Epidemiology of COVID-19

If there’s only one thing you remember (1)

• Containment strategy rests on 3 pillars
  1. Lab capacity that allows for aggressive testing (ideally test all ILI)
  2. Accessible testing w/ low TAT (assessment centres, China’s TAT was ~4 hrs)
  3. Case & Contact follow-up of every single case

• Easy to give up on this strategy as work will increase dramatically, but consequences of failure are dire
  • Italy – 0.05% infected causes health system collapse and ++ deaths OR China – economic shutdown (Q1 growth of -10%)

If there’s only one thing you remember (2)

• We are on a wartime mobilization (consequences of failure are similar to losing to war)
  • Assuming 50% infection rate and 1% mortality = 150,000 Canadian deaths, economic losses of ~$3 trillion currently

• At the peak of China (Wuhan’s outbreak) - ~10,000 people doing public health follow-up

• While this sounds like a lot, it is a small sliver of societal resources

Preliminary characteristics of COVID-19

• Statistics as of March 18 15:00
  • Confirmed cases: 191,127
  • Deaths: 7,807

• Incubation period: 5-6 days
  • Range: 0-14

• Transmission: contact and droplet

• Case fatality ratio varies across region but approx 1-3%, 5% ICU, 10-15% hospitalization
The situation in China

- Key lesson: At one point China had ~4000 new cases/day, now <10;
- Korea: Another country that had ~1000 new cases/day, now <100
- What’s concerning is that we are still seeing exponential increases in other countries

Global situation

Interpret with caution... lots of under-reporting

Global Situation Excluding China

Situation in Italy

- First cases were not reported until January 31st in Italy
- Top graph shows actual data up until March 8th
- Bottom graph shows projected data published in the Lancet on March 12th
- Alarming that were able to predict data accurately and that as of March 18th it was accurate
### Situation in Canada

- 621 Cases in Canada, 74% are travelers and 11% are people in close contact with travelers
  - Over 15,000 people tested in Alberta (+++ more risk assessments)
- Fever and/or cough or shortness of birth, AND within 14 days prior to illness onset, one of:
  - Travel outside Canada
  - Close contact with a confirmed or probable case
  - Close contact with symptomatic person with travel history
  - Lab exposure to biological material
    - If someone meets these criteria:
      - Immediately isolate and call Health Link/consult the Zone MOH

### Situation in Alberta

#### Cases
- 97 cases
  - Calgary (65%)
  - Edmonton (24%)
  - North (6%)
  - Central (3%)
  - South (1%)

#### Hospitalized
- 5 cases

#### ICU
- 3 cases

#### Tests
- ~15,000 tests total, >3000/day

### Situation in Canada

#### Table: Number of confirmed cases and probable cases by province

<table>
<thead>
<tr>
<th>Province, territory or other</th>
<th>Number of confirmed cases</th>
<th>Number of probable cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia</td>
<td>136</td>
<td>0</td>
</tr>
<tr>
<td>Alberta</td>
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<td>0</td>
</tr>
<tr>
<td>Repatriated travelers</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total cases</strong></td>
<td><strong>621</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

Isolation in Alberta

- Self-Isolation For Travelers
  - Returned on or after March 12
    - Self-isolate and monitor for symptoms for 14 days
  - Returned before March 12
    - Self-isolate if came from Italy, Iran, the Hubei Province of China or the Grande Princess Cruise ship for 14 days
    - Monitor for symptoms

- If Symptomatic
  - Self-isolate and call Public Health 811

- If Close Contact of (+) case
  - Self-isolate for 14 days

- Other Recommendations
  - March 17th: All state of public health emergency
  - Postponing scheduled and elective surgeries
  - No mass gatherings > 50 people
  - Schools, daycares, public recreational facilities and private entertainment facilities closed
  - Limited visitation to Long-term care facilities

- Practical Tips
  - Tell people to use the assessment tool first
  - Call Health Link at 811 as it is being used as triage to keep people at home, decrease healthcare burden, minimize risk
  - Testing centres all over city to allow for centralized system

Calgary Projections (Church & Naugler)

- Overall lag time between infection and lab confirmation estimated to be 7 days (5.2 day incubation & lab TAT 2 days – maybe longer)

- Means today we are seeing situation 7 days ago