# 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