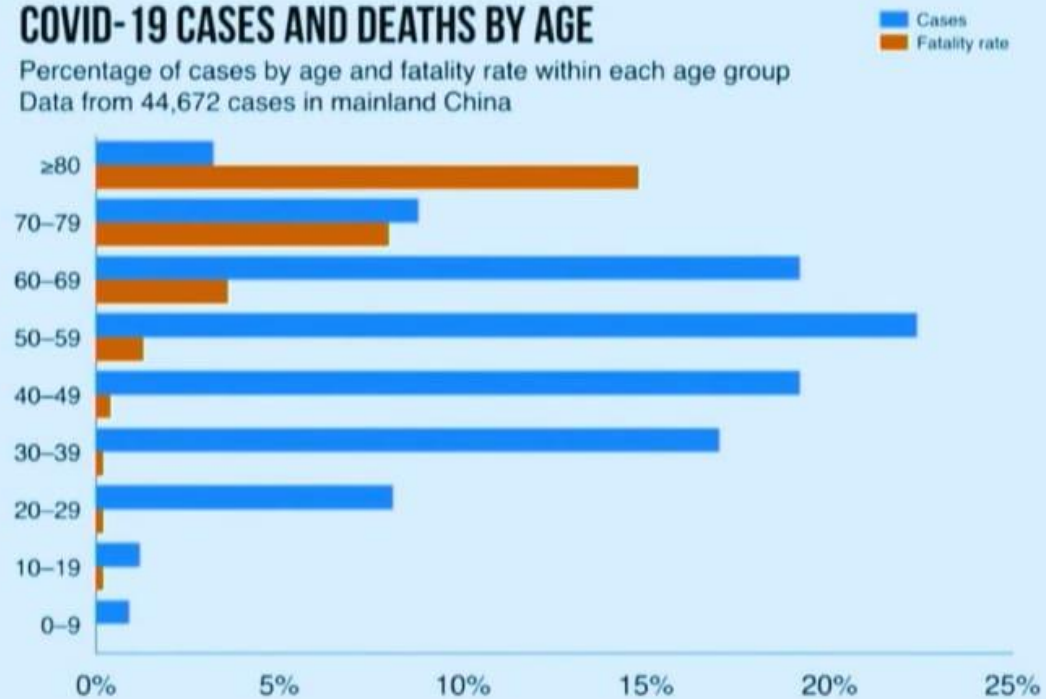
Regular Coronaviruses: Risk Factors for Severe Disease in Children

- Younger age
- Underlying pulmonary pathology*
- Immunocompromising conditions
- Respiratory co-pathogens
- RSV co-infection*

RSV - > 5X
increased risk
of severe lower
tract disease

COVID-19 CASES AND DEATHS BY AGE

Percentage of cases by age and fatality rate within each age group
Data from 44,672 cases in mainland China

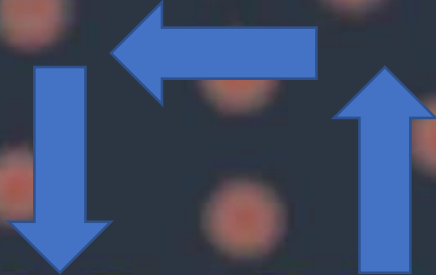


Severity of COVID-19 Illness by Age Group

Age Group	Asymptomatic	Mild	Moderate	Severe	Critical	Total
< 1	7.4	18.8	15.3	29.5	53.8	379 (17.7)
1-5	16.0	22.5	23.7	30.4	15.4	493 (23.0)
6-10	31.9	23.5	23.0	19.6	0	521 (24.3)
11-15	28.7	18.2	20.5	125	23.1	413 (19.3)
> 15	16.0	15.0	17.5	8.0	7.7	335 (15.7)
Total	94	1091	831	112	13	2141 (100)

Dong Y, Mo X, Hu, Y, et al. Pediatr 2020

Vox



20-60%

of the world could become infected

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THANK YOU

