SOP

HOW TO USE SPIROMETER

Department of Physiology
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STANDARD OPERATING PROCEDURE (SOP)

Operation of the MIR Spirolab Spirometer

1. Purpose

To provide a standardized procedure for safe and accurate operation of the MIR Spirolab spirometer for spirometry and optional pulse oximetry.

2. Scope

Applicable to staff, demonstrators and students performing pulmonary function testing.

3. Responsibilities

Ensure correct setup, calibration verification, patient identification, infection control, cleaning and documentation.

4. Equipment

Complete with:

- Spirolab main unit
- MiniFlowmeter sensor
- Re-usable turbine or disposable turbines
- Power supply unit
- Mouthpiece
- Single use nose clip
- Durable carrying case

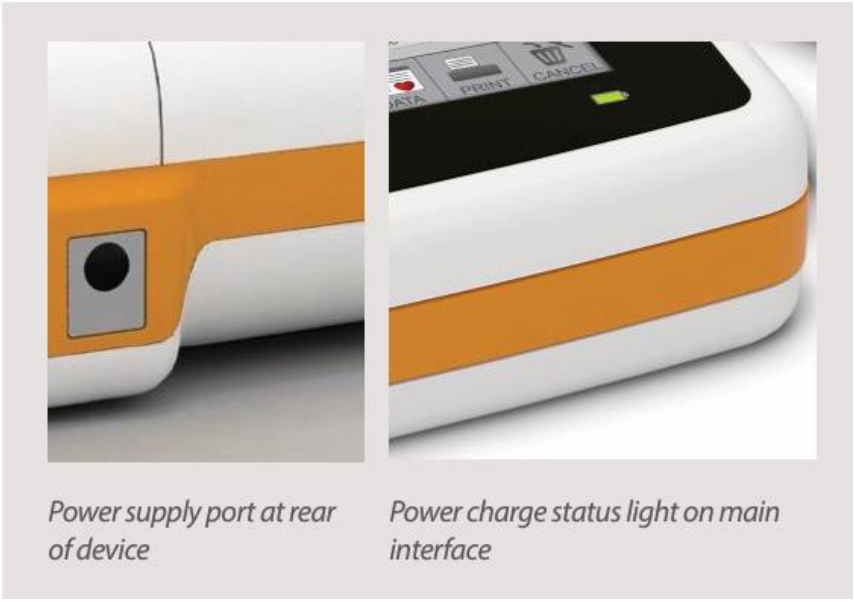
5. Safety

Use approved accessories, inspect before use, use a new mouthpiece for every patient, keep away from electromagnetic interference.

6. Procedure

A. Preparation

1. Charge device.



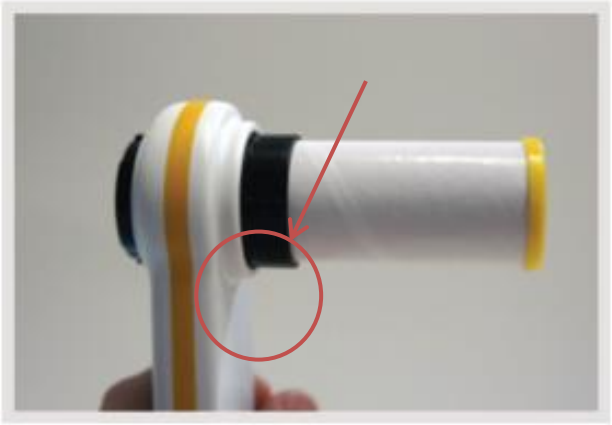
Power supply port at rear of device

Power charge status light on main interface

2. Connect MiniFlowmeter.

3. Insert turbine.

4. Attach mouthpiece.

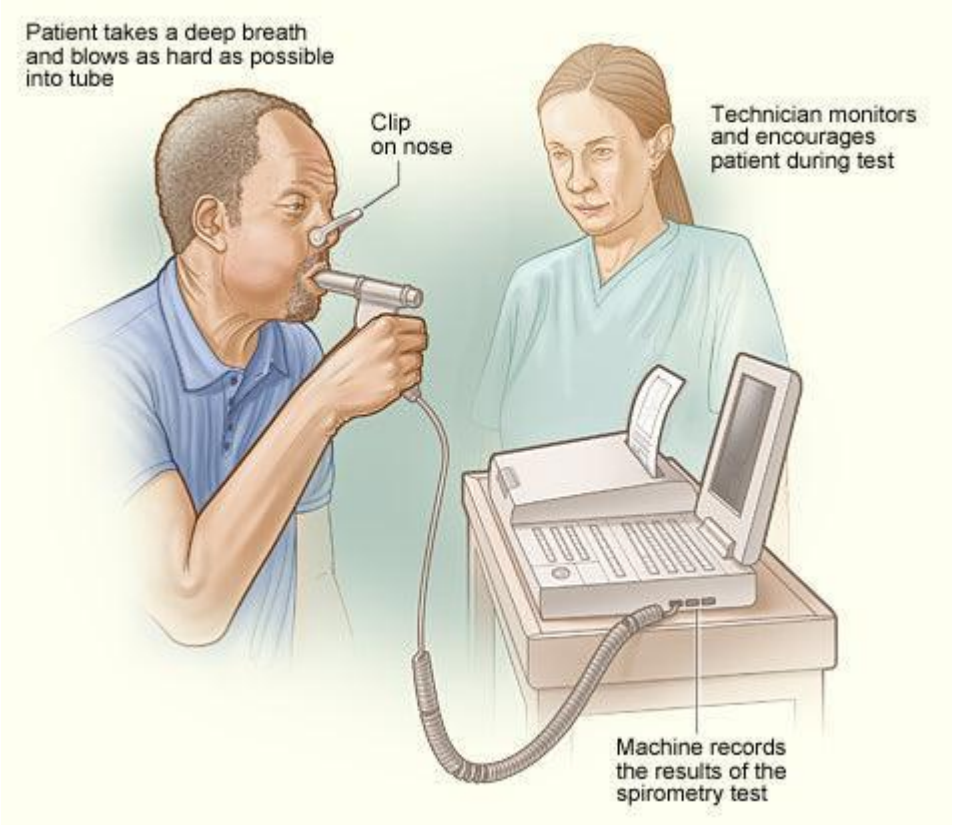


5. Switch on.

B. Register patient.

C. Perform calibration verification.

D. Perform spirometry (FVC/VC/POST).



1. Patient Positioning
• Explain the procedure to the patient before starting.
• Ensure the patient is comfortable and relaxed.
• Seat the patient upright in a chair with back support.
• Keep both feet flat on the floor.
• Maintain the head in a neutral or slightly elevated position.
• Loosen any tight clothing around the chest or abdomen.
• Apply a disposable nose clip.
• Instruct the patient to hold the mouthpiece firmly with the lips to prevent air leakage.
• Ensure the tongue does not obstruct the mouthpiece.
• Encourage the patient to avoid bending forward during forced expiration.

2. Patient Instructions
The operator should explain the procedure using clear, consistent language.
• "When I say 'Go', take the deepest breath you possibly can."
• "Seal your lips tightly around the mouthpiece."
• "Now blow out as hard, as fast, and as long as you possibly can."
• "Keep blowing… keep blowing… don't stop… keep going until I tell you to stop."
• "Excellent. Relax."

E. Optional pulse oximetry.

7. Common Errors During Spirometry

Error	Observation	Corrective Action
Loose lips	Air leak	Reposition mouthpiece and repeat
Slow start	Low PEF	Reinstruct and repeat
Early termination	Low FVC	Encourage longer exhalation
Cough in first second	Invalid FEV_1	Repeat test
Tongue obstructing mouthpiece	Reduced flow	Reposition tongue
Hesitation before blowing	Poor start of test	Reinstruct patient

8. Post-test
Save results, discard disposable items, clean reusable turbine, switch off device.

9. Cleaning & Maintenance
• Clean reusable turbine using approved detergent, rinse, air dry. Never autoclave or use alcohol-based cleaners.
• Change the printer roll when needed

10. Troubleshooting
Recharge battery, clean turbine, reposition sensor, restart device if frozen.

11. Documentation
Record patient details, operator, date/time, test quality and results.

References

MIR Spirolab User Manual (UK Version).

A concept of

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