

# IPC update for Spirometry Practice Nurse & HCA Forum

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# Spirometry

- Spirometry is the most common of the pulmonary function tests (PFTs). It measures lung function, specifically the amount (volume) and/or speed (flow) of air that can be inhaled and exhaled. Spirometry is used in assessing breathing patterns that recognise disease of lungs.
- Challenges has been identified during the covid pandemic to safely undertake spirometry within primary care services which will give clear diagnosis, but ensure safe protection of staff.

# Covid- The risk

- When someone with COVID-19 breathes, speaks, coughs or sneezes, they release particles (droplets and aerosols) containing the virus that causes COVID-19. While larger droplets fall quickly to the ground, aerosols containing the virus can remain suspended in the air. If someone breathes in these virus particles suspended in the air, they can become infected with COVID-19. This is known as airborne transmission.
- Covid can suspend in the air for up to 20 mins after an aerosol generation procedure.
- PPE worn correctly will keep healthcare staff safe.

# Is spirometry a Aerosol Generated Procedure ? (AGP)

- Spirometry is not considered to be an AGP.(CQC Myths busters)
- However, spirometry-associated cough has the potential to generate aerosol droplets. Coughing is likely to be the primary risk for disseminating airborne particles with any lung function test due to a forced and prolonged expiry manoeuvre.
- An AGP is a medical procedure that can result in the release of airborne particles (aerosols) from the respiratory tract when treating someone who is suspected or known to be suffering from an infectious agent transmitted wholly or partly by the airborne or droplet route.

# DOH List of Aerosol generated procedures

- Tracheal intubation and extubating, manual ventilation, bronchoscopy tracheostomy procedures (insertion or removal)
- Dental procedures (using high speed devices,)
- Bi-level positive airway pressure ventilation (BiPAP) (CPAP)
- High flow nasal oxygen (HFNO)
- Induction of sputum using nebulised saline.

# DOH List of Aerosol generated procedures.

- Respiratory tract suctioning beyond the oro-pharynx is currently considered an AGP by UK cell
- Upper ear, nose and throat (ENT) airway procedures that involve respiratory suctioning
- Upper gastro-intestinal endoscopy where suctioning occurs beyond the oro-pharynx
- High speed cutting in surgery/post-mortem procedures if respiratory tract is involve

# Different Masks offer different protection

- FFP1 masks, filtering  $\geq 80\%$  of aerosols (total inward leakage  $< 22\%$ )
  - FFP2 masks, filtering  $\geq 94\%$  of aerosols (total inward leakage  $< 8\%$ )
  - FFP3 masks, filtering  $\geq 99\%$  of aerosols (total inward leakage  $< 2\%$ ).
- ( Lepelletier al 2020)

# IPC recommendations for recommencement Spirometry in GP Practices.

- Continue to pre-screen any patients for Covid-19 prior to attending the appointment.
- Ensure patients are told not to attend the surgery for Spirometry if they are confirmed with Covid-19 or have any symptoms. Or if they are in a house that is isolating or quarantining.
- Ask the patient if they have symptoms of a Cough, Temp 37.8 Loss of smell or taste, Flu-like symptoms. Has any household members or regular contacts similar symptoms.
- Preferably Double vaccinated. LFT tests now widely available. Neg test 24 hr. before attending.



# Ventilation in the room

- Ensure the room is well ventilated.
- A numbers of Primary care/GP facilities/ new builds will already have in built ventilations
- A risk assessment of the nature of the treatment being proposed and delivered should be in place for each room.
- A risk assessment should be undertaken to assess if room has adequate ventilation, or opening windows

# Restarting Spirometry

- Must be undertaken by trained competent healthcare Professional (HCP).
- Unless the patient is considered high risk for any reason, HCP will need Personal Protective Equipment (PPE) consisting of gloves, apron, visor and Type IIR (surgical) mask.
- Where available use a room with mechanical air circulation or ventilate as able (e.g. open windows). Ideally this should be in the region of 6 room air changes per hour. Other options that may be considered depending on the local situation include a drive through service or virtual spirometry.

# IPC recommendations for recommencement Spirometry in GP Practices. (Sheffield CCG )

Staff should be aware of and apply strategies to reduce cough and thus transmission of particles.

- Discuss with patient prior to procedure what action to take when they cough :
  - Firstly, try to stay on the mouthpiece/device if possible and cough in to the bacterial/viral filter.
  - If coming off the device, a surgical mask is lowered to the chin to allow a mouthpiece to be used and then replaced at end of procedure. This will allow capture of any airborne particles on coughing.
  - They should also be advised to turn away from the staff if possible.

# IPC recommendations for recommencement Spirometry in GP Practices. (Sheffield CCG )

- Staff need to be aware of a patient who has a history of cough/ coughing related condition prior to the procedure is useful.
- Spirometry should be performed using single use bacterial/viral filter in the circuit that meets American Thoracic Society (ATS) and European Respiratory Society (ERS) standards. Check these are compatible with the equipment prior to use.
- See extremely vulnerable/ immunocompromised patients first on the list to reduce risk.

# Cleaning equipment between patients

- The outside of the spirometer must be cleaned between patients as a minimum this should involve cleaning the outer casing of the transducer and the outer part of the spirometer itself with a 2 in 1 Universal wipe and all areas that have come in to contact with the patient (flow head, spirometer orifice etc).
- Bacterial/viral filters must be replaced for each patient (these are single use per patient). Also please continue to use single use one way valve mouth pieces (this was standard practice pre-covid).

# Cleaning equipment between patients

- At the end of a clinic session or daily if used on individual patients. The transducer/flow head should be cleaned and disinfected.
- The transducer/flow head should be cleaned and disinfected as per manufacturers instructions.

# Covid is here to stay

- **WHO states Covid will mutate like the flu and is likely to stay**
- We need to learn to live with covid as this is now thought to become a regular seasonal virus as is Flu.
- We need to mitigate the risk of spread.
- Remember Good IPC practices, correct use of PPE, Donning and doffing, environmental cleaning, management of the healthcare environment. Will reduce the risk

# Other issues to consider when planning to restart

- Equipment should have annual service and calibration performed as per manufacturer's guidance
- Cleaning processes in place as per manufacturers instructions should be reviewed..
- Bacterial Filters may impact readings: Check with spirometer manufacturers whether the machine should be verified with or without a bacterial filter in place.
- Risk assessments should be reviewed to include additional steps to mitigate against SARS-CoV-2 infection.



# Last update from SYP

- Some CCG are considering FFP3 masks. Although the procedure itself is not an AGP, the cough induced could be considered to produce aerosols and there is concern with inadequate ventilation in GP Practices.
- The risk assessment undertaken should address the size of the room, how big is the window, how long should it be open for, confidentiality issues etc –
- Needs to match the 6 air changes an hour recommended as per ARTP guidance).
- Vast majority will not have mechanical ventilation.



## Plan if FFP3 is considered

- IPCT can support FFP3 fit mask training if this is agreed.
- The plan would be train the trainer model.
- Training to be accessed at Hospital site.

.....**Watch this Space**

# References

**British Thoracic society (2021)** - Guidance for the resumption and continuation of urgent and elective outpatient respiratory services at: <https://www.brit-thoracic.org.uk/covid-19/covid-19-resumption-and-continuation-of-respiratory-services/>

**Sheffield CCG (2021)** ) Guidance for commencing spirometry services.

**UKHSA 2021** – Guidance for maintaining services in health and social care setting at :

[COVID-19: guidance for maintaining services within health and care settings – infection prevention and control recommendations - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/covid-19-guidance-for-maintaining-services-within-health-and-care-settings-infection-prevention-and-control-recommendations)