



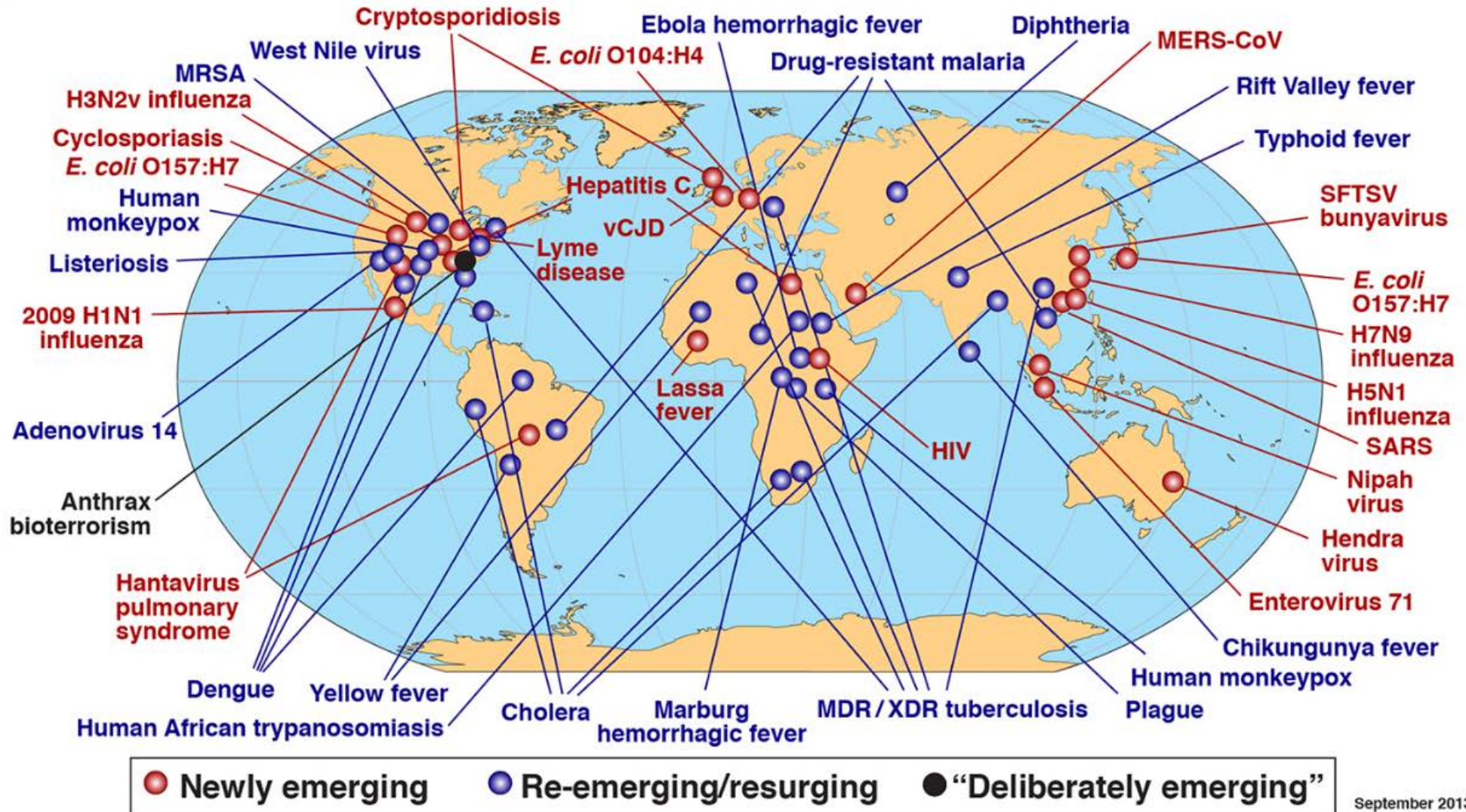
Coronavirus 2019 nCoV

Prevention at the community level

DEEP Pandemic Talk at
Dunbar Community Centre
Feb 18, 2020
7-8:30 pm

Monika Naus, MD, MHSc, FRCPC, FACPM
Public Health Physician

Global Examples of Emerging and Re-Emerging Infectious Diseases



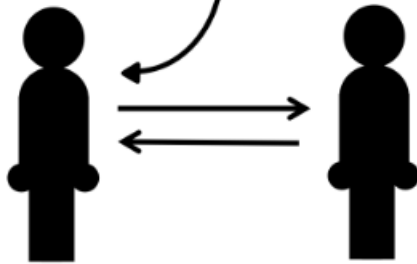
September 2013

Modes of Infectious Disease Transmission

A. General Transmission

Abiotic environmental factors

- Wind
- Water
- Inhalation of spores
- Entry into skin



Animal vectors

- Mosquitoes (malaria, dengue)
- Fleas (bubonic plague)

B. Human to Human Transmission

Direct Contact



- Pathogen survives best inside the body
- Eg: HIV, Herpesviruses, Ebola

Indirect Contact



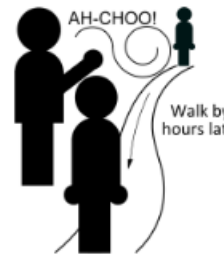
- Pathogen survives harsh environment
- Pick up pathogen from surface or air
- Eg Influenza, norovirus

Droplets



- Pathogens are in droplets, but do not survive long this way
- Eg: Ebola, *Bordetella pertussis*

Airborne



- Pathogens aerosolized and stay infective
- Eg: Influenza, Tuberculosis

Fecal - Oral



- Through contaminated water or food
- Eg: Cholera, Norovirus, Shigella

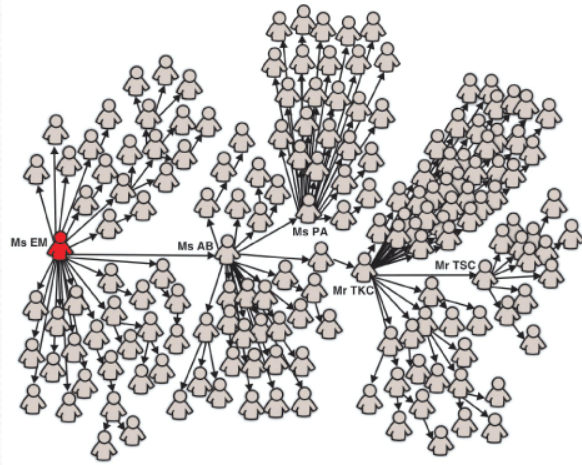
COVID-2019 chronology of recognition

- 31 December 2019: Wuhan public health in Hubei province of China reports 27 pneumonia cases of unknown cause, including 7 severe cases
- Illness included: fever, dry cough, shortness of breath, Xray findings of bilateral lung infiltrates
- Initial cases reported as having a link to Wuhan's Huanan Seafood Wholesale Market (fish and live animals)
- Market closed to the public on 1 January 2020
- 9 January 2020: China CDC reported that a novel coronavirus (SARS-CoV-2) was found in 15 of 59 pneumonia cases
- 10 January 2020 the virus genome sequence was made publicly available
- Samples from the market tested positive for same virus

Coronaviruses

- Large group of viruses that cause ‘common cold’ through more serious respiratory infections

Severe acute respiratory syndrome (SARS) 2003



World Health Organization Regional Office for the Western Pacific 2005

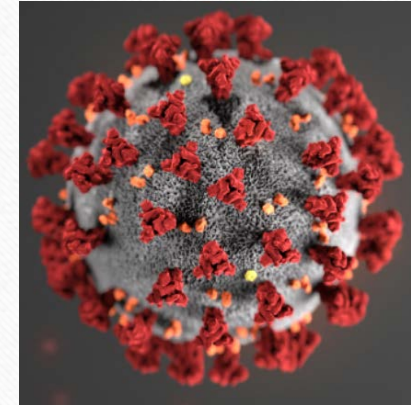
This diagram detailing SARS transmission in Singapore shows the important role of “super-spreaders” in transmitting the disease. Five people caused more than half of the 205 cases there.

Middle Eastern
Respiratory
Syndrome
(MERS) 2012



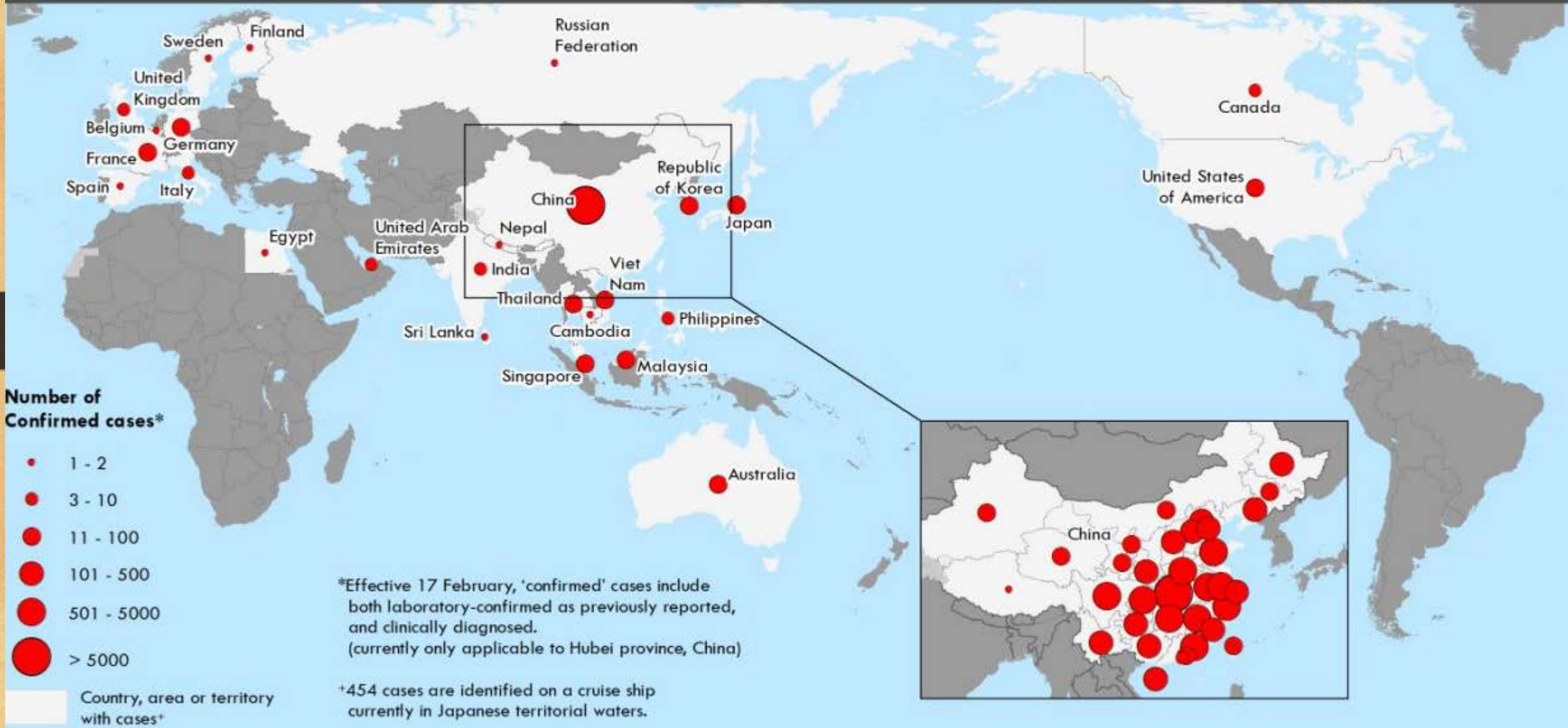
Source: <https://www.flickr.com/photos/davidden/527370952>

COVID-19
due to SARS-CoV-2
2019



Source: www.bccdc.ca

Distribution of COVID-19 cases as of 18 February 2020



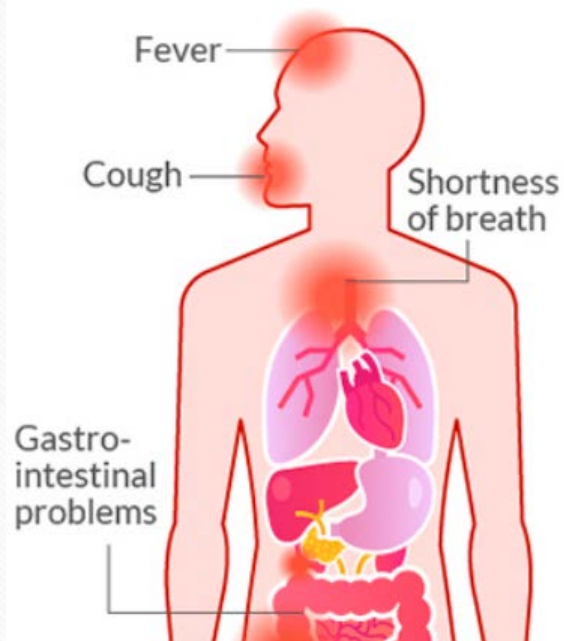
Cumulative cases and deaths

Case count as of February 18, 2020:

- Canada: **8** confirmed cases of COVID-19 (ON=3, BC=5).
- Globally: **73,332 confirmed** cases of COVID-19, including 1,875 deaths.
 - Mainland China: 72,528 cases of COVID-19; 1,870 deaths.
 - Rest of the World: 881 laboratory confirmed cases of COVID-19 infections in 28 countries, with 5 deaths (France, HK, Japan, Taiwan, Philippines); local transmission in 12 countries.
- WHO risk assessment: China very high; Global/ Regional high

COVID-19 signs/ symptoms

Signs of coronavirus infection



Incubation period up to 14 days after exposure

Mild symptoms before illness onset

Diagnosis by nasopharyngeal swab – nucleic acid amplification
Highest severity in elderly and those with underlying medical conditions

Case fatality rate 2%

Source of image: <https://www.marketwatch.com/story/how-the-mysterious-coronavirus-from-china-has-spread-so-quickly-2020-01-21>

Measures being taken for COVID-19 prevention

- By countries: limitation on travel/ entry
- Canadian airport screening:
 - Travelers from Hubei
 - Travelers from rest of China
- If ill – tested – if positive, isolation until two consecutive negative tests
- Repatriation from closed conveyances: screening for symptoms, and if well, 14 day quarantine period
- Health care settings:
 - Ill person to call ahead
 - Mask ill person
 - Isolation
 - Personal protective measures for health care workers: mask, eye protection, gown, gloves



Source: <https://www.mommynearest.com/article/wearing-a-surgical-mask-being-smart-or-paranoid>



Source: https://www.3m.com/3M/en_US/company-us/all-3m-products/~//3M-Health-Care-Particulate-Respirator-and-Surgical-Mask-1860-N95-120-EA-Case/?N=5002385+3294795990&rt=rud



Source <https://en.wikipedia.org/wiki/Sneeze>

Advice for general public on prevention of respiratory infections

- Cover sneezes and coughs
 - Discard soiled tissues
- Handwashing
- Avoid sharing cups/ glasses/ eating utensils
- Influenza and pneumococcal vaccines



Source: [http://www.bccdc.ca/health-info/diseases-conditions/coronavirus-\(novel\)](http://www.bccdc.ca/health-info/diseases-conditions/coronavirus-(novel))

Is there a value to wearing masks when out and about?

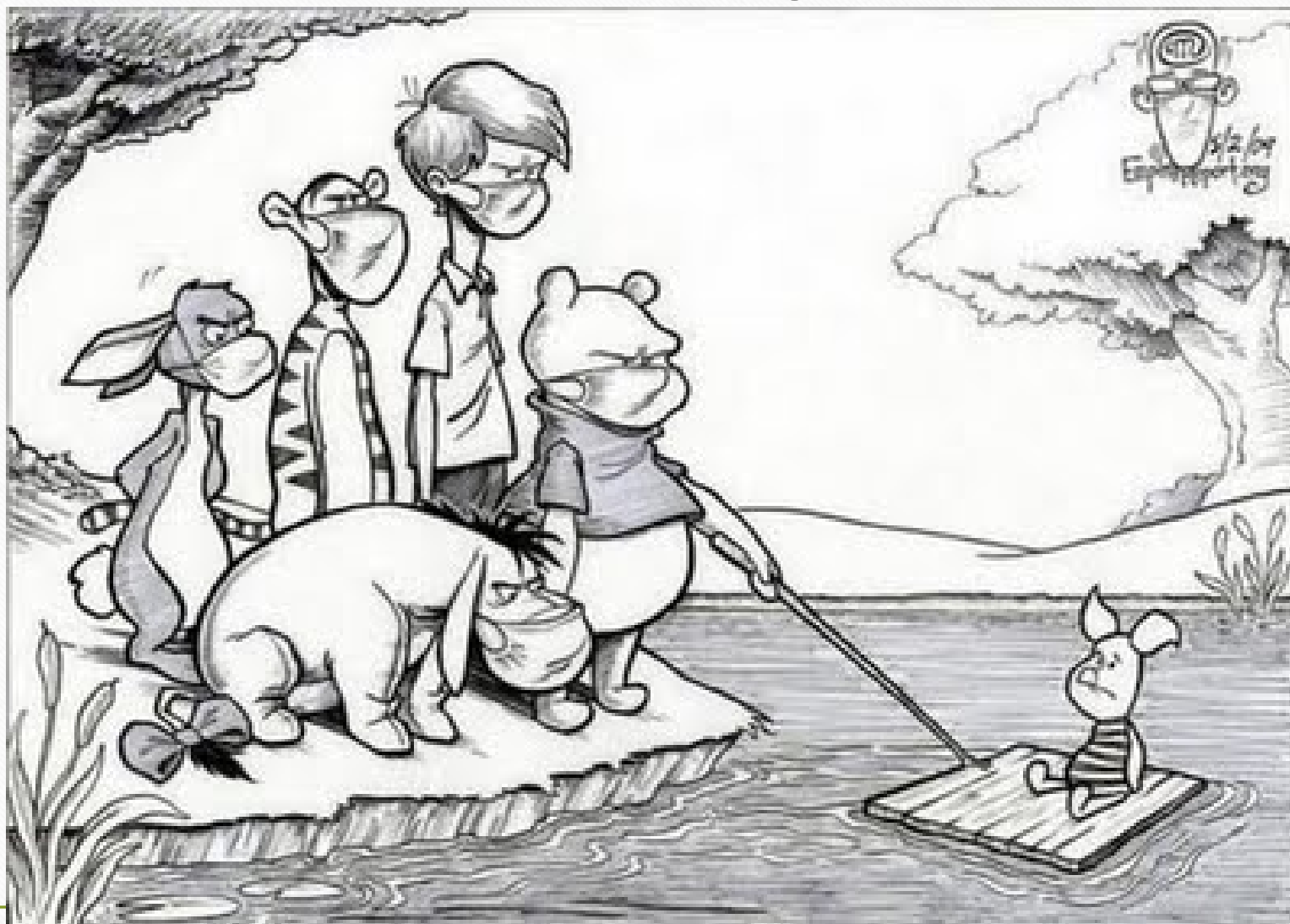


Taiwan during SARS

For some comic relief
see:

<https://www.eatliver.com/coronavirus-protection/>

Social distancing



Prospects for a vaccine: yes, but not immediate because of development, animal and human testing, and regulatory requirements



Resources

- [www.bccdc.ca/health-info/diseases-conditions/coronavirus-\(novel\)](http://www.bccdc.ca/health-info/diseases-conditions/coronavirus-(novel))
- www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html
- www.cdc.gov/coronavirus/
- www.who.int/emergencies/diseases/novel-coronavirus-2019