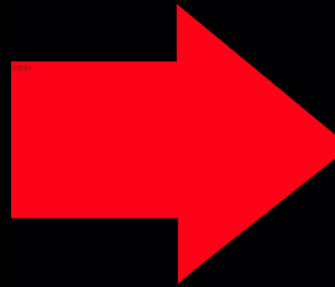
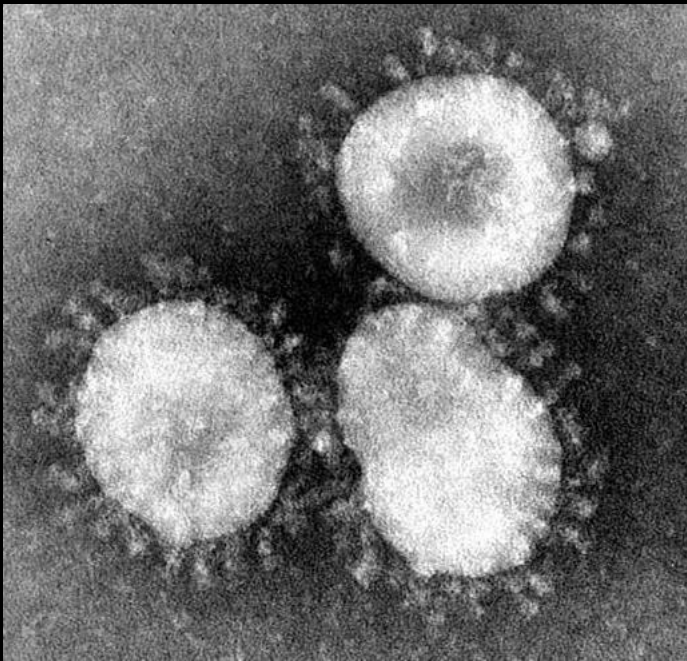
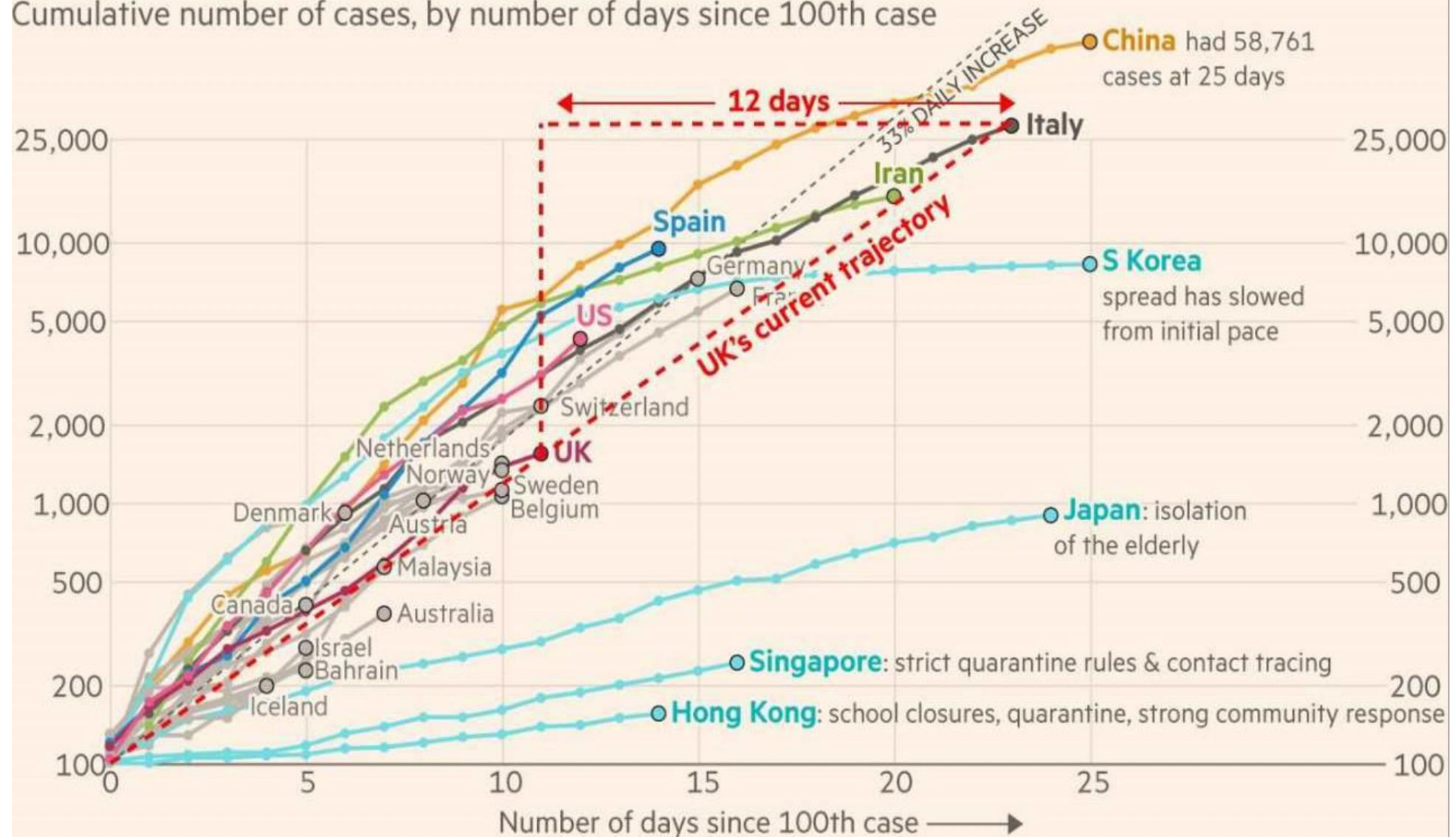


Organizing Acute Stroke Care: Our Response to the COVID-19 Pandemic



Most western countries are on the same coronavirus trajectory. Hong Kong and Singapore have limited the spread; Japan and S Korea have slowed it

Cumulative number of cases, by number of days since 100th case



Strengthening of infectious disease outbreak preparedness after SARS

- Significant expansion of number of negative pressure isolation beds throughout the public hospital system
 - Purpose built National Centre for Infectious Diseases (NCID) has 330 negative pressure double door isolation rooms
- Segregation of inpatient and outpatient facilities
- National stock piling of masks and PPE
- Establish formal platforms for multi-Ministry and cross-agency coordination
- Develop strong contact tracing capability
- Training of health professionals in infection prevention and correct use of PPE
- National Healthcare Staff Surveillance System (S3)
- Major investments in biomedical science with significant focus on building expertise in infectious diseases.

SGH DVIR COVID 19: The 6-step program

Too Chow Wei

*Senior Consultant/Department of Vascular and
Interventional Radiology*

Director IR Operations/Division of RadSc

Adj Asst Professor/Duke-NUS

Covid 19: Is IR primed and ready?

The SKH Experience

FG Irani, Amirah Ahmad, Margret Lim, Ian Wong , K Damodharan
SKH IR nurses and Radiographers



World Stroke
Organization



American Society of Neuroradiology



EUROPEAN STROKE
ORGANISATION

Society of NeuroInterventional Surgery recommendations for the care of emergent neurointerventional patients in the setting of COVID-19.

Intubation, extubation, suction, and active CPR may result in aerosolization of respiratory secretions increasing the risk of exposure to personnel.

Intubated patients pose less of a transmission risk to neurointerventional staff given that their ventilation is managed through a closed circuit.

Therefore, we recommend standard institutional protocols with a low threshold for intubation of stroke thrombectomy COVID-19 positive patients *prior to* transport to the angiography suite, ideally in a negative pressure environment. For instance, patients with dominant hemisphere occlusions, very high NIHSS or low GCS, or posterior circulation occlusions (as well as any patient with significant symptomatic respiratory difficulty) should be considered for prophylactic intubation as the risk of intraprocedural intubation is high.⁹

Once an intubated patient is transported into the suite, all providers should wear enhanced PPE at all times. This includes surgical cap, eye protection (goggles and face shield, not just glass), full gown/gloves, shoe covers, and an N95 mask or Powered Air Purifying Respirator (PAPR). It is recommended that treating physicians and interventional radiology technicians working in the case wear boot-type shoe covers if available to minimize contamination.

Patients should not be extubated in the angiography suite (unless in a negative airflow environment), but should be taken to an isolation intensive care unit room for planned extubation with airborne and contact precautions.

Early-Progressive Care And Related Protocols: Once COVID status is determined and the patient is extubated (if needed), it is recommended to transfer uncomplicated post-thrombectomy patients out of the ICU as soon as possible. Subsequent stroke etiology and prevention evaluation can be performed in other inpatient locations to maximize availability of ICU beds.

It is recommended that unknown COVID-status patients be treated as high risk for COVID-positive

COVID Testing: Given that stroke patients may not be able to provide a full history due to neurological impairment, it is recommended that, should resources be available, all AIS post-thrombectomy patients undergo COVID-19 testing if available during their admission.

Angiography equipment and turnover: Since a majority of MT patients will be COVID-positive or presumed positive in the current environment, effective cleaning of angiography equipment and suites will have an impact on turnover times and readiness for additional cases. For this reason, it is recommended that elective and non-urgent cerebrovascular cases be postponed until the pandemic's peak has been reduced. It is also recommended that for hospitals with multiple angiography suites, one suite is designated as a "COVID room" and stocked for treatment with enhanced PPE and accessible interventional equipment to minimize intraprocedural staffing. The establishment of negative-pressure (rather than positive-pressure) ventilation in angiography suites is worth consideration.

Staffing organization and PPE use: Shift-based allocation of staff and physicians to separate individuals with overlapping skillsets is recommended.

SCENARIO	PPE	REMARKS
Confirmed/Suspected covid-19 patients	Full PPE at all times: Surgical cap, eye protection (goggles or face shield), N95 mask, full gown, gloves	Surgical mask to patient
Patients with pneumonia / acute respiratory symptoms	Full PPE when performing IR procedures. Surgical mask for non-procedure patient contact	Surgical mask to patient
Patients under quarantine due to close contact with confirmed covid-19 patients	Full PPE when performing IR procedures. Surgical mask for non-procedure patient contact	Surgical mask to patient
Patients from general ward and outpatients with no risk factors for covid-19	Surgical mask	
Aerosol generating procedures (AGP)	Full PPE + PAPR for confirmed/suspected covid-19 patients Full PPE for all other patients	Examples of AGP