Demystifying COVID-19

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"There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know."

Donald Rumsfeld
Coronaviruses - Family of respiratory viruses, named for the crown-like spikes on their surface
Why COVID-19?

COrona- VIrus Disease -2019

- Mutates frequently quickly, acquires new qualities
- Has been circulating for decades amongst humans
- Cause range of diseases
Who is at risk of infection?

Everyone
What are the symptoms of COVID-19?

- Run a fever
- Mild sore throat
- Sore throat
- Hoarse-voiced
- Body temperature increases
- Begin anorexia
- Have headache
- Have diarrhea
- Experience fatigue
- Muscle pain
- Dry cough
- Mild fever, about 37°C
- Productive cough or dry cough
- Difficult in breathing
- Diarrhea, or vomiting
- High fever (from 37-38°C)
- Cough and have more sputum
- Body aches and pains
- Vomiting and diarrhea

Symptoms get worse
- Messy fever
- Cough gets worse
- Difficulty breathing

At this time, you should have a blood test and take a chest x-ray to check if you have COVID-19 infection.
Symptoms of COVID-19

**Early Stage:**
- Fever (>38°C)
  - AND
- Respiratory symptoms:
  - Cough
  - Shortness of breath
  - Runny nose
  - Weakness
  - Malaise
  - Nausea/vomiting
  - Diarrhea
  - Headache

**Advanced Stage:**
- All of the earlier symptoms plus
  - Pneumonia
  - Bronchitis
How Contagious & Deadly is It?
We don’t fully know yet but it’s in this range

% who die (CASE FATALITY RATE)

average no. of people infected by each sick person (R0)

- bird flu
- Ebola
- MERS
- smallpox
- polio
- Spanish Flu
- tuberculosis
- SARS
- COVID-19
- rotavirus
- swine flu
- seasonal flu
- common cold
- measles
- norovirus
- chickenpox

COVID-19
transmissions: 1.5–3.5
fatality rate: 0.7 – 3.4%

informationisbeautiful

sources: Centres for Disease Control, WHO, New York Times
The Majority of Infections are Mild

Seriousness of symptoms

80.9%

MILD
Like flu, stay at home

13.8%
SEVERE
Hospitalization

4.7%
CRITICAL
Intensive care

study of 44,672 confirmed cases in Mainland China
sources: China Centre for Disease Control & Prevention, Statista
The Majority of People Recover
Of total worldwide confirmed cases...

Currently ill: 40%
Recovered: 56.6%
Died: 3.5%

updated 9th Mar 2020
source: Johns Hopkins University
Those Aged 60+ are Most At Risk...

% infectees who die

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Note
this data comes from the first wave of infections in Wuhan, China where lung health is poor and smoking rates are high.

study of 44,672 confirmed cases in Mainland China sources: China Centre for Disease Control & Prevention, Statista
Especially Those with Existing Conditions

% with other serious ailments who die

- Cardiovascular disease: 10.5%
- Diabetes: 7.3%
- Chronic respiratory disease: 6.3%
- Abnormally high blood pressure: 6%
- Cancer: 5.6%
- No existing conditions: 0.9%

Study of 44,672 confirmed cases in Mainland China. Sources: China Centre for Disease Control & Prevention, Statista.

Information is beautiful.
Myth: COVID-19 will die out in summer and will not reach warm countries.

From the evidence so far, the new coronavirus can be transmitted in ALL AREAS, including areas with hot and humid weather. Regardless of climate, adopt protective measures if you live in, or travel to an area reporting COVID-19. The best way to protect yourself against COVID-19 is by frequently cleaning your hands. Eliminate viruses that may be on your hands and avoid infection that could occur by then touching your eyes, mouth, and nose.

FACT: The new coronavirus can be transmitted in areas with hot and humid climates.

World Health Organization  #Coronavirus  #COVID19

9 March 2020
Total confirmed COVID-19 cases

The large increase in the number of cases globally and in China on Feb 17 is the result of a change in reporting methodology. It is explained at OurWorldInData.org/Coronavirus

How does COVID-19 compare with Seasonal flu?

**Case fatality rates: COVID-19 vs. US Seasonal Flu**

Case fatality rate (CFR) is specific to a location and time. It is calculated by dividing the total number of deaths from a disease by the number of confirmed cases.

**Seasonal Flu**
Case fatality rates for the influenza season 2018-19 in the USA.

Symptomatic cases are calculated based on models which aim to account for underreporting – figures based on medical visits are therefore also shown in square brackets, which may be a closer comparison to COVID-19 case fatality rates.

**COVID-19**
Case fatality rates for the COVID-19 outbreak in China, for the period up to February 11, 2020.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>US Seasonal Flu</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>0.004% [0.007%]</td>
<td>2.3%</td>
</tr>
<tr>
<td>0-17 years</td>
<td>0.007% [0.01%]</td>
<td>0.1%</td>
</tr>
<tr>
<td>18-49 years</td>
<td>0.02% [0.06%]</td>
<td>0.1%</td>
</tr>
<tr>
<td>50-64 years</td>
<td>0.06% [0.14%]</td>
<td>0.3%</td>
</tr>
<tr>
<td>65+ years</td>
<td>0.06% [0.14%]</td>
<td>1.3%</td>
</tr>
</tbody>
</table>


OurWorldinData.org - Research and data to make progress against the world's largest problems.
Why is there breathing difficulty?

- Both lungs get affected by a pneumonia, which can later lead to a condition called ARDS

- The greater the number of associated health problems that the person has, the greater is the risk of multiple organs failing, and of death
So what should one do?
"plus ça change, plus c'est la même chose"

"the more things change, the more they stay the same"
General Precautions

• Follow the culture of ‘Namaste’
• Practice hand-hygiene at all times
• Avoid close contact, with anyone showing symptoms of respiratory illness such as coughing and sneezing.
• Wear a mask only if you have respiratory symptoms such as cough or runny nose
• Maintain safe food practices, i.e eat well-cooked food which has been prepared hygienically
• Avoid travel to farms, live animal markets or where animals are slaughtered
Social distancing

- Keep preferably at two arm’s length, minimum one arm length
- Maintain a distance of optimally 6 feet, minimum 3 feet from a person who is sneezing or coughing
Wash hands frequently, correctly
Use a hand sanitiser
Use an alcohol-based sanitizer that contains at least 70% alcohol.
The germs and bacteria hide at a place, where it is hard to kill them. So, we need to wash our hands properly. Now follow with me these seven steps.

1. Water and soap
2. Palm to palm
3. Between fingers
4. Back of hands
5. Focus on thumbs
6. Focus on wrists
7. Wipe with clean towel
Hand washing

1. WATER AND SOAP
2. PALM TO PALM
3. BETWEEN FINGERS
4. FOCUS ON THUMBS
5. BACK OF HANDS
6. FOCUS ON WRISTS
7. WIPE WITH CLEAN TOWEL
The coronavirus can sit on surfaces for 6-12 hours, maybe even longer.

- Clean and disinfect frequently touched items and surfaces with a regular household cleaning spray or wipe.
  - It is thought that the corona virus may survive on surfaces for a few hours or up to several days.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
• Avoid close contact with people who are sick
• Stay home if **you** are sick
Cough etiquette

• Cover your mouth and nose when you cough or sneeze

• How?

• If you use a tissue, cough into the tissue and DO NOT stuff it back into your pocket!

• Throw the tissue into a covered trash can and wash your hands
Self-quarantine

• It may take up to 14 days to develop symptoms once exposed to this virus.
• If you have traveled to an area affected by this virus, or come into contact with someone who has travelled abroad in that time, you should stay home for at least 14 days.
• Stay informed and do not panic. Get your information from approved sources- the WHO, CDC or India government health authorities e.g., Dept of HFW
When should you seek medical help?

- If cold or fever alone, stay at home and use a mask
- Avoid close contact with others
- If you have fever, troublesome cough and shortness of breath, only then seek medical help
- In Bangalore, at the moment, the place to go to is RGICD
- BMCRI also has testing facilities
Face mask myths

- Face masks were designed to prevent the surgeon from transmitting infection to the patient, not to prevent him from getting infected.

- Three-ply surgical masks are enough for this purpose.

- N-95 masks are needed only by doctors performing procedures that cause the respiratory secretions to get aerosolised.

- DO NOT use up masks unnecessarily.
4.1. Persons having no symptoms are not to use mask

Medical masks should not be used by healthy persons who are not having any symptoms because it create a false sense of security that can lead to neglecting other essential measures such as washing of hands.

Further, there is no scientific evidence to show health benefit of using masks for non-sick persons in the community.

In fact erroneous use of masks or continuous use of a disposable mask for longer than 6 hours or repeated use of same mask may actually increase risk of getting an infection. It also incurs unnecessary cost.
In such situation, more effective steps are:

★ Wash hands frequently with soap and water for 40 seconds. An alcohol based hand sanitizer with 70% alcohol must be used for 20 seconds.

★ If hands are dirty or soiled, do not use alcohol based hand sanitizer, but wash hands preferably with soap and water.

★ While coughing or sneezing cover nose and mouth with handkerchief, paper tissue. If handkerchief or tissue paper is not available cough into the flexed elbow. Dispose of tissue immediately after use and wash hands.

★ Refrain from touching face, mouth, nose and eyes.

★ Stay at least a metre away from those coughing or sneezing.

★ Monitor your body temperature.

MoHFW
When and who should use medical masks (apart from health care worker).

4.2.1. When a person develops cough or fever.
Use of medical three layer masks when ill, will prevent your infection from spreading to others. However you also need to wash your hands frequently to avoid spreading infection to others.

4.2.2. While visiting a healthcare facility.

4.2.3. When you are caring for an ill person.

4.2.4. Close family contacts of such suspect/confirmed cases undergoing home care should also use Triple layer medical mask.
How do I use a face mask?

1. Wash hands for at least 20 seconds prior to putting on a face mask.

2. Place face mask over nose and mouth. Ensure a tight seal with no gaps and secure elastics or straps.

3. Avoid touching the front of the face mask. If you do, wash hands for at least 20 seconds.

4. Remove the face mask without touching the front. Discard in a closed bin.

5. Wash hands again for at least 20 seconds.
Some don’ts

• There is no vaccine, and despite claims to the contrary, it's not going to be around for some time.

• Do not post messages and increase the panic - forward only messages that actually come from the WHO, MoHFW or CDC.
<table>
<thead>
<tr>
<th>Disease</th>
<th>Mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARS</td>
<td>56.2 million</td>
</tr>
<tr>
<td>HIV</td>
<td>40m</td>
</tr>
<tr>
<td>MERS</td>
<td>23.2m</td>
</tr>
<tr>
<td>Ebola</td>
<td>11.1m</td>
</tr>
</tbody>
</table>

COVID-19 #Coronavirus
1.1 billion
Disease Deaths per Day Worldwide

- Tuberculosis: 3,014
- Hepatitis B: 2,430
- Pneumonia: 2,216
- HIV / AIDS: 2,110
- Malaria: 2,002
- Shigellosis: 1,644 (causes severe diarrhea, kills young children)
- Rotavirus: 1,233
- Seasonal Flu: 1,027
- Norovirus: 548
- Whooping Cough: 440
- Typhoid: 396
- Cholera: 392
- Meningitis: 329
- Measles: 247
- Rabies: 152
- Yellow Fever: 82
- COVID-19 (#Coronavirus): 56
- Leishmaniasis: 55
- Echinococcosis: 53
- Dengue Fever: 50
- Hepatitis A: 20
- Chicken Pox: 12
- Sleeping Sickness: 10
- Ebola: 5.3
- SARS: 3.2
- MERS: 2.3

updated 9th Mar 2020

sources: Centres for Disease Control, WHO, The Lancet
• Don’t go around buying up all the masks, sanitisers and unevidenced medicines in sight! PLEASE!
To the people who have bought 27 bottles of soap leaving none on the shop shelves for others, you do realise that to stop getting coronavirus, you need other people to wash their hands too,
What about companies?

Chart 18: Slide from a Webinar of the American Hospital Association, communicating best guesses on the impact of the Coronavirus in the US healthcare system in 2020

Best Guess Epidemiology

- Ro = 2.5; Doubling time 7-10 days
- Community attack rate = 30-40%
- Cases requiring hospitalization = 5%
- Cases requiring ICU care = 1-2%
- Cases requiring ventilatory support = 1%
- CFR = 0.5%
- Community epi wave 2 months
- US: 96 million cases
- US: 4.8 million admissions
- US: 1.9 million ICU
- US: 1 PPV
- US: 480,000 deaths

- PREPARE FOR DISEASE BURDEN ROUGHLY 10X SEVERE FLU SEASON

AHA webinar

Source: Dr. James Lawler, professor at the University of Nebraska Medical Center, for the American Hospital Association, via Business Insider, https://www.businessinsider.com/presentation-us-hospitals-preparing-for-millions-of-hospitalizations-2020-3
“Never let a good crisis go to waste”
What about companies?

Chart 4: Coronavirus Cases per Country
(Excluding China, South Korea, Italy, Iran)

Source: Tomas Pueyo analysis from primary data from Github:
What about companies?
Consider...

- Work from home
- Workplace distancing
- Provide hand sanitisers
- Educate employees
- Work with the government and health authorities
FLATTEN THE CURVE

NUMBER OF CASES

HEALTHCARE SYSTEM CAPACITY

TIME SINCE FIRST CASE

@SIOUXSIEW @XTOTL @THESPINOFFTV

'ADAPTED FROM @DREWAHARRIS, THOMAS SPLETTSTÖBER (@SPLELTE) AND THE CDC' CC-BY-SA
FLATTEN THE CURVE

NUMBER OF CASES

TIME SINCE FIRST CASE

HEALTHCARE SYSTEM CAPACITY

DON'T PANIC BUT BE CAREFUL.

- WASHING HANDS
- NOT TOUCHING FACE
- STAY HOME WHEN SICK

‘ADAPT FROM @DREWAHARRIS, THOMAS SPLETTSTÖBER (@SPLETTE) AND THE CDC’
CC-BY-SA
There was a farmer who grew excellent quality corn. Every year, he won the award for the best grown corn. One year, a newspaper reporter interviewed him and learned something interesting about how he grew it. The reporter discovered that the farmer shared his seed corn with his neighbors. “How can you afford to share your best seed corn with your neighbors when they are entering corn in competition with yours each year?” the reporter asked.

“Why sir,” said the farmer, “Didn’t you know? The wind picks up pollen from the ripening corn and swirls it from field to field. If my neighbors grow inferior corn, cross-pollination will steadily degrade the quality of my corn. If I am to grow good corn, I must help my neighbors grow good corn.”

So is with our lives…Those who want to live meaningfully and well must help enrich the lives of others, for the value of a life is measured by the lives it touches. And those who choose to be happy must help others find happiness, for the welfare of each is bound up with the welfare of all.

Call it power of collectivity…
Call it a principle of success…
Call it a law of life.

The fact is, none of us truly wins, until we all win!
Thank you -
let’s beat this virus together!