

COVID-19 Update #2

April 16th 2020

Alastair Teale

Objectives

- Provide a regular review of relevant/important COVID19 literature to NRGH and community medical staff
- Ensure treatment/management of COVID19 cases locally is concordant with best available literature
- Provide an avenue for questions/discussion about COVID19 related topics

Disclaimer*

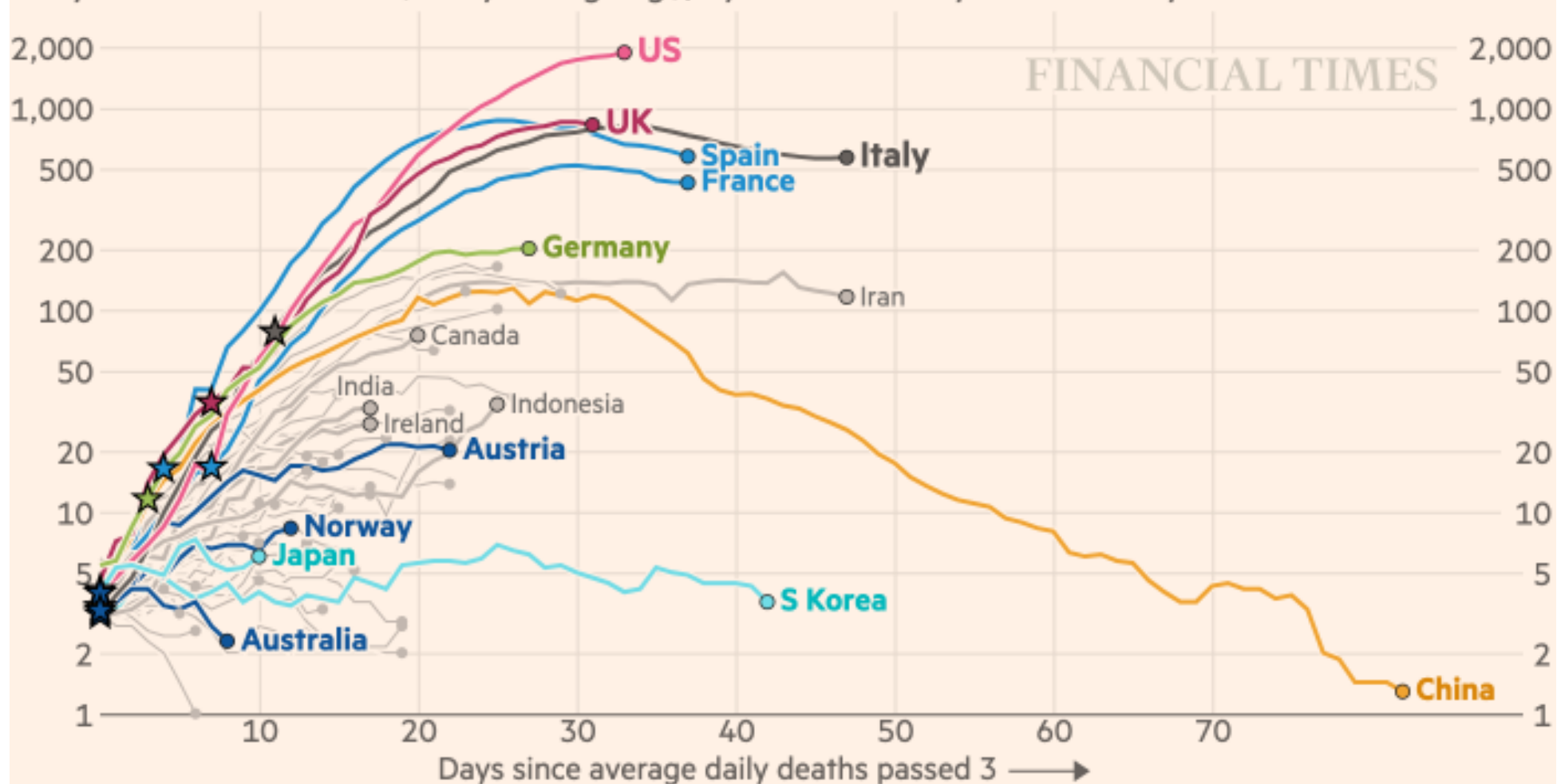
- All data as per April 15th and subject to change.
- Opinions are just that and are also subject to change

Outline

- Current epidemiology –World, Canada and BC
- Current treatment/inpatient care controversies
- Public health issues/where do we go from here?

Italy and Spain's daily death tolls are falling; in the UK and US daily deaths may be plateauing

Daily coronavirus deaths (7-day rolling avg.), by number of days since 3 daily deaths first recorded



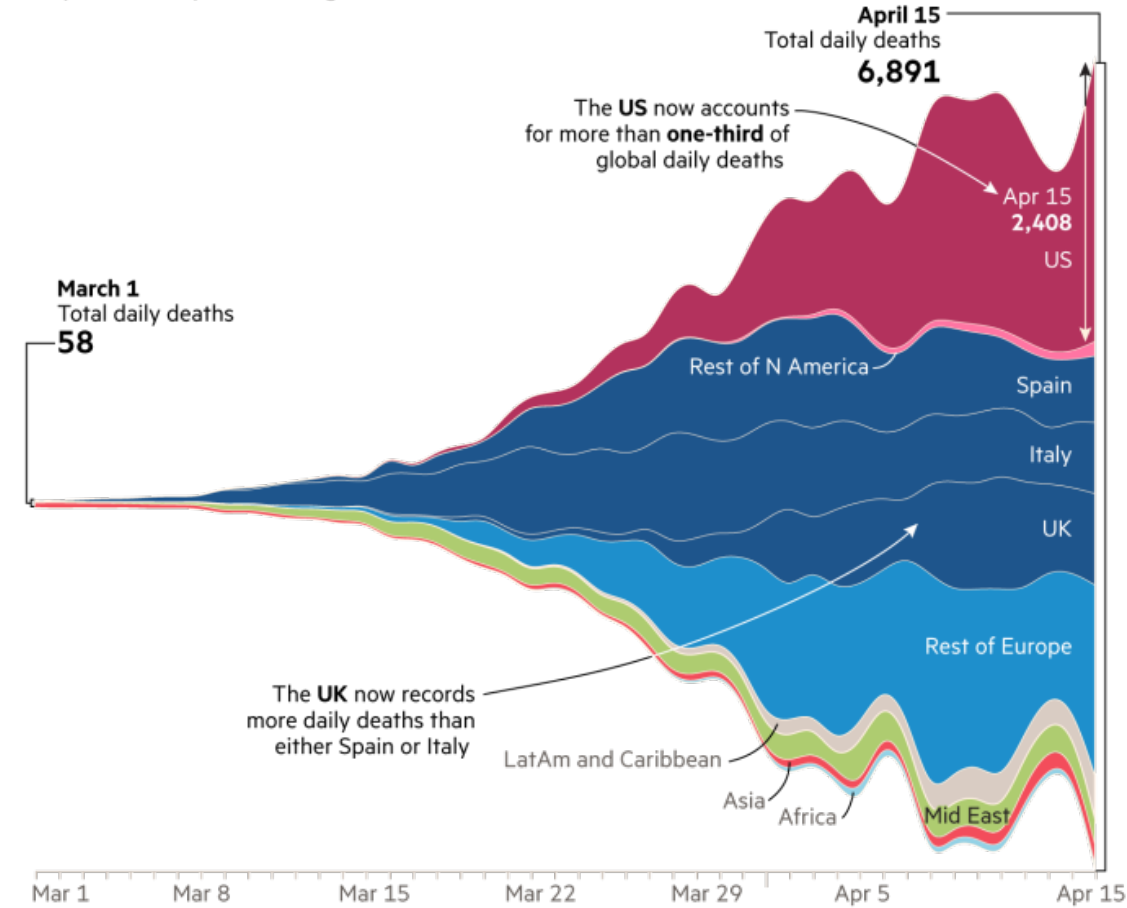
FT graphic: John Burn-Murdoch / @jburnmurdoch

Source: FT analysis of European Centre for Disease Prevention and Control; FT research. Data updated April 15, 19:00 GMT

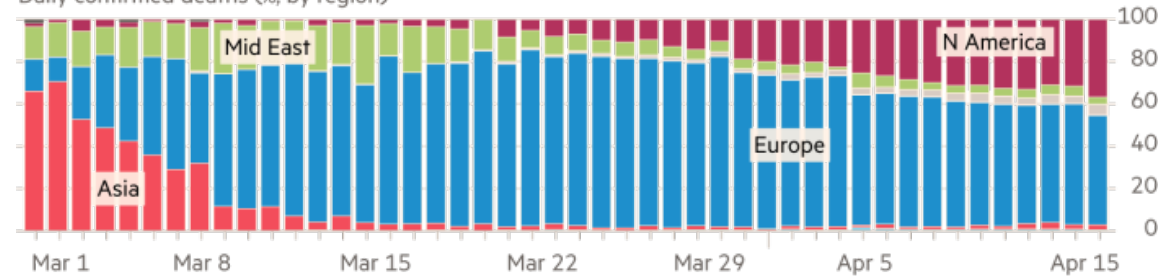
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Focus of Covid-19 deaths has switched from Asia to Europe – and now the US

Daily deaths of patients diagnosed with coronavirus



Daily confirmed deaths (% by region)



FT graphic: Steven Bernard / @sdbernard

Source: FT analysis of ECDC

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COVID-19 cases in Canada

Cumulative total, starting with day of 100th case

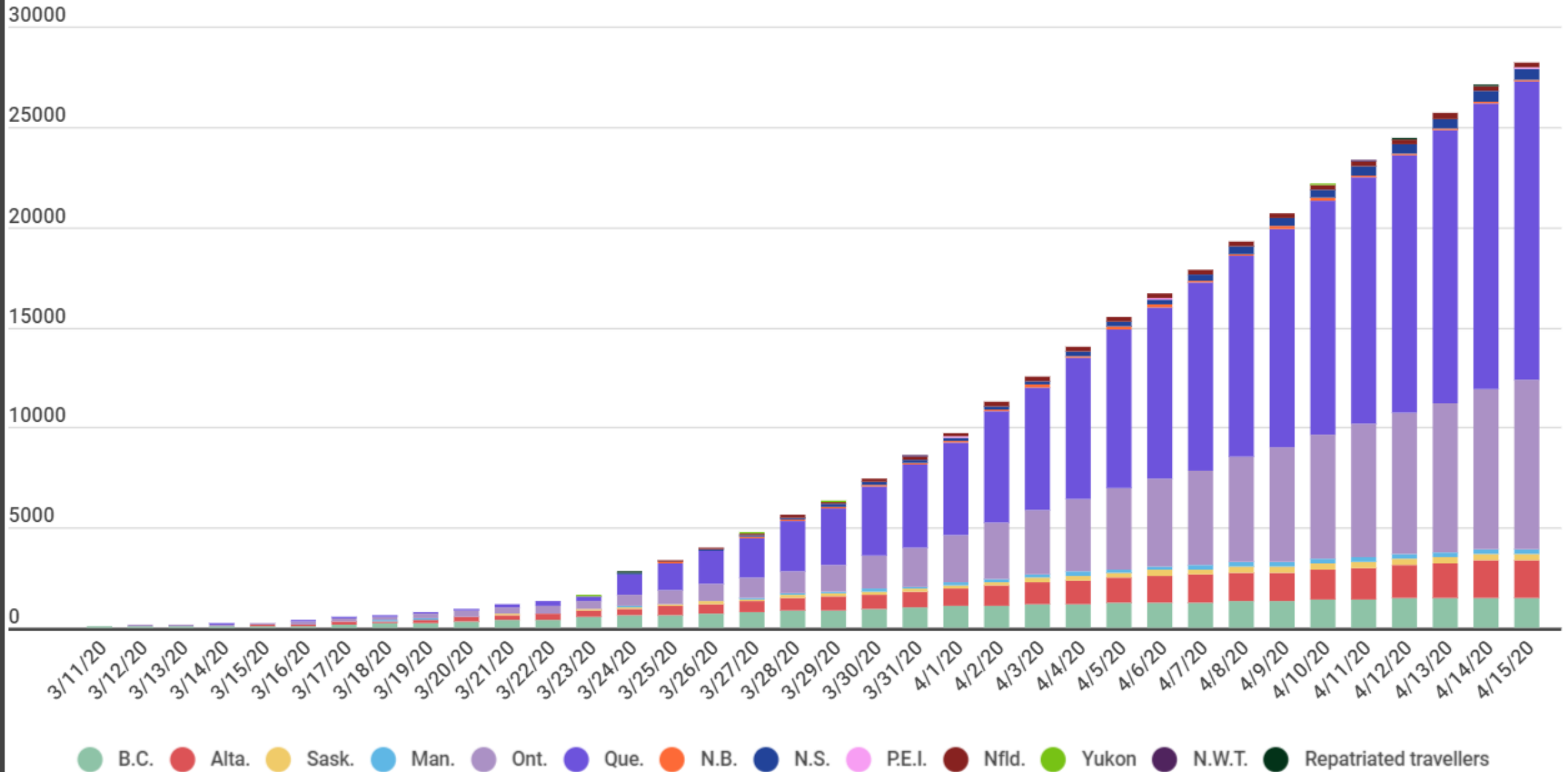


Chart by Patricia Treble and Lauren Cattermole · Source: Canadian federal and provincial coronavirus updates

British Columbia (Apr 15th)

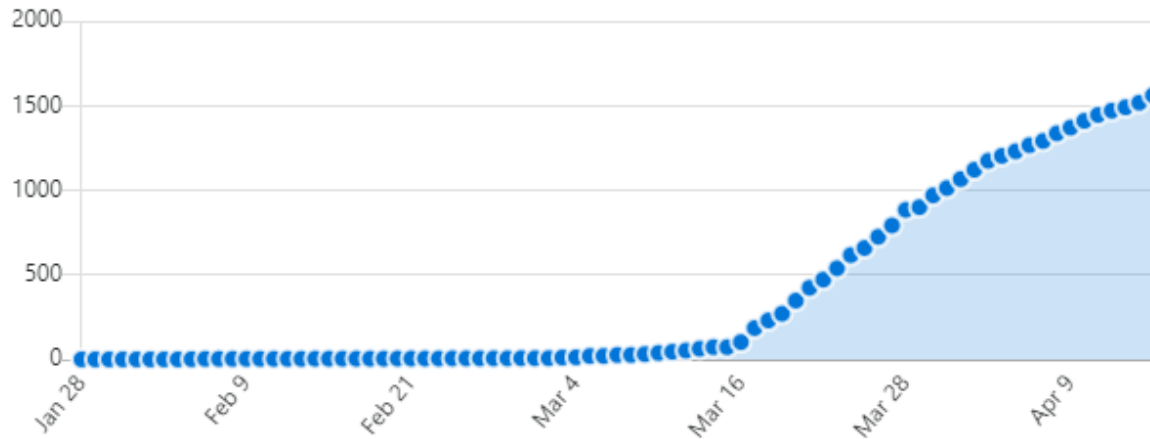
Select a Province

British Columbia

Total Cases: 1561

Total Deaths: 75

British Columbia Cumulative Cases



British Columbia New Cases by Day

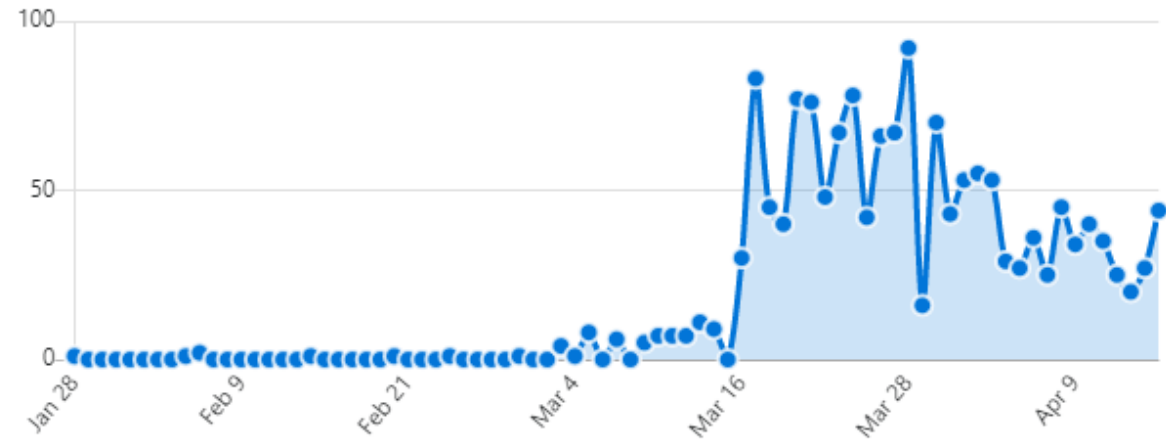


Table 1: Epidemiological profile of reported cases by health authority, BC, January 1 – April 15, 2020 (N=1,561)

	Fraser	Interior	Vancouver Island	Northern	Vancouver Coastal	Total N (%) ^a
Total number of cases	623	146	92	30	670	1,561
New cases since yesterday	22	5	3	2	12	44
Median age in years, cases ^b	53	50	56	50	57	54 years (range 0-102 years)
Female sex, cases	315	78	48	20	361	822/1,532 (54%)
Ever hospitalized^c	174	26	23	8	128	359 (23%)
Median age in years, ever hospitalized ^b	68	62	72	44	70 ^h	68 years (range 0-98 years)
Currently hospitalized ^c	68	11	9	4	39^h	131
Currently in critical care^d	33	6	2	1	17	59
Total number of deaths^c	16	1	2	0	56	75 (5%)
New deaths since yesterday	1	1	0	0	1	3
Median age in years, deaths ^b	80	- ^e	88	NA	87	86 years (range 47-101 years)
Recovered^f	338	74	48	22	473^g	955 (61%)

Clinical Issues

Testing – Updated Guidelines April 9th

B.C. is currently testing those with new respiratory or gastrointestinal symptoms who are:

1. Residents and staff of long term care facilities
2. Patients requiring hospitalization, or likely to be hospitalized including pregnant individuals in their 3rd trimester, patients on hemodialysis, or cancer patients receiving radiation or chemotherapy.
3. Part of an investigation of a cluster or outbreak.

COVID-19 testing is also recommended for individuals with a fever and a new (or worsening) cough or shortness of breath who are:

- Health Care Workers
- Residents of remote, isolated or Indigenous communities
- People living and working in congregate settings such as work-camps, correctional facilities, shelters, group homes, assisted living and seniors' residences
- People who are homeless or have unstable housing
- Essential service providers (e.g. first responders)
- Returning travellers identified at a point of entry to Canada.

In addition to these priority groups, health care providers can order a COVID-19 test for any patient based on their clinical judgment.

Clinical Management - Therapeutics

- No significant positive trials in the interval since last update.
 - widely panned NEJM article with a case series of Remdesivir without a control group
 - increasing evidence about cardiac side effects of Hydroxychloroquine +/- Azithromycin. Increased mortality due to cardiac arrhythmias in Brazilian trial prompted cessation of high dose arm. Other trials have demonstrated a significant proportion of patients have developed QTc >500ms on treatment arms.
 - negative HCQ study out of France

Clinical Management - Therapeutics

- NRGH should be able to enroll patients in the CATCO trial (Canadian Treatments for COVID19), hopefully soon. Part of the WHO SOLIDARITY trial.
- Will be open to all admitted patients with positive NP swab.
- ?4 arms –standard of care, HCQ, Lopinavir/ritonavir, Remdesivir.

Clinical Management – Role of Anticoagulation

- Elevated D-dimer is a negative prognostic factor
- Increasing reports of embolic complications of significant infection (PE and CVA).
- Microvascular pulmonary thrombosis, right heart failure has been reported on autopsy reports
- Poor quality Chinese data suggesting clinical benefit of anticoagulation for a certain subset of coagulopathic patients
- ?Role for anticoagulation

Clinical Management – Role of Anticoagulation

- Ensure COVID-19 patients have adequate DVT prophylaxis on board. (weight, renal function, etc)
- Rule out PE in the setting of increasing D-dimer, worsening respiratory status
- Consideration of empiric anticoagulation x 3 months if unable to rule out PE and in possible select circumstances

ACE inhibitors

- No positive data for worse clinical outcomes
- Negative retrospective Chinese and now UK study for worse outcomes
- Continue current recommendations of leaving patients on previously prescribed ACE inhibitors

Clinical Management – Infection Control

- Discharge/
Discontinuation of
Precautions – Current
BCCDC guidelines
April 9th

Group of COVID-19 cases	Preferred strategy	Alternate strategy
Mild disease/outpatients	Non-test-based strategy	n/a
Severe disease/inpatients	Test-based strategy	Non-test based strategy
Immunocompromised	Test-based strategy	Non-test based strategy
Risk of exposure to vulnerable populations (e.g. LTC facility) except health care workers	Test-based strategy	Non-test based strategy
Health care workers	As directed by the employer or MHO	

Description of the strategies:

1. Test based strategy:
 - a. Resolution of fever without use of fever-reducing medication; AND
 - b. Improvement in symptoms (respiratory, gastrointestinal, and systemic); AND
 - c. Two negative NP swabs collected at least 24 hours apart
2. Non-test-based strategy:
 - a. At least 10 days have passed since onset of symptoms; AND
 - b. Fever has resolved without use of fever-reducing medication; AND
 - c. Symptoms (respiratory, gastrointestinal, and systemic) have improved

Clinical Management – Infection Control

- Environmental contamination

- Studies have demonstrated persistence of viral particles on some surfaces up to 72h
- Environmental studies have been able to isolate viral particles from surfaces in the hospital room (bedrails, call bell, toilet seats etc) but have also found positivity on other surfaces – keyboards, mice, doorknobs, floors.
- HCW to HCW transmission due to infected fomites may play a significant role in HCW acquisition

Where do we go from here?

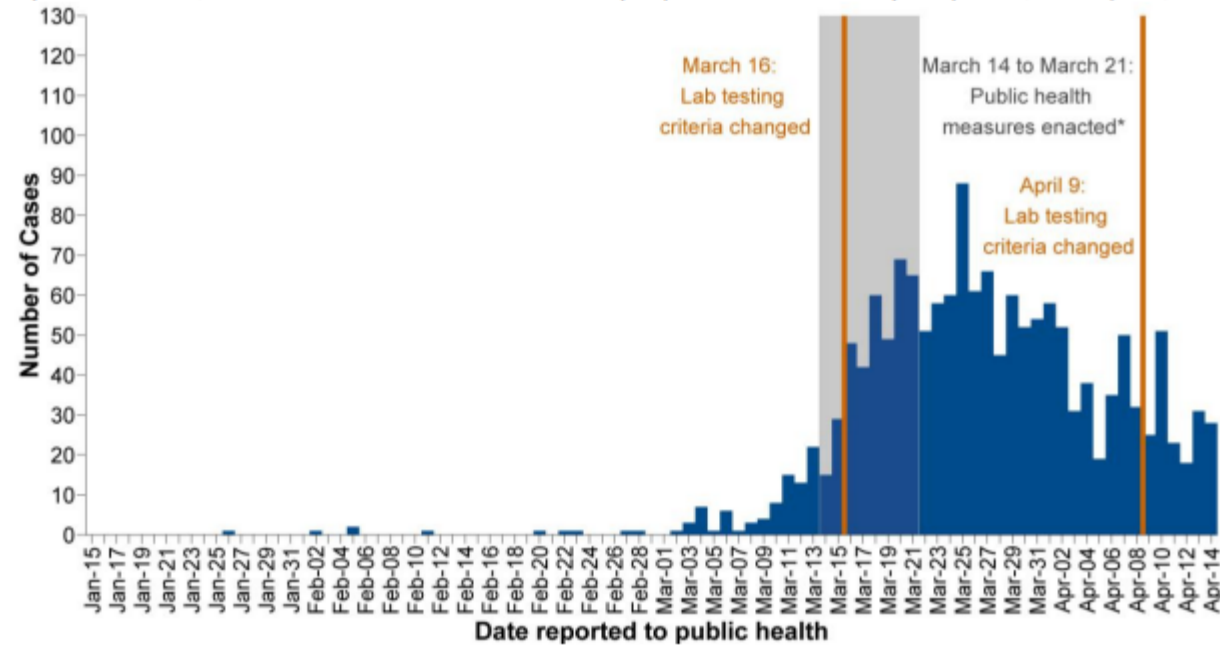
2nd Disclaimer

- This is my opinion at this time, which may not be entirely congruent with the current narrative. Also subject to change.

Effects from the Lockdown

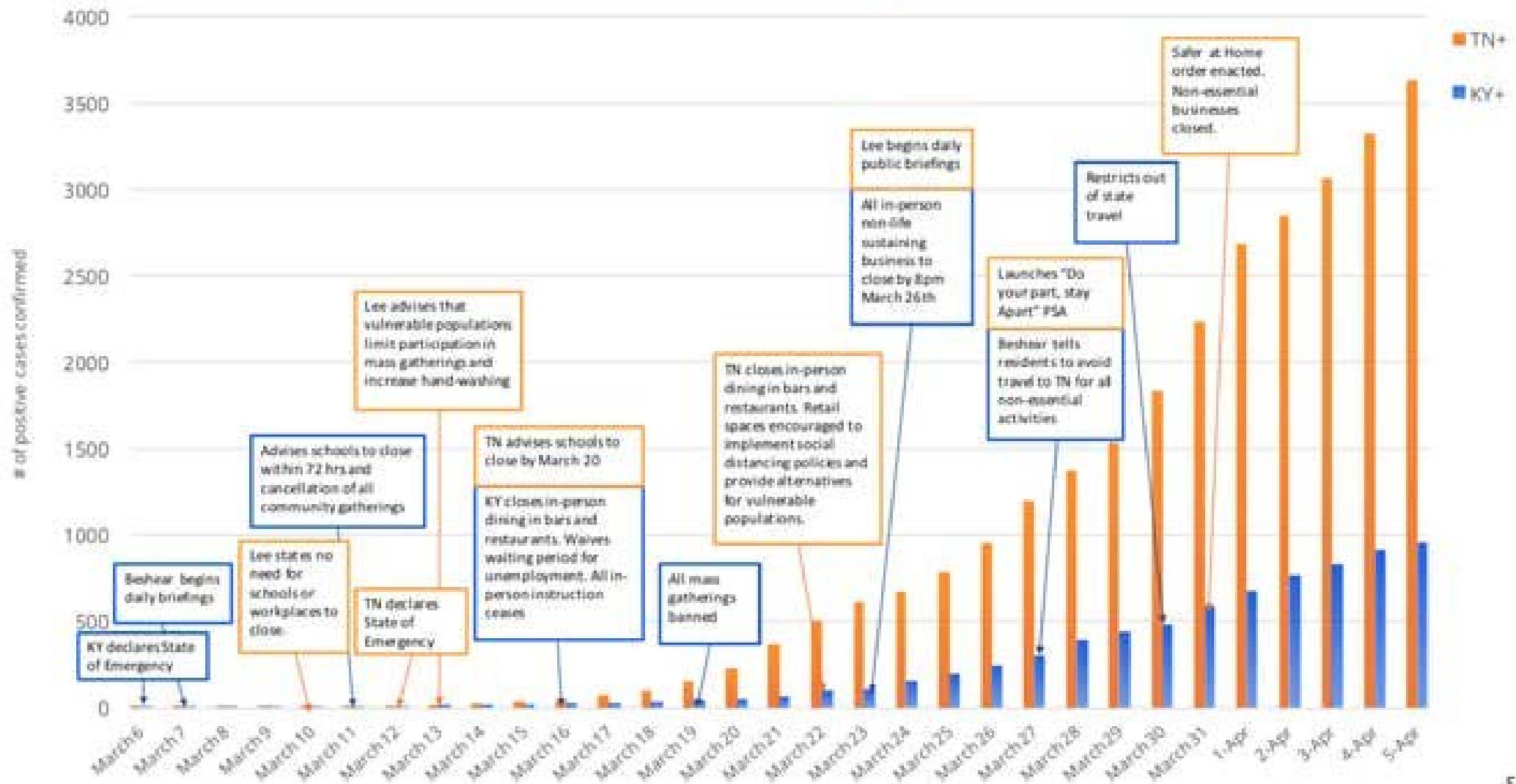
- BC has luckily avoided the fate of Italy, UK, Spain, New York, Ontario, Quebec to date
- Social distancing/partial shutdown has been shown to be effective in controlling spread/flattening the curve.

Figure 3: Epidemic curve, confirmed COVID-19 cases in BC by reported date January 1-April 14, 2020 (N=1,557[†])



Kentucky/Tennessee Positive COVID-19 Data

@Stephaniejolly



TN tests reported (state + all private/commercial) per Depth of Health website: 45,300
 KY tests reported (state + positive only private/commercial) per Dept of Health website: 18,797

Sources:
 KY Dept of Health:
<http://govstatus.gov.com/kycovid19>
 TN Dept of Health:
<https://www.tn.gov/health/cedep/covid.htm>

Effects from the Lockdown

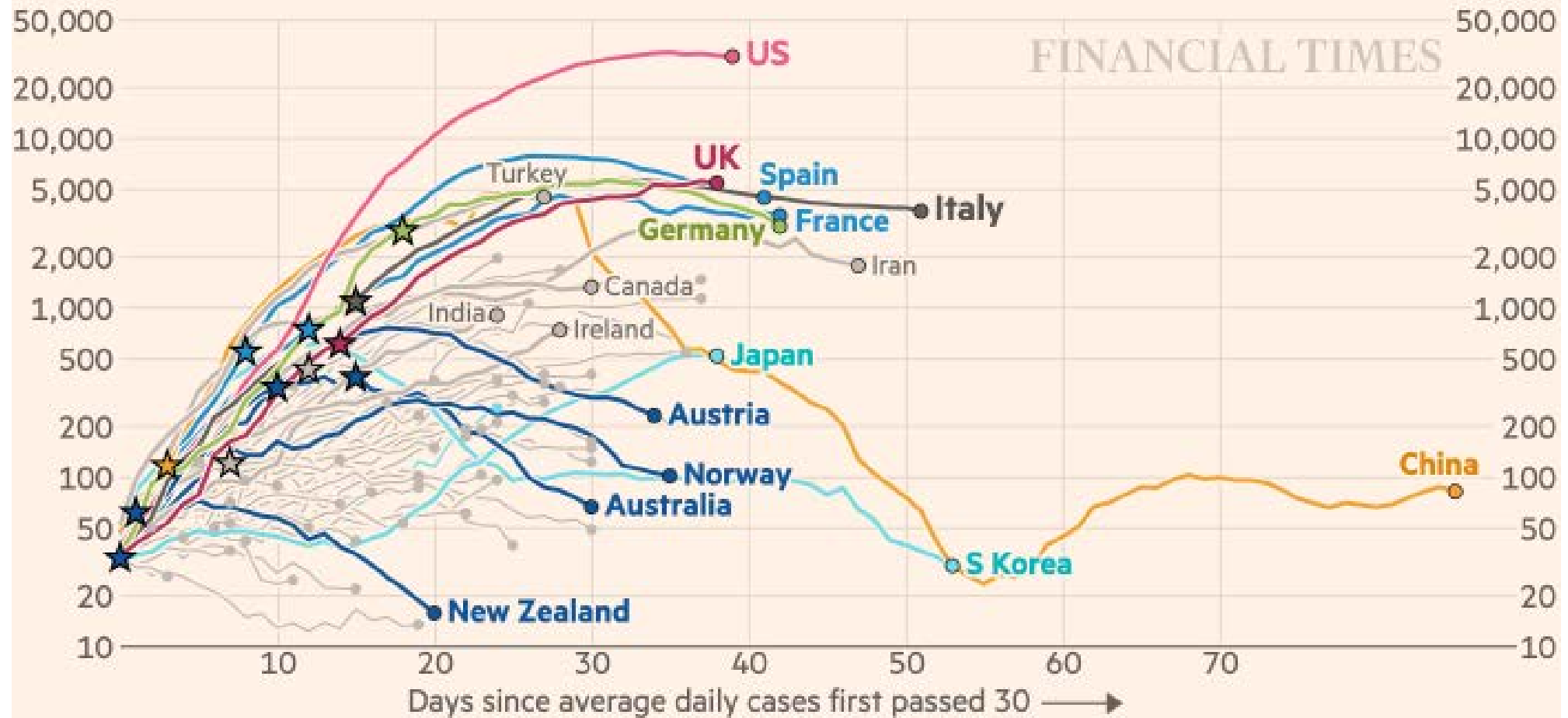
- ~6 million applicants for the CREB out of a entire CDN workforce of ~20 million (30%)
- ~200 billion lost in equity in the Toronto Stock Exchange
- Social distancing fatigue already setting in amongst population
- Where do we go next?

What do we know about the virus?

- We know that uncontrolled, the virus can spread very quickly through populations. Recent R0 values published from the US, UK outbreak put the R0 between 4 and 6.
- Likely a degree of asymptomatic/pre-symptomatic spread, early shedding – contributing to its success as a pathogen.
- Current modelling suggests even with ongoing control – likely to see cases progress in a more linear fashion rather than eradication.
- Age of a population is the most reliable factor in predicting the degree of morbidity and mortality. (For reference Lombardy – 22.6% of population >65 yo, Vancouver Island 23.3% >65 yo)

Several countries have turned the corner, with numbers of new cases now in decline

Daily confirmed cases (7-day rolling avg.), by number of days since 30 daily cases first recorded
Stars represent national lockdowns ★



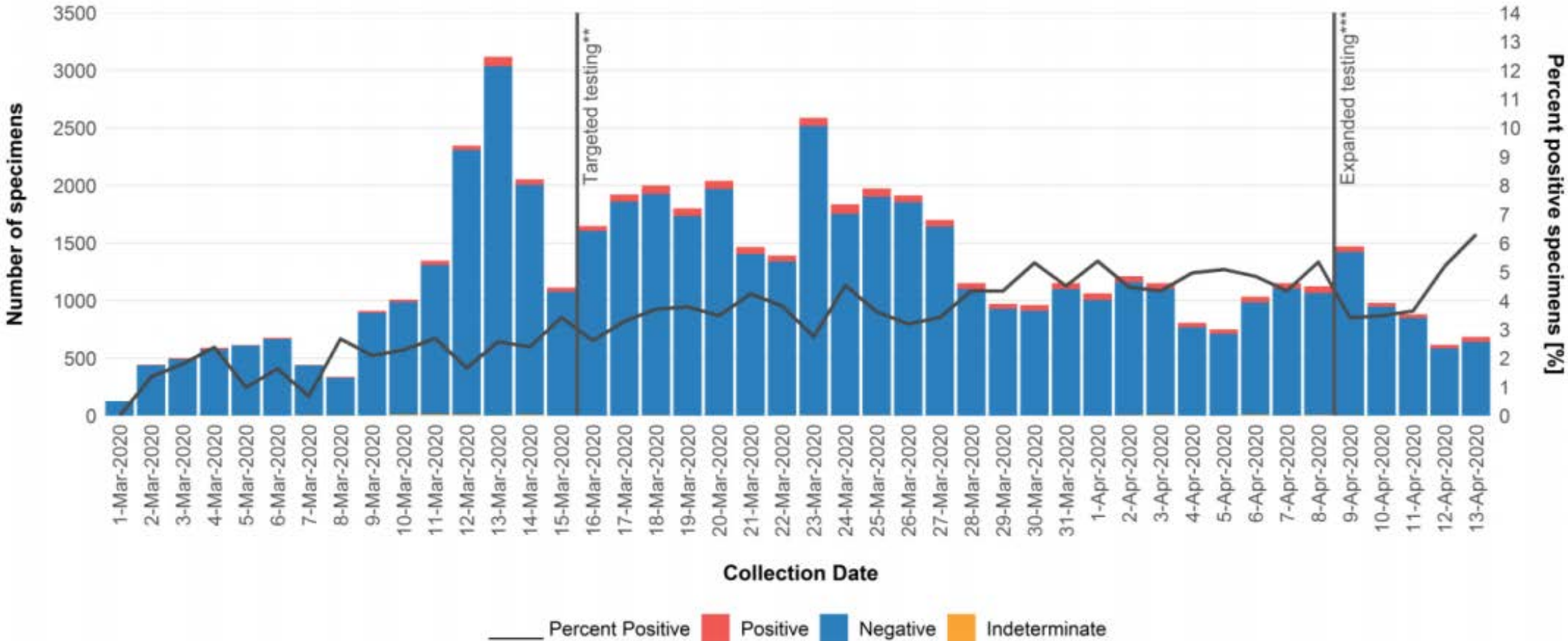
FT graphic: John Burn-Murdoch / @jburnmurdoch

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BC Testing Numbers

Figure 4: Number and proportion of SARS-CoV-2 positive respiratory specimens, BC, March 1-April 13, 2020 (N=55,035; Positive=3.46%)

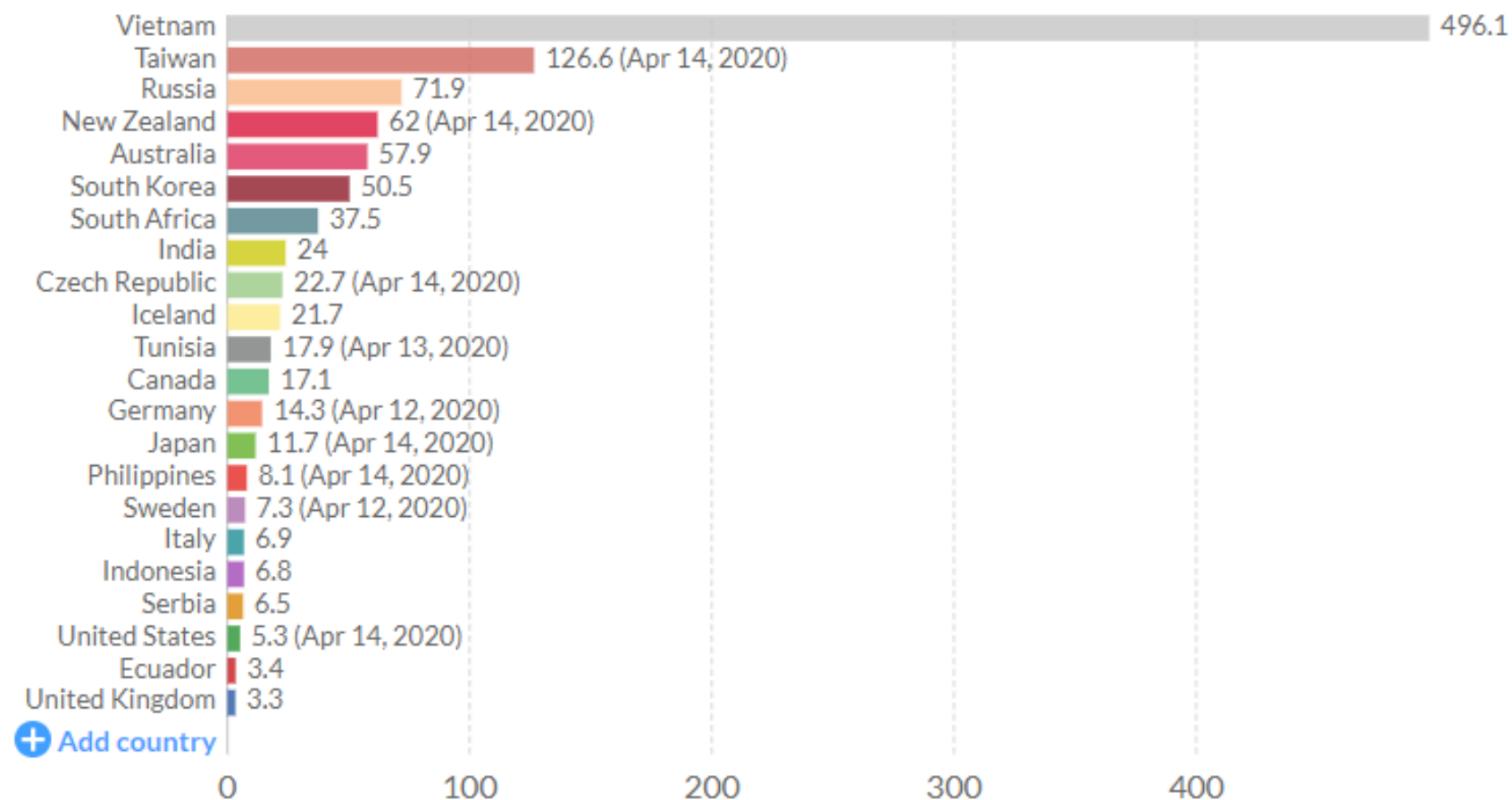


WHO – “Test, Test, Test!”

Number of COVID-19 tests per confirmed case, Apr 15, 2020

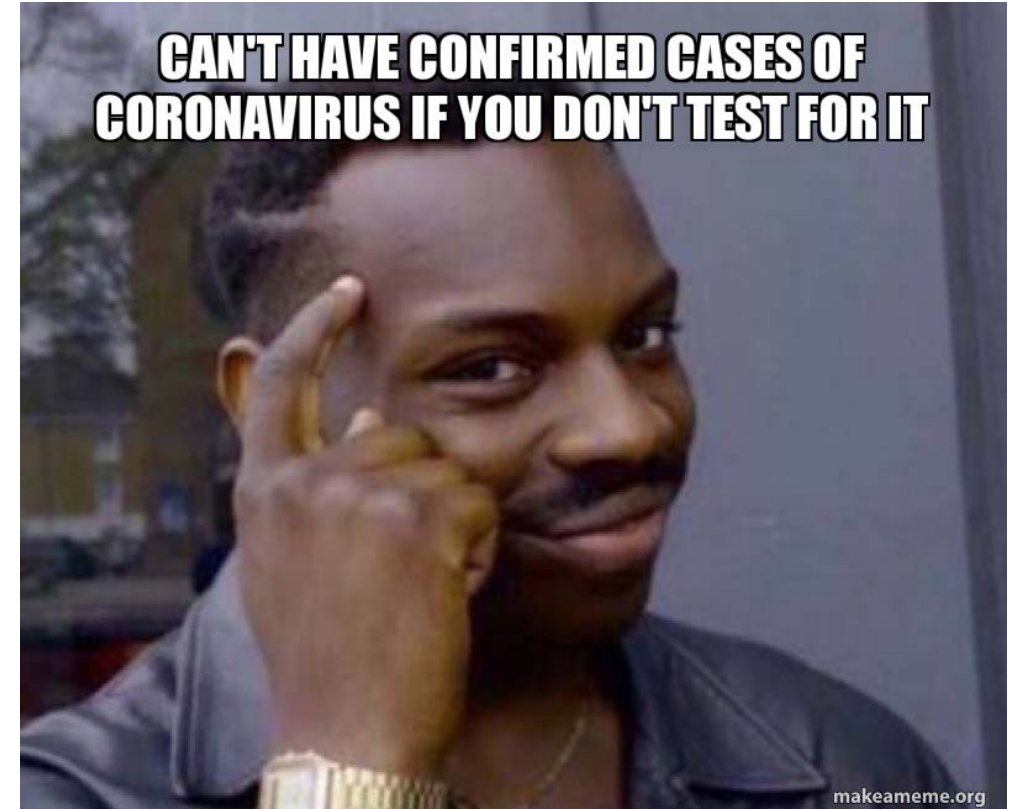
Comparisons of testing data across countries is compromised for several reasons (see note below).

Our World
in Data



BC vs Alberta

- Alberta has dropped all requirements for testing other than having symptoms for all individuals as of April 13th
- Alberta has completed 85,500 tests compared to 55,035 (80% more tests completed per capita than BC)



What testing accomplishes

- *“It wouldn’t change management”*
- Increased compliance with quarantine/self isolation
- Protect vulnerable populations – LTC/Prisons
- Detection of community outbreaks before seeing hospitalizations 7-14 days later
- Allows you to get ahead of multiplication events

The Mantra

In order to be able to relax social distancing restrictions, we will need to increase our efforts in other aspects to keep the virus controlled.

-increased testing (ease of access, quantity, rapidity, ?value of serologic testing)

-increased abilities to respond promptly to cases, improved contact tracing and quarantining of symptomatic cases

-improved abilities to help decrease community spread. (e.g. mandated hand hygiene, improved environmental hygiene, mask wearing, continued restriction on large events)

Questions/Comments?

