

JHH Perioperative Service Local Guideline

Title

Spirometry testing in the Preoperative clinic.

Background

Spirometry is a relatively easy and inexpensive test that can be performed in the outpatient setting preoperatively.

However, there is conflicting evidence as to the utility of this test to predict post-operative pulmonary complications in non-cardiac surgery. Additionally, there is no available data to suggest a spirometry threshold below which surgery is not recommended. Spirometry is widely accepted to be useful in the diagnosis and severity assessment of respiratory disease.

Therefore, in the Preoperative clinic, spirometry has a limited number of roles these include:

- The identification and characterisation of respiratory disease (obstructive and restrictive).
- Inpatients with known COPD or asthma, where there is uncertainty about whether the patient is at their best baseline.
- In thoracic surgery- For assessment of post-operative predictive lung function.

Guideline

Consider spirometry for the following patient groups if NO Lung function studies or spirometry in the past 12 months.

(Check with patient / G.P for external lung function studies OR on D.M.R for J.H.H lung function studies).

Surgery Type	Patient	Other
<ul style="list-style-type: none">• Lung resection (e.g. wedge, lobectomy, pneumonectomy)• Major open abdo surgery (e.g. Ivor Lewis, hepatic surgery open AAA, gynae oncology)	<ul style="list-style-type: none">• COPD patients having major/intermediate* surgery• Smoker (>20yrs) having intermediate or major surgeries• Uncontrolled asthma• Neuromuscular disorders (e.g. MND, myasthenias)	<ul style="list-style-type: none">• Unexplained SOB• Patients having Consultations for 'suitability for surgery'• At discretion/request of anaesthetist in clinic or procedural anaesthetist

**NOTE: Intermediate and major surgeries at J.H.H include- Thoracic surgery, joint surgery, Neurosurgery, abdominal surgery, head and neck reconstructive surgeries, some vascular surgeries, aortic aneurysm surgery and some surgeries anticipated to be of prolonged surgery time.*

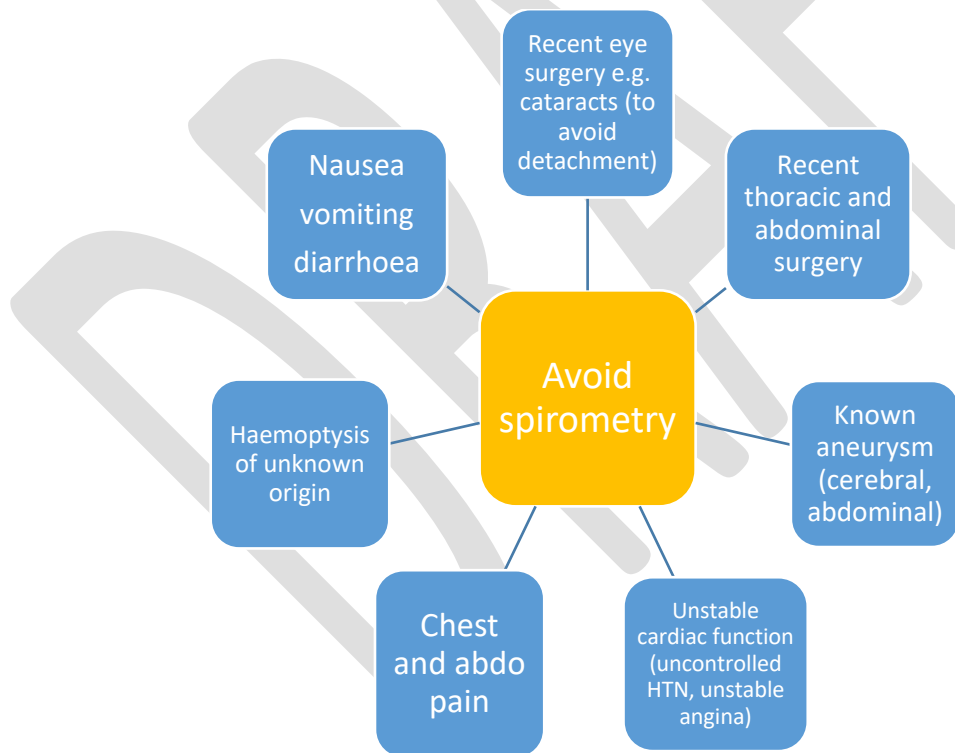
CONSIDER REFERRAL FOR FORMAL LUNG FUNCTION STUDIES IF:

- There remains uncertainty about accuracy of spirometry results.
- Cause of pulmonary symptoms uncertain or complex.

Hazards and contraindications

There are some situations in the clinic setting where spirometry is not recommended. Spirometry is generally a safe, non-invasive procedure, however it does require maximal effort and subject cooperation, which may result in transient breathlessness, oxygen desaturation, syncope, chest pain and exacerbated cough. The forced manoeuvre can also induce bronchospasm in patients with poorly controlled asthma (the patient may be required to use a bronchodilator prior to testing).

There are a number of clinical circumstances in which the generation of a high positive intra-thoracic pressure and its transmission to vascular, abdominal and other body compartments may be detrimental and thus spirometry is best avoided-



IN RESPONSE TO THE CURRENT PANDEMIC (* See Respiratory Stream Memo from Michael Hayes/ John Harrington, Dated: 27/03/20.

Patients/Clients are not to have spirometry undertaken if they are either

- Confirmed COVID 19, SARS CoV2 (category Red)

- Suspected COVID 19, SARS CoV2 (have been tested awaiting results or have symptoms of an influenza-like illness) (category Orange)

The Process

To achieve best results, carefully explain the procedure to the client.

Occupational Health and Safety regulations apply. Due to the COVID 19 Pandemic, Droplet PPE is to be worn by staff attending spirometry monitoring. This includes protective eye wear i.e. Safety glasses, goggles. Gown (plastic aprons are currently supplied in the Perioperative clinic), and non-sterile gloves.

The approved bio-filter is to be used in the circuit i.e. Suregard 'EasyOne Filter' used in clinic at present. Fits to the top of the spirette tube. This filter is disposable.

Checklist of steps

Use portable unit – Easy One.

- Choose “Perform test” in the main menu and then NEW. Confirm with ENTER.
- Enter client data and confirm with ENTER each time.
- Insert spirette and line up with the arrow. When client is ready, press ENTER you will now hear the sensor buzzing.
- Instruct client to sit upright in chair with legs uncrossed and feet flat on floor or if client feels more comfortable they may stand for procedure.
- Breath in completely and rapidly, pause for less than 1 second.
- Place mouthpiece in mouth and close lips to form good seal.
- Blast air out as fast and as long as possible until completely empty, or until unable to blow any longer or instructed to stop by clinician. Note: Do not stand in front of client when blowing.
- Remove mouthpiece. Allow client to regain breath.
- Repeat.



NOTE: A maximum of 3-5 manoeuvres is recommended for those with chronic lung disease / fatigue or unable to produce acceptable technique. This is assessed by the clinician. Sometimes in clinic the client can only manage 2 blows without distress (inform Doctor if this occurs). Usually the client will be asked to repeat 3 times.

Process for Printing

- The spirometry app is loaded to the 2nd shared computer situated in the clinic in the shared office space.
- This is the only computer that can be used to access the app at present.
- Open the app on the home screen with the spirometry ICON

- (Purple Icon).
- Once test has been performed, load spirometer machine onto the base and wait for test results screen to be displayed. Choose required patient test result by clicking on the corresponding name, date of test and M.R.N. then press print. Results will be sent to clinic printer PeriopRNC-02.

*Remember to log out of app and log off as user, as only one user can be logged-in at a time. Note: this may change if group log-in organised.

Consultation

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Dr Pragya Ajitsaria- Perioperative Service Co-Director
Dr Paul Healey- Perioperative Service Co-Director
Tara Smith- Senior Physiotherapist.

References

Preopevalguide.com

https://WWW.uptodate.com.acs.hcn.com.au/contents/evaluation-of-preoperative-pulmonary-Risks?search=preoperative%20pulmonary%20evaluation&source=search_result&selectedtitle=3~150&usage_type=default&display_rank=3

Droplet P.P.E MEMO From Michael Hayes & John Harrington (Respiratory Stream members)
http://intranet.hne.health.nsw.gov.au/data/assets/pdf_file/0014/212009/020320>Contact-and-Droplet-Precautions-Sign-2020-Landscape.pdf

Safe work practice (SWP) / Operating instructions (OI) Development and review- CACS-GNS 18_052
Suregard Easyone filter information sheet. WWW.birdhealthcare.com

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Appendices

Hunter New England –Health monitoring fact sheet for asbestos-Spirometry. Source: National asthma Council Australia-Aug 2030.