# Covid-19: What we have learned so far

## Key points from Kings College Study

* Pathophysiology:
	+ ARDS & Cytokine storm
* Stages:
	+ Replicative stage & Adaptive Immunity stage
	+ Reason for deterioration day 7-10
* Key features:
	+ Fever > 37.8
	+ Persistent dry cough
	+ GI symptoms
	+ Silent hypoxia
* Investigations:
	+ Relative lymphopenia
	+ CRP slightly ↑ (~50)
	+ Poor prognostic indicators: ↑ d-dimer, ↑ LDH, ↓↓ platelets, ↑↑ CRP
	+ Covid-19 swab
		- 70-75% sensitivity
	+ General respiratory swab
	+ CXR patchy ground glass opacities especially peripheral & basal

## Current management at York Hospital

* Set ceiling of care:
	+ Note PPE3 required for resuscitation…risk poorer outcomes due to delay
* Oxygen:
	+ Target sats generally either 92-96% or 88-92%
* Antibiotics for covid pneumonia:
	+ CURB 3-5:
		- Ertapenem 1g IV OD *AND* Clarithromycin 500mg IV/PO BD
		- *OR*: Ceftriaxone 2g IV OD *AND* Clarithromycin 500mg IV/PO BD
		- *OR*: Levofloxacin 500mg IV/PO BD
	+ CURB 2:
		- Azithromycin 500mg PO OD
		- *OR*: Clarithromycin 500mg PO BD
		- *OR*: Levofloxacin 750mg PO OD
	+ CURB 1:
		- Doxycycline 100mg PO BD
		- *OR*: Amoxicillin 500mg PO TDS
	+ Notes:
		- Generally, 5-7 day course
		- Debate over how useful CURB score is
* Fluids:
	+ Cautious assessment
	+ Aim for negative fluid balance if think ARDS
* Ventilation:
	+ CPAP, BiPAP, Invasive ventilation
* RECOVERY trial:
	+ No additional treatment vs. Hydroxychloroquine vs. Dexamethasone
	+ Others, when available: Lopinavir-Ritonavir vs. Interferon β
* Palliative care:
	+ Shortness of breath & anxiety/agitation as key symptoms
* After death:
	+ Do not need to have seen the patient to complete death certificate.
	+ Do not need to have been the person who saw the body to complete cremation form.
	+ No 2nd part of cremation form needed currently.

## Personal Protective Equipment

* Current guidance from York Hospital:
	+ PPE2 being used for contact with ANY patient
	+ PPE3 for aerosol generating procedures
		- Examples: intubation, resuscitation, chest physio
		- Use of nebulisers are not aerosol generating procedures
		- PPE3 for cardiac arrests in ANY patient (covid or non-covid)

## Learning from our own experiences

* *Note: all examples are from covid positive patients.*
* **Timeline of the disease**:
	+ Important to document Day 0 of symptoms.
	+ Key to risk assessment as Day 7-10 is time when high risk of deterioration.
	+ Examples:
		- Would worry if patient saturating < 94% on Day 6 as risk further deterioration in next few days.
		- Looked for other differentials for inpatient whose oxygen requirements went up when Day 19; appeared to be aspiration pneumonia.
* **Silent hypoxia**:
	+ Patients may look well and not have respiratory symptoms but be found to be hypoxic.
	+ Examples:
		- Home visit to 80yo with fall/poor PO intake. Comfortable, normal RR but sats 80%.
		- 54yo with T1DM but otherwise fit & well admitted on day 10 of symptoms. Requiring 60% oxygen to maintain sats. Looked surprisingly well, no SOB, keen to go home. Ended up on CPAP later that week as could not maintain sats.
* **Hypoxia on minimal exertion**:
	+ Even if saturating ok at rest there is a risk of desaturation on minimal exertion.
	+ Example:
		- Fit 70yo with sats 92% on air looking possible for discharge home but desaturated to 80% when went to sit out with physios. The next day his oxygen requirements went up again.
* **GI symptoms**:
	+ Diarrhoea, vomiting and acute abdominal pain can be presenting features without respiratory symptoms.
	+ Examples:
		- Elderly care home resident admitted with diarrhoea, vomiting and fever.
		- Home visit to fit 70yo with vomiting, fever and dehydration, no respiratory symptoms, sats 89%; now on ICU.
		- 30yo patient with acute RUQ and fever, USS consistent with cholecystitis; ?covid as trigger vs. incidental finding covid.
* **Palliative care**:
	+ Shortness of breath and anxiety have been key symptoms.
	+ High flow oxygen exacerbating dry mouth.
	+ SC morphine useful.
	+ Example:
		- Elderly gentleman where Abx & high-flow oxygen are his ceiling of care. Not maintaining sats. Now palliative. Dry mouth and very anxious. Switched to nasal cannula and given morphine SC to good effect.
* **Arrhythmia**:
	+ A couple cases where covid seems to have triggered a new arrhythmia.
	+ Examples:
		- Young health care worker admitted in SVT, haemodynamically unstable, found to be covid positive.
		- 70yo inpatient, d19, suffered acute stroke ?episode new AF.
* **Communication issues**:
	+ Has been a real difficulty on the wards as families are unable to visit, unable to see patients face to face to comprehend deterioration.
	+ Have started making more use of video technology to help this.
* **Emotional impact**:
	+ This can be a stressful time for many reasons:
		- New territory, uncertainty, communication issues, high risk, excess patient mortality, own health, health of family/friends.
	+ Talk to each other, help patients talk to their families.
	+ Support:
		- Covid-19 Psychology helpline: 01723 342740
		- [unmind.com/signup](http://nhs.unmind.com/signup)
		- [https://www.headspace.com/nhs](http://www.headspace.com/nhs)
* **Risk factors**:
	+ A few highlighted have been hypertension, diabetes mellitus, pre-existing respiratory disease, frailty.

## Summary & Translating this into GP Practice

* Wear PPE2 for ANY patient
* Risk assessment:
	+ What day of symptoms is this?
	+ Hypoxia? Hypoxia on exertion?
	+ Comorbidities
	+ Social situation / ability to seek help
* Don’t forget atypical presentations
* Trust the sats probe: don’t be fooled by the patient that looks well but is hypoxic
* Think about ceiling of care
* Look after yourself and your colleagues ♥

## Further topics to discuss

* Ethical issues
* Telephone assessment