# GUIDANCE

# High Resolution Oesophageal Manometry – Essential Elements of a Report

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| **Target Audience** | Professionals certified in the performance of High Resolution Oesophageal Manometry |
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A well-structured **High Resolution Oesophageal Manometry (HRM)** report should include the following essential elements:

**Patient Information**

- Patient's full name, date of birth, NHS or hospital number, the hospital and department details (e.g. location, contact details) where the HRM study was conducted
- Date of investigation and who referred the patient for the HRM study
- Indication for the study (e.g., dysphagia, chest pain, GORD, pre/post fundoplication, POEM etc.)
- Brief clinical history, duration of symptoms, summary of previous investigations (e.g. OGD, barium). Relevant Medication - PPI, H2RA antacids, neuromodulators, prokinetics. nitrates, calcium channel blockers, opiates etc.
- Dysphagia and reflux questionnaires should be included; it is up to the unit to decide which ones they prefer. For example for reflux 'The Reflux Disease Questionnaire' (RDQ), for atypical symptoms 'The Reflux Symptom Index' (RSI) / 'The Hull Airway Reflux Questionnaire' (HARQ), for dysphagia 'Eckardt score' or Dysphagia Symptom Questionnaire (DSQ), for quality of life 'GERD Health-

Related Quality of Life Questionnaire' (GERD-HRQL) and for anxiety the 'Hospital Anxiety and Depression Questionnaire (HADS).
- Include patient's height, weight and state the patient's BMI

**Technical Details**

- Patient position during the study for each measurement taken e.g. upright, supine or both
- The swallow protocol must include 10×5 mL water swallows and at least one form of provocation. Provocative testing may include any/combination of 2 x Multiple Rapid Swallows (MRS 5×2mL), Rapid Drink Challenge (RDC 200mL drunk freely), Solid Test Swallows (e.g. at least 5 x cubes of bread) or Solid Test Meal (e.g. bowl of rice or a sandwich)
- For postprandial testing (e.g. for conditions such as Rumination), a postprandial protocol can be performed such that after a culprit food/drink is provided during manometry, the test is prolonged for 10-15 minutes to observe for postprandial effects
- Throughout the study, any symptoms that occur should be recorded directly onto the trace to allow correlation with any observed preceding dysmotility

**Study Quality**

**Please report:**

- Any technical limitations (e.g. catheter dislodgement, sensor issues, artifact etc.)
- Replication of patient symptoms/symptom correlation (notation of any symptoms experienced during the test and if they correlate with manometric findings such as dysphagia, Rumination, regurgitation, belching and retch/vomit
- Comment on patient tolerance (e.g. good, poor, frequent swallowing etc.)

## Lower Oesophageal Sphincter (LOS) Assessment

- Mean resting pressure (taken over 20-30 seconds of no swallowing) - specify patient position. If the patient is unable to tolerate this duration, a minimum of 3 respiratory cycles may be used as a last resort
- Median Integrated relaxation pressure (IRP4) - key metric for LOS relaxation; specify patient position*
- Distance of the proximal border of the LOS from nares (essential for accurate pH/impedance probe placement)
- Presence or absence of hiatus hernia (state length in cm if there is a hiatus hernia)

**Please note: An elevated IRP should be interpreted in the context of an underlying primary motility disorder, prior surgical or endoscopic intervention, or anatomic variation that may affect the measurement. Assessment of the presence or absence of oesophagogastric junction outflow obstruction (OGJOO) should be guided by the results of provocative tests (e.g., RDC, MRS, upright water swallows, STS or STM).*

- Comment if the LOS pressure is normal, hypo- or hypertensive
- Esophagogastric Junction Contractile Integral (EGI-CI) is an optional metric on HRM reports

## Oesophageal Body Motility

- Peristaltic integrity: normal, ineffective (inc. weak, failed, premature or fragmented contractions) commenting on the percentage of each. Comment on any change or peristaltic recovery that may occur during provocative testing.
- Distal contractile integral (DCI): should be reported as mean and ideally include an individual breakdown of swallows (e.g. table of the 10x5mL water swallows)
- Distal latency (DL): should be reported as not just the mean but ideally include an individual breakdown of swallows (e.g. in a table of the 10x5mL water swallows)
- Presence of breaks in the peristaltic contour (i.e. large/small breaks)
- Intrabolus pressure pattern e.g. normal, EGJ, compartmentalised, panoesophageal pressurisation (if software allows)

- Pan-oesophageal pressurisation (POP) should be measured at an isobaric contour of 30mmHg and the frequency that this occurs with water swallows and provocative manoeuvres should be described

**Additional Information**

- MRS - comment on the peristaltic reserve and the post MRS DCI
- RDC - comments on LOS relaxation (RDC-IRP-30)
- Other provocative testing (e.g. single solids, test meal) - comment on the DCI, IRP, DL and any relevant symptom association to allow correlation with any observed dysmotility
- Impedance - comment on the % of impaired bolus clearance if associated with any ineffective swallows, if relevant
- The report should include representative images of relevant swallows, highlighting any abnormalities identified during the HRM study from water or provocative tests
- Do not include the morphed (superimposed) images potentially available in the HRM software which is normally generated from water swallows as this may be misleading. If one is required, a tiled image of the 10x5mL water swallows is preferred to provide an overview (see page 1 of the 'AGIP example HRM report' as an example)

**Oesophageal Manometry Summary**

- A comprehensive diagnosis should be provided based on the entire study. It is important to note that the automated (software generated) HRM Chicago Classification is generated by all approved boxed swallows. It is simplistic and does not include nuanced interpretation. Analysis should be undertaken separately for every water swallow position (boxing only swallows that are being analysed for each run through). The software is not set up to analyse provocative testing so this should not be boxed and analysed by the automated software. Rather interpretation of the provocative tests should be undertaken manually.
- 1. MRS: post MRS swallows should be analysed on their own (primarily for DCI, peristaltic reserve and POP).

- 2. RDC: The RDC-IRP should be analysed by dragging the IRP box across the entire free drinking period. Presence of POP should be mentioned.
- 3. Solid swallows should be analysed and interpreted manually, primarily looking for pathology (hypercontraction, raised IRP, POP and unusual patterns such has pressurisation and shortening) or confirming peristaltic reserve.
- Therefore, the HRM investigator must integrate the results from all manoeuvres (both water swallows and provocative tests) to determine the most appropriate Chicago classification, in accordance with the latest version of the classification (currently Version 4).
- Recommendations, if appropriate (e.g., further testing such as a standard or timed barium swallow, EndoFLIP etc.)

**Maximum Reporting Time**

- The investigator should aim to finalise and return the HRM report along with the 24-hour pH/impedance study report (where applicable) to the referring consultant within two weeks of the investigation date.