The name *coronavirus* is derived from the Latin word *corona*, meaning "crown" or "halo", which refers to the characteristic appearance of the virus due to the surface covering with club-shaped protein *spikes*.

Source: wikipedia, WHO
Human Coronaviruses

Coronaviruses were first discovered in the late 1960s as causing common cold in human patients.

We did not bother about it till it caused fatal:

SARS-CoV in 2003.....claiming 774 lives

MERS-CoV in 2012, 2015 and 2018.....claiming 475 lives


.....death toll is approaching 14000 , we don’t know the end

Source: wikipedia
Transmission

The WHO has stated that the risk of spread from someone without symptoms is "very low".

However, if someone has early symptoms and a mild cough, there is a risk of transmission.

An analysis of infections revealed that coronavirus infections may also be spread by people who have recently caught the virus and have not yet begun to show symptoms.

** This is why COVID 19 is spreading so fast

Source: wikipedia, WHO
Transmission

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and **recover without requiring special treatment**. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The COVID-19 virus spreads primarily through **droplets of saliva or discharge from the nose when an infected person coughs or sneezes**, so it’s important that you also practice respiratory etiquette (for example, by coughing into a **flexed elbow**).

Source: WHO
# Symptoms of coronavirus infection

<table>
<thead>
<tr>
<th>Common symptoms:</th>
<th>Fever</th>
<th>Dry cough</th>
<th>Fatigue</th>
</tr>
</thead>
</table>

### Uncommon symptoms:
- Headache
- Nasal congestion
- Sore throat
- Coughing up sputum
- Shortness of breath
- Pain in muscles or joints
- Chills
- Nausea and/or vomiting
- Diarrhoea

### In severe disease:
- High fever
- Coughing up blood
- Decreased white blood cells
- Kidney failure

Source: [Wikipedia](https://en.wikipedia.org)
STOP THE SPREAD OF GERMS

Help prevent the spread of respiratory diseases like COVID-19.

Avoid close contact with people who are sick.

Cover your cough or sneeze with a tissue, then throw the tissue in the trash.

Avoid touching your eyes, nose, and mouth.

Clean and disinfect frequently touched objects and surfaces.

Stay home when you are sick, except to get medical care.

Wash your hands often with soap and water for at least 20 seconds.

For more information: www.cdc.gov/COVID19

Source: CDC, USA
COVID 19 Safety guidelines

Who should wear a mask?

The Centers for Disease Control and prevention does not recommend that healthy people wear a face mask to protect themselves from respiratory illnesses, including COVID-19.

A facemask should be used by people who have COVID 19 and are showing symptoms. This is to protect others from the risk of getting infected.

The use of face masks also is crucial for health workers and those who are taking care of someone infected with COVID 19 in close settings (at home or in a healthcare facility).

Source: multco.us

3/24/2020/SNC/ND
Washing of hands is important

Handwashing remains one of the top tips for preventing the spread of COVID-19.

It is possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes.

COVID-19 is stable on plastic, stainless steel and several other surfaces and can stay viable up to 72 hours

Washing of hands is important

The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face.

At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments.

Alcohol-based hand sanitizers are short in supply in most of the places.

WHO advises to prepare locally with their prescribed formulation.

Source: WHO
Guide to Local Production: WHO-recommended Handrub Formulations

GUIDE TO LOCAL PRODUCTION: WHO-RECOMMENDED HANDRUB FORMULATIONS

Final product:

<table>
<thead>
<tr>
<th>FORMULATION 1</th>
<th>FORMULATION 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final concentrations:</td>
<td>Final concentrations:</td>
</tr>
<tr>
<td>• Ethanol 80% (v/v),</td>
<td>• Isopropyl alcohol 75% (v/v),</td>
</tr>
<tr>
<td>• Glycerol 1.45% (v/v),</td>
<td>• Glycerol 1.45% (v/v),</td>
</tr>
<tr>
<td>• Hydrogen peroxide 0.125% (v/v)</td>
<td>• Hydrogen peroxide 0.125% (v/v)</td>
</tr>
</tbody>
</table>

General information

Labelling should be in accordance with national guidelines and should include the following:

• Name of institution
• WHO-recommended handrub formulation
• For external use only
• Avoid contact with eyes
• Keep out of the reach of children
• Date of production and batch number
• Use: Apply a palmful of alcohol-based handrub and cover all surfaces of the hands. Rub hands until dry
• Composition: ethanol or isopropanol, glycerol and hydrogen peroxide
• Flammable: keep away from flame and heat

Quality control

1. Pre-production analysis should be made every time an analysis certificate is not available to guarantee the titration of alcohol (i.e. local production). Verify the alcohol concentration with the alcolometer and make the necessary adjustments in volume in the preparation formulation to obtain the final recommended concentration.
Surendranath College’s commitment to fight against COVID 19

We plan to produce it in bulk and distribute it to those who don’t have money to buy.
COVID 19

.. the pandemic caused by the novel coronavirus SARS-CoV-2


The outbreak was first identified in Wuhan, Hubei, China, in December 2019.

It has been recognized as a **pandemic** by the World Health Organization (WHO) on 11 March 2020.

As of 22 March, more than 315,000 cases of COVID-19 have been reported in over 188 countries and territories, resulting in more than 13,500 deaths and 95,000 recoveries.

**the figure keeps changing everyday**

Source: wikipedia

3/24/2020/SNC/ND
COVID 19 the most affected countries

<table>
<thead>
<tr>
<th>Locations</th>
<th>Cases</th>
<th>Deaths</th>
<th>Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>China (mainland)</td>
<td>308,615</td>
<td>13,071</td>
<td>95,834</td>
</tr>
<tr>
<td>Italy</td>
<td>53,578</td>
<td>4,825</td>
<td>6,072</td>
</tr>
<tr>
<td>Spain</td>
<td>28,603</td>
<td>1,724</td>
<td>2,575</td>
</tr>
<tr>
<td>United States</td>
<td>27,111</td>
<td>340</td>
<td>176</td>
</tr>
<tr>
<td>Germany</td>
<td>23,129</td>
<td>93</td>
<td>239</td>
</tr>
<tr>
<td>Iran</td>
<td>21,638</td>
<td>1,685</td>
<td>7,913</td>
</tr>
<tr>
<td>France</td>
<td>14,459</td>
<td>562</td>
<td>1,587</td>
</tr>
<tr>
<td>South Korea</td>
<td>8,897</td>
<td>104</td>
<td>2,909</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7,014</td>
<td>80</td>
<td>15</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5,027</td>
<td>234</td>
<td>98</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3,643</td>
<td>137</td>
<td>–</td>
</tr>
<tr>
<td>Belgium</td>
<td>3,401</td>
<td>75</td>
<td>340</td>
</tr>
<tr>
<td>Austria</td>
<td>3,062</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Norway</td>
<td>2,234</td>
<td>7</td>
<td>–</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,770</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Portugal</td>
<td>1,600</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Denmark</td>
<td>1,420</td>
<td>13</td>
<td>–</td>
</tr>
</tbody>
</table>

Source: wikipedia
COVID-19 total confirmed cases per million (till 20.03.2020)

Source: wikipedia
COVID-19

total deaths per million

(till 20.03.2020)

Source: wikipedia
COVID-19 the Indian scenario

Novel Coronavirus Disease (COVID-19) Situation Update Report – 8
March 22, 2020

HIGHLIGHTS
- 23 states/UTs including New Delhi have issued orders allowing only essential services to operate in 75 districts with confirmed COVID-19 cases until 31 March 2020. The focus is on closure of all activities except essential services such as hospitals, telecom, pharmacy, provision stores.

INDIA SITUATION
As on 22 March 2020 06.30 PM, a total of 360 COVID-19 cases (319 Indian Nationals and 41 Foreign Nationals) have been reported from 23 States/UTs across India.

Cases:

Deaths:
Maharashtra (2) Delhi (1) Bihar (1), Gujarat (1), Karnataka (1) Punjab (1)
KOLKATA: Three more people tested positive for the novel coronavirus in Kolkata on Sunday, taking the total number of COVID-19 cases in West Bengal to seven, health department officials said.

The fresh cases are the parents and the house help of the UK-returned student, the second coronavirus patient of the state who returned his Ballygunge home on March 13.

According to a health official, the condition of a 57-year-old patient admitted to a private hospital continues to be "very critical".

Source: Indian Express

No death as yet
Age of Coronavirus Deaths

COVID-19 Fatality Rate by AGE:

*Death Rate = (number of deaths / number of cases) = probability of dying if infected by the virus (%).

This probability differs depending on the age group. The percentages shown below do not have to add up to 100%, as they do NOT represent share of deaths by age group. Rather, it represents, for a person in a given age group, the risk of dying if infected with COVID-19.

<table>
<thead>
<tr>
<th>AGE</th>
<th>DEATH RATE confirmed cases</th>
<th>DEATH RATE all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>80+ years old</td>
<td>21.9%</td>
<td>14.8%</td>
</tr>
<tr>
<td>70-79 years old</td>
<td>8.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>60-69 years old</td>
<td>3.6%</td>
<td>1.3%</td>
</tr>
<tr>
<td>50-59 years old</td>
<td>1.3%</td>
<td>0.4%</td>
</tr>
<tr>
<td>40-49 years old</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>30-39 years old</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>20-29 years old</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>10-19 years old</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>0-9 years old</td>
<td>no fatalities</td>
<td></td>
</tr>
</tbody>
</table>

Source: worldometers.info

Our elderly family members are vulnerable.
COVID-19 affecting education

Learners affected by school closures caused by COVID-19 as of 18 March 2020

- Localised school closures
- Country-wide school closures
COVID-19 affecting education

As of 20 March, more than 960 million children and youth are not attending school because of temporary or indefinite country wide school closures mandated by governments in an attempt to slow the spread of COVID-19.

105 countries have shut schools nationwide, affecting students who would normally attend pre-primary to upper-secondary classes.

15 countries have implemented localized school closures to prevent or contain COVID-19, affecting an additional 640 million school children and youth.

In response to school closures caused by COVID-19, UNESCO recommended the use of distance learning programs and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education.

Source: wikipedia
Likelihood of multiple waves

COVID-19 has shown differences to other outbreaks like SARS (2003) in that there is evidence for transmission during incubation and the early symptoms.

According to scientists this coronavirus is more comparable to influenza. Thus, there is a concern that COVID-19 could follow a similar path to that of the 1918–1919 flu pandemic, in which the second and third waves caused most of the fatalities.

However, as COVID-19 is new, we have to wait for its future trajectory.

Source: wikipedia
Wash your hands frequently
Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water.
Why? Washing your hands with soap and water or using alcohol-based hand rub kills viruses that may be on your hands.

Maintain social distancing
Maintain at least 1 metre (3 feet) distance between yourself and anyone who is coughing or sneezing.
Why? When someone coughs or sneezes they spray small liquid droplets from their nose or mouth which may contain virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person coughing has the disease.

Source: WHO
Avoid touching eyes, nose and mouth

**Why?** Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth. From there, the virus can enter your body and can make you sick.

Practice respiratory hygiene

Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately.

**Why?** Droplets spread virus. By following good respiratory hygiene you protect the people around you from viruses such as cold, flu and COVID-19.

Source: WHO
If you have fever, cough and difficulty breathing, seek medical care early
Stay home if you feel unwell. If you have a fever, cough and difficulty breathing, seek medical attention and call in advance. Follow the directions of your local health authority.
Why? National and local authorities will have the most up to date information on the situation in your area. Calling in advance will allow your health care provider to quickly direct you to the right health facility. This will also protect you and help prevent spread of viruses and other infections.

Stay informed and follow advice given by your healthcare provider
Stay informed on the latest developments about COVID-19. Follow advice given by your healthcare provider, your national and local public health authority or your employer on how to protect yourself and others from COVID-19.
Why? National and local authorities will have the most up to date information on whether COVID-19 is spreading in your area. They are best placed to advise on what people in your area should be doing to protect themselves.
Protection measures for persons who are in or have recently visited (past 14 days) areas where COVID-19 is spreading

- Stay at home if you begin to feel unwell, even with mild symptoms such as headache and slight runny nose, until you recover. Why? Avoiding contact with others and visits to medical facilities will allow these facilities to operate more effectively and help protect you and others from possible COVID-19 and other viruses.

- If you develop fever, cough and difficulty breathing, seek medical advice promptly as this may be due to a respiratory infection or other serious condition. Call in advance and tell your provider of any recent travel or contact with travelers. Why? Calling in advance will allow your health care provider to quickly direct you to the right health facility. This will also help to prevent possible spread of COVID-19 and other viruses.
COVID 19

In case you have

A patient to care

COVID-19 Management Protocol
AIIMS, New Delhi

COVID-19 Suspect

- Any patient with acute respiratory illness (fever with at least one of the following: cough or shortness of breath) with:
  - History of travel to high-risk COVID-19 affected countries in the last 14 days, or
  - Close contact with a laboratory confirmed case of COVID-19 in the 14 days, or
  - Health care personnel (HCP) managing respiratory distress/severe acute respiratory illness cases, when they are symptomatic

Mild case

- Low-grade fever, cough, malaise, rhinorrhea, sore throat without shortness of breath
- Treatment:
  - Tab oseltamivir 75mg BD (or high-risk influenza suspects)
  - Antibiotics if needed (azithromycin 500mg daily)
  - Tab Paracetamol 500mg SOS
- Symptomatic

Moderate to severe case

- Admit & test
- Test negative
  - Manage according to existing protocol
- Test positive
  - Oxygen supplementation to maintain SpO2 > 94%
  - Antipyretics, antinfectives, antibiotics as indicated
  - MVI preferred over nebulization
  - Hydroxychloroquine (600mg BD x 1 day 1/6th 200mg BD x 5 days) may be considered
  - Lopinavir/ritonavir (200mg 2 tab BD) may be considered on case-to-case basis (within 10 days of symptom onset)
  - Do not combine Hydroxychloroquine with Lopinavir in view of drug interactions
  - Corticosteroids to be avoided

Test positive

- Respiratory failure
- Hypotension
- Worsening mental status
- MOOS

Discharge

- NIV/PEEP to be used carefully in view of risk of aerosol generation
- Ventilator management as per ARDS protocol
- Conservative fluid management (if not in shock)
- Standard care for ventilated patient
- Closed suction and HME filters
- Prone ventilation, ECMO for refractory hypoxemia.

*High-risk for severe disease

- Age > 60 years
- Cardiovascular disease including hypertension
- DM, other immunocompromised states
- Chronic lung/breast/liver disease

Test negative

- Symptomatic management
- Home isolation (>24 hrs afebrile or 7 days after symptom onset whichever is longer)/two negative samples 24 hours apart
- Self-monitoring for fever
- Paracetamol & symptomatic Rx
- Contact & droplet precautions
- Danger signs explained
- High-risk individuals* may be considered for admission based on clinical judgement

Any one of:

1. Respiratory rate > 24/min
2. SpO2 < 94% in room air
3. Confusion/drowsiness
4. Systolic BP < 90 mmHg or diastolic BP < 60 mmHg

Discharge

If two negative samples at least 24 hours apart

After clinical & radiological improvement

Shift to ICU

Improving

3/24/2020/SNC/ND
This virus can spread before people show symptoms. That’s always going to make it hard to control and detect.

This fight may not end for months or a year or even more. It’s also possible that Covid-19 will become endemic, meaning it becomes a disease that regularly infects humans and never really goes away.

Factors that will determine how long we have to live with COVID 19

• Treatment / Medicine that will prevent people from dying from Covid-19
• Several vaccine formulations that are on trial now prove to be safe and effective
• we may need to live with strict social distancing for many months, if not a year or more
COVID 19
We will fight it out....

We Salute the brave heart doctors and healthcare workers who are fighting against this deadly virus to save us

Thanks ... for your patient viewing