CoVid 19 Update

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Outline

• Basic Virology of Coronaviruses
• Previous Coronavirus Outbreaks
• Current Status of Disease
• Anesthesia Implications
But First
Coronaviruses
Coronavirus

- SARS CoV-1 and MERS-CoV genetically similar to SARS-CoV-2.
- Mortality of SARS was ~10%, MERS ~20-40%
- Mortality of CoVID19?
Coronaviruses
How contagious is it?
$R_0$ and Herd immunity

% Population

$R_0$
How bad is it?

- **Chinese data**
  - 81% of cases are mild
  - 14% are ‘severe’
  - 5% ‘Critical’
Why you can’t trust Chinese data

• Lots of people not tested (denominator accuracy)
• Many people sent home, many recovered. ‘Serious’ cases over represented.
• Baseline population health
• Change in diagnostic criteria (CT scan vs. PCR)
• Controlling the message
Chinese Experience
Chinese experience
Isn’t this just a bad flu?
Isn’t this just a bad flu?

- **USA**: 35.5 million infected (~10% population)
- **USA**: 16.5 million health care visits (~5%)
- **USA**: 490,000 hospitalizations (~0.1%)
- **USA**: 35,000-50,000 deaths
- **World**: Estimated 250,000-500,000 deaths
Spanish Flu, 1918

650,000 US Deaths
What about Italy?

• The virus is not mutating.
• Well, sort of, but not enough to cause a more severe disease.
What about Italy?

- How critical care is delivered
- Threshold for ICU admission/intubation
Flatten that curve!

CONFIRMED COVID-19 CASES IN CANADA
(CUMULATIVE TOTAL)

Source: Canadian federal coronavirus update page and Internet Archive Wayback Machine for that page
The more important curve
Why is the curve not flattening?

- 20-30% community spread despite current containment measures
- False negative rate of current diagnostic tests
- Also issue of false positives.
Bottom line:

• COVID 19 is here.

• What do we as anesthesiologists/Emergency medicine physicians and intensivists do about it?
Intubating COVID-19 Patient

PPE – Intubation

- Hoods, caps, booties, and impervious gowns are not required but discretion based on risks in uncontrolled circumstances of patient vomiting, diarrhea, and/or active bleeding.
- N95 masks required
- Face shield or eye goggles required
- Regular isolation gowns if fits to below waist
- Non-sterile extended cuff gloves (If not available then sterile gloves should be used as they are of adequate length and durability to avoid breakage. Double gloving not required)
- Video laryngoscopy should be used or immediately available
- Minimize number of staff in room
  - 1 RT
  - Some practitioners may require an extra staff member (ie nurse) to administer drugs, etc but the concept of minimal staff in the room should be emphasized

It doesn’t appear to be in blood
Why not more PPE??

1. Hands
   - Clean your hands with hand sanitizer or soap and water
2. Gown
   - Tie tie at top
   - Neck tie at waist
   - Be sure you cover your skin and clothes
3. Mask
   - Put on a procedure or surgical mask
4. Eye Protection
   - Put on eye protection
   - ALTERNATE: Goggles
5. Gloves
   - Put on gloves
   - Neck pull gloves over gown collars
   - ALTERNATE: N95 Respirator if indicated

Protect yourself - Protect others
Wet Doffing
Why not more PPE??

• More PPE = More contamination chance with doffing

• Dry doffing vs. wet doffing

• Case report of NO NOSOCOMIAL transmission with difficult intubation with enhanced droplet PPE.
What about Toronto and SARS?

<table>
<thead>
<tr>
<th>Urgency of intubation</th>
<th>Sedation during intubation?</th>
<th>Paralysis during intubation?</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Emergent*</td>
<td>Non-emergent</td>
</tr>
<tr>
<td>SARS Yes</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SARS No</td>
<td>11</td>
<td>25</td>
</tr>
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<tr>
<td>SARS 2</td>
<td>4</td>
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</table>

SARS, severe acute respiratory syndrome; HCWs, health-care workers. *Urgent intubation is performed before the patient is fully prepared. †Paralysis during intubation is defined as the inability to wean off mechanical ventilation without the use of sedative agents.
My plan
What about Opti-Flow and BiPAP

- Controversial
- Aerosol generation risk vs. sparing ICU resources
Summary

• CoVID-19 is here.

• We will see more cases in Manitoba

• Worldwide containment is impossible, suppression is now key.

• How many of them will require critical care/hospitalization?