Equipment:
Overview

- Generic gynaecological equipment
- Requirements for diagnostic & operative hysteroscopy
- Hysteroscopes
- Ancillary instruments
- Distension Media
- Illumination and imaging
- Energy systems
- Space management, documentation and data capture
Equipment:
Generic gynaecological equipment

- **Essential equipment**
  - Operating couch
  - Vaginal exam pack / sterile instrument tray
  - Emergency resuscitation and monitoring equipment

- **Standby equipment**
  - Local anaesthetic
  - Vulsellum forcep
  - Uterine dilators
  - Forceps
    - Sponge holding
    - Polyp
    - Artery
  - Biopsy / Uterine curette
  - Haemostasis
    - Sutures, Foley balloon catheter
Essentials for diagnostic hysteroscopy

- Hysteroscope - Hamou 2.9 (3.7mm sheath) or 4mm (4.5 sheath)
- Light source - Xenon
- Irrigation system - Hamou Endomat
- Distention medium
  - Saline
Essentials for diagnostic hysteroscopy

- Camera (Storz single chip)
- Monitor (2 Sony)
- Recording equipment
  - Storz AIDA system
  - DVD recorder
Hysteroscopic Surgery
Requirements for operative hysteroscopy

- **Resectoscope**
  - Mono/bipolar

- **Diathermy**
  - Electrosurgery

- **Versapoint**
  - Twizzle / Spring

- **Cold instrumentation**
  - Semi-rigid instruments

- **Hysteromat**
  - Glycine (mono) / saline (bipolar)
Equipment: Hysteroscopes

- Diagnostic
  - Outpatient vs. inpatient
  - Rigid vs. flexible
  - 0° vs. offset lens (12°, 30°)

- Operative
  - Outpatient vs. inpatient
  - Disposable vs. reusable
Equipment: Hysteroscopes

- **Diagnostic**
  - Outpatient vs. inpatient
  - Rigid vs. flexible
  - $0^\circ$ vs. offset lens ($12^\circ, 30^\circ$)

- **Operative**
  - Outpatient vs. inpatient
  - Disposable vs. reusable
Equipment: Hysteroscopes

- **Diagnostic**
  - Outpatient vs. inpatient
  - Rigid vs. flexible
  - 0° vs. offset lens (12°, 30°)

- **Operative**
  - Outpatient vs. inpatient
  - Disposable vs. reusable
Equipment: Hysteroscopes

- Diagnostic
  - Rigid
  - Hopkins rod lens
  - Excellent optics
  - But ?Less comfortable than flexible
  - 2.0mm, 3.9mm
  - 2.9mm, 4.9mm
  - 4.0mm, 5.0mm
Equipment: Hysteroscopes

- **Diagnostic**
  - Flexible
  - 2.0mm
  - For
    - Comfort
- **Against**
  - Optics inferior to Hopkins fibre optics
  - No outflow for debris
  - Operating limited to Biopsies and small lesions
Flexible v Rigid Hysteroscopy

- Unfried et al HR 2001

- Flexible
  - Less discomfort (1.7 v 0.7) \( p = 0.003 \)

- Rigid
  - Superior optics (\( p < 0.001 \))
  - More rapid performance (70 v 120s \( p = 0.003 \))
  - Lower costs
Equipment: Hysteroscopes

- Operative
  - Versascope
  - Disposable System

  Collapsible operating channel

- Bipolar power
**Equipment:**
Hysteroscopes

*Operative*

*Rigid*
Equipment:
Hysteroscopes

- Operative
  - Rigid
- Resectoscope
Equipment:
Hysteroscopes

- Operative
  - Resectoscope - assembled (monopolar)
**Equipment:**

**Ancillary instruments**

- **Mechanical**
  - Grasping forceps
  - Biopsy forceps
  - Scissors
  - Myoma fixation instruments
  - Aspiration cannulae

- **Electrical instruments**
  - Needle electrode
  - Retraction loop (‘snare’)
  - Laser fibres

- **Specific therapeutic devices**
  - Essure™ permanent birth control system
Equipment:
Distension Media

- Fluid vs. Gas
  - Normal saline vs. glycine
  - CO₂

- Delivery system
  - Gravity vs. Pressure vs. automated
Equipment:
Distension Media

**CO2**

- Advantages
  - Quick & easy
  - Low risk

- Disadvantages
  - Poor view if bleeding
  - Bubble formation
  - Shoulder tip pain
  - Unsuitable for operative procedures

**Saline**

- Advantages
  - Good view even with bleeding
  - No bubble formation
  - Cheap and easily available

- Disadvantages
  - Poor view with heavy bleeding
  - Cannot operate with monopolar electrosurgery
Equipment:
Distension Media

*Sorbitol*
- 3% solution D glucitol
- **Disadvantages**
  - Hyperglycaemia
  - Hypotonic – fluid overload
  - Haemolysis

*Glycine*
- 1.5% amino acid solution
  - Poorly miscible with blood so good views
  - Non haemolytic
- **Disadvantages**
  - Hypotonic – fluid overload
Equipment: Illumination and imaging

- **Illumination**
  - External, high intensity
    - ‘cold light’ source
  - Fibre-optic cable
  - Transmitted down hysteroscope via rod lenses / fibre optics
Equipment:
Illumination and imaging

Imaging

- Light-weight camera + coupling lens
  - Converts the optical image into an electrical one
- Camera cable
- Camera control unit
- Television monitor
  - Converts the image back to an optical one
Equipment: Energy systems

- Monopolar vs. bipolar circuits
  - Conducting vs. non-conducting media

- Setting
  - Outpatient vs. inpatient

- Instrument design & diameter
  - Resectoscopes (loops)
  - Snares
  - Miniature electrodes

*taken from Clark TJ and Gupta JK. Handbook of Outpatient Hysteroscopy: A complete guide to diagnosis and therapy. Hodder Arnold; London 2005*
Equipment:
Energy systems

- **Monopolar**
  - Current flows through patient to distant electrode

- **Bipolar**
  - Current path confined to intervening tissue
  - Reduces risk of stray current and alternate site burns
  - Can resect in saline – reduces risk of TUR syndrome

*taken from Clark TJ and Gupta JK. Handbook of Outpatient Hysteroscopy: A complete guide to diagnosis and therapy. Hodder Arnold; London 2005*
## Advantages and disadvantages of surgical modalities

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<thead>
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<th></th>
<th>Cold</th>
<th>Electro</th>
<th>Laser</th>
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<tr>
<td><strong>Expense</strong></td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
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<tr>
<td><strong>Procedure Length</strong></td>
<td>Long</td>
<td>Short</td>
<td>Short</td>
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<tr>
<td><strong>Histological specimen</strong></td>
<td>Yes</td>
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Equipment:
Space management, documentation and data capture

- Stack

- Information technology
  - Digital image capture
  - Video e.g. Aida
  - Documentation
  - Database
    - Research
    - Audit

- OR1- the future - video
Equipment:
Finally don’t forget...

- Decontamination
  - Cleaning
  - Disinfection
  - Sterilisation
  - Disposable vs. reusable

- Supporting infrastructure
  - Administrative
  - Waiting area / ward
  - Recovery area / ward

- Personnel
  - Key to success in OP service
Thank you for your attention

Any Questions?