Masterclass Course

Session aims and Learning outcomes

Session 1: *Guidelines and reference equations*

Aim of session
To understand the role and application of national and international guidelines and reference equations for the measurement of respiratory physiology.

Learning outcomes
At the end of the session the delegates will:
- Critically review the guidelines available for the measurement of respiratory function
- Understand the application of the ARTP guidelines and their role in the ARTP professional examinations
- Critically review the reference values available for predicting lung function across the age spectrum
- Have an understanding of normal values, reference ranges and regression equations
- Have an understanding of basic statistics e.g. mean values, normal distribution and standard deviation
- Understand standardised residuals and Z scores
- Recognise factors affecting the use of reference values

Session 2: *Indications and contraindications*

Aim of session
To understand the indications and contraindications for performing full lung function tests and reversibility.

Learning outcomes
At the end of the session the delegates will:
- Review the current evidence for indications and contraindications
- Know the current recommendations
- Understand the difference between a contraindication and a relative contraindication
- Understand the reasoning behind contraindications for lung function testing

Session 3:   *Pre test procedures and preparation for testing*

Aim of session
To understand the pre test requirements for routine lung function testing and how to prepare the patient appropriately.

Learning outcomes
At the end of the session the delegates will:
- Review the current evidence with regard to pre test instructions
- Critically review the guidelines for preparation for testing
- Be able to describe the ARTP guidelines with regard to preparation for testing
- Understand the importance of accurate anthropometric measurements
- Be able to accurately record a patients smoking history
- Be able to identify common medications which could impact on patients results and when to document dosage
- Understand the importance of ambient conditions
- How to assess the environment for appropriateness for the investigations to be performed

Session 4:   *Dynamic lung volumes*

Aim of session
To understand the range of equipment available for the measurement of spirometry and their principles of action. To understand the importance of accurate and reproducible spirometry measurements.

Learning outcomes
At the end of the session the delegates will:
- Be able to define spirometry parameters
- Be able to describe the test termination criteria
- Be able to describe acceptability and reproducibility criteria
- Be able to differentiate between flow and volume measuring devices
- Have an understanding of how flow and volume measuring devices work
- Have an understanding of differentiation and integration
- Understand the differences between volume time and flow volume traces
- Be aware of the guidelines for performance of spirometry and application of the ARTP guidelines
- Be able to describe the components of forced expiratory manoeuvres and how ratios are derived

Session 5: *Reversibility studies*

Aim of session
To understand the role of reversibility studies in the assessment of respiratory patients.

Learning outcomes
At the end of the session the delegates will:

- Be able to recognise which patients may benefit from reversibility studies
- Understand how to undertake a reversibility test
- Understand the guidance for assessing the significance of a bronchodilator response

Session 6: *Spot check oximetry*

Aim of session
To understand the indications, role and limitations of spot check oximetry.

Learning outcomes
At the end of the session the delegates will:
- Understand the measurement principles of pulse oximeters
- Understand the indications and limitations of measurements of oxygen saturation
- Understand the role of spot check oximetry in the respiratory department
- Understand the measured results

Session 7: *Calibration and quality control*

Aim of session
To understand the importance of calibration and quality control and its application in the respiratory physiology department

Learning outcomes
At the end of the session the delegates will:
- Be aware of the ARTP recommendations with regard to calibration of equipment for full lung function testing
- Understand the differences between calibration, verification and quality control including BioQC
- Understand how to interpret results of BioQC and use data to track equipment performance

Session 8:   *Lung volumes*

Aim of session
To understand the range of equipment available for the measurement of lung volumes and their principles of action. To understand the importance of accurate and reproducible lung volume measurements.

Learning outcomes
At the end of the session the delegates will:
- Have an understanding of the measurement techniques for the performance of lung volumes via helium dilution, nitrogen washout, body plethysmography and interrupter techniques.
- Be able to describe the advantages and disadvantages of different methods of measuring lung volumes
- Compare and contrast measurement techniques and explain differences in results obtained when using different techniques
- Have an understanding of the function of common gas analysers
- Be able to describe the test termination criteria for each measurement technique
- Be aware of the guidelines for performance of each technique and application of the ARTP guidelines
- Be able to describe the components of lung volumes and how they are calculated or derived

Session 9:   *Gas transfer*

Aim of session
To understand the range of equipment available for the measurement of gas transfer and their principles of action. To understand the importance of accurate and reproducible gas transfer measurements.

Learning outcomes
At the end of the session the delegates will:
- Have an understanding of the measurement techniques for the performance of gas transfer to include TLCO, TLNO and an awareness of other techniques
- Be aware of the gases available for the measurement of gas transfer
- Understand the terminology and units of measurement
- Be able to describe the test termination criteria and acceptability criteria
- Be aware of the guidelines for performance of gas transfer and application of the ARTP guidelines
- Understand the underlying principles of gas transfer and what it is measuring

Session 10: *Examination format and IRCP*

Aim of session
To understand the format and process of the new ARTP examinations and the associated IRCP

Learning outcomes
At the end of the session the delegates will:
- Have an understanding of the format of the ARTP associate and practitioner examinations
- Be able to identify which level examination they need to enrol for
- Understand the range of equipment available for examinations
- Understand the process of examinations to include enrolment and deferral requirements
- Understand the requirements of the IRCP
- Be aware of the scheduling of examinations

Session 11:   Assessment

Aim of session
Delegates will be presented with an assessment/quiz to consolidate learning from first two days.

Session 12:   Interpretation of results

Aim of session
The workshop leaders will guide delegates through a practical session considering how full lung function results should be interpreted correctly.

Session 13:   Case studies

Aim of session
Delegates will be presented with a series of case studies for interpretation and discussion.