Guidelines for the Implementation of a National Quality Assurance Programme in GI Endoscopy – Version 2.0

Developed by

The Working Group
National QA Programme in GI Endoscopy
Conjoint Board
RCPI & RCSI
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1. Introduction

Endoscopy is a central element in the diagnosis of gastrointestinal (GI) disease. The provision of a high quality, timely and accurate service with an associated quality patient experience is a key goal for all. Patients have a right to expect that they have appropriate access to the service and that the service provided is of the highest possible standard.

1.1. Background

The National Cancer Screening Service (NCSS) is currently preparing for the introduction of a national population-based colorectal cancer screening programme, for men and women aged 60 to 69. In preparation for this, baseline assessments have been conducted across all public hospitals in Ireland. The need for National guidelines and standards has been highlighted as a result of these baseline assessments.

The Faculty of Pathology, RCPI and Faculty of Radiologists, RCSI have launched National Quality Assurance Programmes in their respective disciplines in collaboration with the National Cancer Control Programme (NCCP) and Directorate of Quality and Patient Safety. The fundamental aim of these QA Programmes is to ensure patient safety and enhancement of patient care with timely, accurate and complete diagnoses and reports.

The development of a National Quality Assurance Intelligence System (NQAIS) in collaboration with the HSE’s Health intelligence unit to store, analyse, report and share QA data and results has provided a significant added benefit to participating hospitals on the QA Programmes in Histopathology and Radiology.

1.2. Purpose

This document provides guidance to Endoscopy units on the implementation of a QA Programme in GI Endoscopy.

The purpose of this document is to define key areas of quality assurance (QA) in the delivery of endoscopic procedures and to embed them in routine clinical practice. It also aims to facilitate each Endoscopy unit to monitor its own performance and, where necessary, initiate improvement.

GI endoscopy is fundamental to the management of upper and lower gastrointestinal disease. It has diagnostic, therapeutic and preventative roles. All endoscopy procedures need to strike a balance between benefit and harm. These procedures are invasive with the potential for causing serious and significant adverse events. For example colonoscopy performance was found to be variable in England with poor completion rates and higher than expected perforation rates.

Current international quality standards for endoscopy, including colonoscopy, are based on varying levels of evidence ranging from expert consensus to evidence from randomized controlled trials. The systematic and ongoing collection and scrutiny of endoscopy procedure performance data provide the opportunity to define and quantify specific procedure related risk in diagnostic and therapeutic endoscopy.

The fundamental aim of this QA Programme is to establish a quality assurance framework in each endoscopy unit that ensures the provision of a high quality, timely and accurate service with an associated quality patient experience.
1.3. **Time and Resources**

Each endoscopy unit should have an established endoscopy user group and a designated endoscopy clinical lead consultant in post.

The Conjoint Board of RCPI and RCSI, supported by HSE ICT, is committed to supporting the development of an IT solution which will assist in the recording, collation and reporting of data pertaining to these guidelines in a manner which minimises the impact on service delivery.

2. **Quality Indicators and Activities**

The Interim Quality and Safety Indicators for GI Endoscopy contain a list of outcomes which are important to audit and review. It refers to two standards of outcome, Auditable Outcome and Quality Indicator. The first, Auditable Outcome, refers to outcomes which specifically do not have a standard assigned to them. Quality Indicators are outcomes which, due to the availability of evidence, do have a minimum standard recommended.

The National Guidelines for implementation of a QA programme in GI Endoscopy have built on these outcomes with specific recommendations for endoscopy units. The following terminology is used to describe the data to be recorded, the standards (where available) against which to measure performance and key recommendations made:

- **Key Quality Data**: refers to the information that is to be captured for the QA programme. This data will be captured to facilitate future audit and review.

- **Quality Indicator**: refers to an outcome for which there is a sufficient evidence base to recommend a standard e.g. caecal intubation rate

- **Key Recommendation**: refers to recommendations that should be implemented in each endoscopy unit to fully support quality improvement activities. Where quality indicators are absent, due to lack of sufficient evidence with which to base a standard upon, a key recommendation will usually be made. These recommendations are wholly endorsed by the Conjoint Board of RCPI and RCSI.
3. Numbers of Procedures

There is evidence that endoscopic proficiency increases with the number of procedures performed \(^2\). Low numbers of procedures are associated with a greater risk of complications. The lowest complication rate in a population based study of outpatient colonoscopy for example was associated with the highest number of procedures (i.e.) >300 per endoscopist per year \(^3,4\). However performing a large number of endoscopy procedures alone is not sufficient proof of competency. It is important to note that:

- Low numbers are likely to be (but not always) associated with poor performance.
- Low numbers mean the sample size for key performance indicators (KPIs) is low and the confidence intervals around the observed performance will be wide.

Large numbers are required to provide accurate estimates of performance particularly if events are infrequent. The 95% confidence interval for a completion rate of 90% for 150 colonoscopy procedures per year is 85%-95%. The 95% confidence interval for a completion rate of 90% for 300 colonoscopy procedures per year is 87%-93% \(^5\).

Technically excellent endoscopists will find it easier to maintain adequate skills with low numbers. An average or poor performer will not be able to maintain adequate performance with low numbers. Low numbers are less of an issue for less demanding procedures for OGD. Conversely the more demanding the procedure e.g. ERCP the more important volume becomes.

It is recommended that the annual number of procedures performed by each endoscopist is documented to ensure that the sample size for other performance indicators (Section 4 and Section 5) is sufficient; a figure of between 200-300 is recommended.

**Key Quality Data:**
- Number of OGD procedures performed by each Endoscopist
- Number of Flexible Sigmoidoscopy procedures performed by each Endoscopist
- Number of Colonoscopy procedures performed by each Endoscopist

**Key Recommendation:**
- A figure of between 200-300 of each procedure per endoscopist per year is recommended
- The annual number of procedures performed by each endoscopist is reviewed collectively in the endoscopy unit with the designated clinical lead for the service
4. Upper GI Endoscopy

4.1. Success of intubation
An oesophago-gastro-duodenoscopy (OGD) necessitates successful intubation into the oesophagus.

Key Quality Data:
- Number of successful intubations expressed as a % of all ‘intend to’ OGD cases per endoscopist

4.2. Sedation and analgesic doses
Many patients tolerate upper endoscopy with only topical anesthesia of the oropharynx, however some patients may need sedation. Sedation improves patient tolerance of the procedure but can contribute to cardio-respiratory complications following endoscopy in high-risk patients, particularly the elderly. See also Section 5.1.

Key Quality Data:
- Sedative type and quantity used for patients under 70 years of age expressed as a median figure per Endoscopist
- Sedative type and quantity used for patients 70 years of age and older expressed as a median figure per Endoscopist
- Number of times each reversal agent is used expressed as a percentage of all OGD procedures performed per endoscopist.

Key Recommendations:
- Sedative should be used to achieve moderate sedation; where the patient displays purposeful response to verbal stimulation.
- The median level of sedation for older patients (≥ 70 years of age) should be approximately half that of patients under that age.

4.3. Retroflexion (J manoeuvre)
Retroflexion, also known as the J manoeuvre, allows for a full view and inspection of the cardia and fundus of the stomach. It is an important quality measure of the completeness of the procedure. Ulcers in the body of the stomach and fundus tend to arouse more clinical suspicion.

Key Quality Data:
- Number of cases in which retroflexion was performed expressed as a % of all OGD cases per endoscopist

Quality Indicator:
- Retroflexion (J manoeuvre) in stomach to visualise fundus in > 95% of cases
4.4. **Duodenal 2nd part intubation**

The endoscope should be passed through the pylorus to examine the first and second parts of the duodenum. It is an important quality measure of the completeness of the procedure.

**Key Quality Data:**
- Number of cases in which Duodenal 2nd part intubation was achieved expressed as a % of total OGD cases per endoscopist

4.5. **Repeat endoscopy**

Gastric cancer can present with the endoscopic appearances of a benign gastric ulcer. It has been recommended practice that patients found to have a gastric ulcer at endoscopy should have multiple biopsies taken from the ulcer margin or base. Traditional practice has been that all gastric ulcers should be followed with repeated endoscopy to ensure ulcer healing on treatment. Opinion remains divided on the need for endoscopic follow up for gastric ulcer with no endoscopic or histological features of malignancy at the index oesophago-gastro-duodenoscopy (OGD) with some reports questioning and others advocating the approach. However, international guidelines still recommend repeat endoscopy in the follow up of all cases of gastric ulcer.

There are many reasons why endoscopists may elect not to follow up gastric ulcers endoscopically. The lesion may appear obviously benign, there may be associated non-steroidal anti-inflammatory drug (NSAID) use or helicobacter infection or the patient’s age or medical condition may dissuade the endoscopist from performing further invasive procedures.

**Key Quality Data:**
- Number of repeat endoscopies requested to be performed within 12 weeks due to the presence of gastric ulcer expressed as a % of total OGD cases with gastric ulcer detected per endoscopist

**Quality Indicator:**
- Repeat endoscopy for gastric ulcers is requested to be performed within 12 weeks of original procedure in 100% of cases.

**Key Recommendations:**
- If repeat endoscopy is not indicated due to a specific reason, this should be recorded on the patient’s record.
5. Colonoscopy

5.1. Sedation and Analgesic Doses

Colonoscopy can be an uncomfortable experience but this discomfort can be reduced by careful patient preparation and sedation. Sedation improves patient tolerance of colonoscopy, however, excessive sedation is considered to be an important contributor to cardio-respiratory deaths following endoscopy in high risk patients. This is particularly relevant for older patients (≥ 70 years of age) where the median level of sedation should be approximately half that of patients under that age.

A 2004 report by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), Scoping our Practice found that there were 1,818 deaths after therapeutic GI endoscopic procedures. NCEPOD advisors judged that the sedation given was inappropriate in 14 per cent of cases, usually because an overdose of benzodiazepine had been administered. The use of flumazenil, a benzodiazepine antagonist, or naloxone usually indicates that the patient has been given a relative overdose of benzodiazepine.

It has been reported that most of the risk of colonoscopy is related to sedation. Cardio-respiratory complications are infrequent for patients without known heart or lung disease, but monitoring of oxygenation and blood pressure should be performed for all sedated patients. While hypoventilation, cardio-pulmonary events and vasovagal reactions may be related to pain and distension caused by the endoscopic procedure, in most cases they are more closely associated with the use of sedatives and opioids. Reduction in risk for these reactions has been observed when sedation is given only as required. Sedative should be used to achieve moderate sedation, where the patient displays purposeful response to verbal stimulation.

Sedatives and anxiolytics such as benzodiazepines have no analgesic properties when conventional doses are given systemically and attempts to use them to control pain will result in significant overdose. Pain control requires the administration of specific analgesic agents. The most popular of these agents are fentanyl and pethidine and should whenever possible be given before the benzodiazepine, and their effect observed before the administration of the benzodiazepine.

Key Quality Data:
- Sedative type and quantity used for patients under 70 years of age expressed as a median figure per Endoscopist
- Sedative type and quantity used for patients 70 years of age and older expressed as a median figure per Endoscopist
- Number of times each reversal agent is used expressed as a percentage of all Colonoscopy procedures performed per endoscopist.

Key Recommendations:
- Sedative should be used to achieve moderate sedation; where the patient displays purposeful response to verbal stimulation.
- If deeper levels of sedation are required, for example with the use of propofol, it is recommended that an anaesthetist be present.
- Opioids should, whenever possible, be given before benzodiazepines and their effect observed before proceeding
- The median level of sedation for older patients (≥ 70 years of age) should be approximately half that of patients under that age.
5.2. Comfort levels
While the principle indicator for assessing competence in colonoscopy is caecal intubation rate, patient comfort during endoscopy is also considered to be another measure of endoscopy performance quality. Comfort is a key recommendation and central to any patient centred QA programme in GI Endoscopy. It is therefore proposed to measure a comfort score for each procedure using the modified Gloucester Scale below.

**Gloucester Scale**
- 1 - No: No discomfort – resting comfortably throughout
- 2 - Minimal: One or two episodes of mild discomfort, well tolerated
- 3 - Mild: More than two episodes of discomfort, adequately tolerated
- 4 - Moderate: Significant discomfort, experienced several times during the procedure
- 5 - Severe: Extreme discomfort, experienced frequently during the procedure

**Key Quality Data:**
- Median comfort level score per endoscopist

**Key Recommendation:**
- Use the modified Gloucester scale above
- Comfort scores should be assessed by a 3rd party who will usually be an endoscopy nurse and agreed with the endoscopist before recording

5.3. Tattooing
Tattooing is an important technique for lesion location at surgery, identification of colonic lesions (suspected malignancy) or resection sites at future colonoscopy (repeat therapeutic colonoscopy or incomplete/suspected incomplete removal of lesions). Tattooing of sites or lesions with sub-mucosal injection that may require later surgical or endoscopic localisation is recommended.

It has been advised to tattoo the area with an indelible compound e.g. India ink, SPOT. While concerns have been raised about the safety of indelible markers, published studies to date report a low complication rate for both of these products.²⁸,²⁹

**Key Quality Data:**
- Number of colonoscopies with tattooing of suspected malignant polyps and tumours expressed as a % of all colonoscopies with suspected malignant polyps and tumours detected per endoscopist

**Key Recommendation:**
- Endoscopy units should have an agreed and documented endoscopy users group policy on tattooing
5.4. Completion rates
Caecal intubation rates (CIR) is one of the key quality indicators of colonoscopy. Caecal intubation rates are affected by a number of factors including age, sex, low BMI, bowel cleansing, sedation, diverticular disease and general health status\textsuperscript{20,21,22}.

Adjusted completion rates (for factors such as bowel prep or obstruction) are open to diverse interpretation and it is recommended to use unadjusted rates for the standard.

It is recommended that the CIR standard should be an unadjusted (intention to scope) figure of 90%. It is also strongly recommended that photographic evidence of caecal intubation is obtained. This is consistent with the performance standards adopted by the US Multi-Society Task Force on Colorectal Cancer\textsuperscript{23} and Cancer Care Ontario Colonoscopy standards\textsuperscript{24}.

Key Quality Data:
- Number of colonoscopies where the terminal ileum / caecum / anastamosis has been reached expressed as a % of total colonoscopies per endoscopist

Quality Indicator:
- 90% unadjusted completion rate (CIR) for colonoscopy

Key Recommendation:
- Photographic evidence of the terminal ileum / caecum / anastamosis should be obtained

5.5. Polyp Detection Rates
There is good evidence of varying rates of detection of high-risk lesions and of missed lesions in back to back colonoscopy studies\textsuperscript{25}. Internationally accepted guidelines on performance indicators of colonoscopy recommend monitoring direct or proxy markers of detection of suspicious lesions including polyps, adenomas or withdrawal times\textsuperscript{26,27}.

Key Quality Data:
- Colonoscopies with polyps detected expressed as a % of total colonoscopies per endoscopist

Quality Indicator:
- Polyp detection rate in > 10% of all colonoscopies
5.6. **Polyp Recovery**

Incomplete excision of a high risk lesion is associated with an increase risk of development of cancer. Incomplete removal of tissue may also lead to misclassification of pathology. There are currently no validated methods of determining completeness of excision but it is possible to measure retrieval rates for pathological material. The recommended standard requires retrieval of 90% of all excised polyps.

**Key Quality Data:**
- Number of polyps with histology requested expressed as an average % of all polyps excised per case per endoscopist

**Quality Indicator:**
- Polyp histology requested > 90% of all excised polyps

5.7. **Bowel Preparation**

Effective bowel preparation is critical to ensure a detailed visual examination of the bowel. To date no single bowel preparation for colonoscopy has emerged as consistently superior over another. Good bowel preparation supports improved polyp detection and caecal intubation. Poor bowel preparation is associated with failure to reach the caecum and hinders the detection of lesions.

Validated scoring systems exist such as the Ottawa and Aronchick scales. The following scale is recommended for use:

- **Excellent**
  - no or minimal solid stool and only clear fluid requiring suction
- **Adequate**
  - collections of semi-solid debris that are cleared with washing/suction
- **Complete despite poor prep**
  - solid or semi-solid debris that cannot be cleared effectively but which still permits intubation to caecum
- **Failed due to poor prep**
  - solid debris that cannot be cleared effectively and prevents intubation to caecum.

**Key Quality Data:**
- Record the bowel preparation for each colonoscopy. Express the total number of colonoscopies with Adequate and Excellent scores as a % of all colonoscopies

**Quality Indicator:**
- Bowel preparation described as excellent or adequate in > 90%

**Key Recommendation:**
- Use the above scale to record the quality of bowel preparation for each procedure.
- It is recommended that there should be colonic cleansing protocols in place and the effectiveness of these should be monitored continuously by the endoscopy user group.
5.8. **Diagnostic colo-rectal biopsies for persistent diarrhoea**

Mucosal biopsies should be obtained in all patients presenting with diarrhoea. Samples should be obtained from both the left and right side of the colon. Ileal intubation and biopsy is strongly recommended in this group.

**Key Quality Data:**
- Number of colonoscopies with mucosal biopsies taken expressed as a % of cases which presented with persistent diarrhoea per endoscopist

**Quality Indicator:**
- Diagnostic mucosal biopsies for persistent diarrhoea in 100% of cases

**Key Recommendation:**
- Ileal intubation and biopsy is strongly recommended in this group

5.9. **Colonic Perforation**

Perforation is defined as evidence of air, luminal contents or instrumentation outside the GI tract. It may result from direct mechanical trauma to the bowel wall during insertion, over-insufflation of the colon (barotrauma) or from therapeutic procedures (hot biopsy, polypectomy, dilatation). Widely varying perforation rates have been reported from the literature.

- Results from a study in the 1970s revealed a perforation rate of 0.2% for diagnostic colonoscopy and 0.32% for polypectomy
- A study published in 2008 revealed a perforation rate of 0.6%
- In a series of 1172 patients with 1555 polypectomies there was one perforation
- A population based study of Medicare patients aged 65 years or older the overall perforation risk was 1:500; the incidence of perforation in the screening group was 1:1000. Risk factors identified for perforation were increasing age and diverticulosis.
- In the BSG colonoscopy audit the perforation rate was 1:769.

**Key Quality Data:**
- Number of incidents of colonic perforation expressed as a % of all colonoscopies
- Number of incidents of post polypectomy perforation expressed as a % of colonoscopies where polypectomy is performed

**Key Recommendations:**
- All incidence of perforation should be recorded in the adverse events log and reviewed by the lead clinician using local protocol
- The following outcomes are put forward as guidelines on expected incidence of colonic perforation although current hospital systems may not allow for capture of all necessary data to reflect these targets:
  - Colonoscopy perforation rates <1:1000
  - Post polypectomy perforation rate <1:500
5.10. Post-polypectomy bleeding (PPB)

Bleeding is the most frequent adverse event following polypectomy. A variety of studies have reported bleeding rates 0.3–6.1% of polypectomies. The risk of bleeding increases with the size of polyp and location with some series reporting up to 10% bleeding rates for polyps larger than 2 cm located in the right colon. Around 90% of PPB should be amenable to conservative management without the need for surgical intervention.

Key Quality data:
- Number of incidents of post polypectomy bleeding requiring transfusion expressed as a % of colonoscopies where polypectomy is performed

Key Recommendations:
- All incidence of post polypectomy bleeding requiring transfusion should be recorded in the adverse events log and actioned by the lead clinician.
- The following outcome is put forward as a guideline on expected incidence of post polypectomy bleeding requiring transfusion although current hospital systems may not allow for capture of all necessary data to reflect this target:
  - Post polypectomy bleeding requiring transfusion <1:100 (for >1cm polyps)
6. Key Recommendations

The following activities are key recommendations as defined by the Conjoint Board of RCPI and RCSI, to ensure that key quality data is being recorded but also to fully support quality improvement activities.

6.1. Adverse Events

Adverse events can occur immediately or several days after an endoscopy procedure. An immediate adverse event is defined by an adverse event occurring before the patient leaves the endoscopy department.

- All immediate adverse events should be recorded in the adverse events log that is maintained in the department
- This log should be reviewed by the designated Endoscopy clinical lead on a quarterly basis

An adverse event occurring after this is a late outcome. Endoscopic services need to have processes in place to identify and record adverse outcomes occurring after the patient leaves the endoscopy department.

6.2. Audit and Review

- The outcomes in this document are reviewed at least quarterly in each Endoscopy unit by the designated Endoscopy clinical lead

6.3. Surveillance intervals

- Each Endoscopy unit should refer to the guidance on endoscopic surveillance intervals as found in Appendix I - III of this document

6.4. Guidelines for Antibiotic Prophylaxis in Endoscopy

- Each Endoscopy unit should refer to the guidance document on Antibiotic Prophylaxis as found in Appendix IV of this document

6.5. Guidelines relating to Anticoagulant and Antiplatelet Therapy

- Each Endoscopy unit should refer to the guidance document on Anticoagulant and Antiplatelet Therapy as found in Appendix V of this document
7. References

23. Levin B, Lieberman DA, McFarland B et al. Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, 2008: a joint guideline from the American...


29. UK Colorectal Cancer Screening Pilot Group. Results of the first round of a demonstration pilot of screening for colorectal cancer in the United Kingdom. BMJ 2004;329:133


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8. Appendices

8.1. Appendix I – Surveillance Following Adenoma Removal

![Flowchart for Surveillance Following Adenoma Removal](chart.png)

*Other considerations:
- Age, comorbidity, family history, accuracy and completeness of examination
8.2. Appendix II – Colitis Surveillance

**COLITIS SURVEILLANCE**

**SCREENING COLONOSCOPY AT 10 YEARS** (preferably in sensitivity, panocolonic dye-spray)

**LOWER RISK**
- Extensive colitis with NO ACTIVE endoscopic/histological inflammation
- OR left-sided colitis
- OR Crohn’s colitis of <50% colon

**INTERMEDIATE RISK**
- Extensive colitis with MILD ACTIVE endoscopic/histological inflammation
- OR post-inflammatory polyps
- OR family history CRC in FDR aged 50+

**HIGHER RISK**
- Extensive colitis with MODERATE/SEVERE ACTIVE and/or endoscopic/histological inflammation
- OR stricture in past 5 years
- OR dysplasia in past 3 years declining surgery
- OR PSC (transplant for PSC)
- OR family history CRC in FDR aged <50

**5 Years**

**3 Years**

**1 Year**

**BIOPTSY PROTOCOL**
Panocolonic dye-spraying with targeted biopsy of abnormal areas is recommended, otherwise 2-4 random biopsies from every 10 cm of the colorectum should be taken.

**OTHER CONSIDERATIONS**
Patient preference, multiple post-inflammatory polyps, age & co-morbidity, accuracy & completeness of examination.

8.3. Appendix III – Barrett’s Columnar-Lined Oesophagus Surveillance

Barrett’s Columnar-Lined Oesophagus

- Surveillance

Non-Dysplastic CLO
Every 2 years

Dysplasia
4-6 Months as per below

Indefinite for Dysplasia
Course of PPI therapy, a subsequent endoscopy and multiple biopsies at 6 months

If no definite evidence of dysplasia return to routine surveillance

Low Grade Dysplasia
Intensive Acid Suppression for 8-12 weeks
Followed by Extensive Re-biopsy

If persistent but stable, surveillance every 6 months

High Grade Dysplasia
All cases of High Grade Dysplasia should be discussed at Upper GI MDT. Endoscopic resection, Radiofrequency (RF) or surgery should be considered

After regression on 2 consecutive examinations:
Surveillance 2 yearly

Watson et al, 2005, British Society of Gastroenterology, Guidelines for the Diagnosis and Management of Barrett’s Columnar Lined Oesophagus, BSG.
8.4. Appendix IV - Guidelines for Antibiotic Prophylaxis in Gastrointestinal Endoscopy

Table 3  Summary of prophylactic antibiotic regimens recommended for gastrointestinal endoscopy

<table>
<thead>
<tr>
<th>Scenario for prophylaxis</th>
<th>Rationale</th>
<th>Antibiotics</th>
<th>Dose/route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients with valvular heart disease, valve replacement, and/or surgically constructed systemic-pulmonary shunt or conduit, or vascular graft.</td>
<td>Prevention of infective endocarditis or conduit/graft infection</td>
<td>Not indicated</td>
<td></td>
</tr>
<tr>
<td>2. ERCP for the following patient groups:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. ongoing cholangitis or sepsis elsewhere</td>
<td>Prevention of procedure-related bacteraemia</td>
<td>Be guided by recent culture results. Patients should already have been established on antibiotics.</td>
<td>May need advice from clinical microbiologist</td>
</tr>
<tr>
<td>b. biliary obstruction and/or common bile duct stones and/or straightrward stent change</td>
<td>Prevention of choioangiitis</td>
<td>Not indicated unless biliary decompression not achieved. A full course of antibiotics becomes indicated if inadequate biliary decompression is not achieved during the procedure.</td>
<td></td>
</tr>
<tr>
<td>c. ERCP when complete biliary drainage unlikely to be achieved (eg. sclerosing cholangitis and/or hilar cholangiocarcinoma) (special considerations may apply in cases for a recent ERCP - see Section 7.2.4)</td>
<td>Prevention of choioangiitis</td>
<td>Ciprofloxacin</td>
<td>750 mg orally 60–90 min before procedure (but not recommended in children)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. communicating pancreatic cyst or pseudocyst</td>
<td>Reducing risk of introducing infection into cavity</td>
<td>As above</td>
<td>1.5 mg/kg intravenously. over 2–3 min</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>e. biliary complications following liver transplant</td>
<td>Prevention of choioangiitis</td>
<td>As (c) PLUS amoxicillin</td>
<td>1 g intravenously single dose</td>
</tr>
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<td>3. Endoscopic ultrasound intervention for the following patient groups:</td>
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<tr>
<td>a. fine needle aspiration solid lesions</td>
<td>Prevention of local infection</td>
<td>Not indicated</td>
<td>1.2 g intravenously single dose</td>
</tr>
<tr>
<td>b. fine needle aspiration of cystic lesions in or near pancreas, or drainage of cystic cavity</td>
<td>Prevention of cyst infection</td>
<td>Ce-amoxicillin</td>
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<tr>
<td>4. Percutaneous endoscopic gastrostomy (PEG)</td>
<td>Prevention of parietal wall infection</td>
<td>Ciprofloxacin</td>
<td>750 mg one oral dose</td>
</tr>
<tr>
<td></td>
<td>Possibly reduction in risk of other infections such as aspiration pneumonia</td>
<td>Ce-amoxicillin</td>
<td>1.2 g intravenous injection or infusion just before procedure</td>
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<tr>
<td>5. Variceal bleeding (not strictly prophylaxis)</td>
<td>Prevention of infections such as bacterial peritonitis</td>
<td>Teicoplanin can be used if past anaphylaxis or angioedema with penicillin cephalosporin</td>
<td>480 mg intravenously for adults</td>
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<td></td>
<td>Piperacillin/tobramycin</td>
<td>4.5 g intravenously three times daily</td>
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<td>6. Profound immunocompromise (eg. neutropenia ~ 0.5 x 10^9/l) or advanced haematological malignancy</td>
<td>Prevention of procedure-related bacteraemia</td>
<td>Daily indicated in procedures with high risk of bacteraemia (eg. sclerotherapy, dilation, ERCP with obstructed system)</td>
<td>Discus with haematologist and/or clinical microbiologist</td>
</tr>
</tbody>
</table>

ERCP, endoscopic retrograde cholangiopancreatography.
8.5. Appendix V - Guidelines relating to Anticoagulant and Antiplatelet Therapy

Guidelines for the management of patients on warfarin or dopenidogrel undergoing endoscopic procedures (EUS: endoscopic ultrasound, ERCP: endoscopic retrograde cholangiopancreatography, EMR: endoscopic mucosal resection, PEG: percutaneous endoscopic gastroenterostomy, FNA: fine needle aspiration, INR: international normalized ratio, AF: atrial fibrillation, VTE: venous thromboembolism, LMWH: low molecular weight heparin)

Veitch AM, Gut 2008;57:1323 doi:10.1136/gut.2007.142497

Aspirin

Aspirin therapy can be continued for all endoscopic procedures.

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8.6. Appendix VI - Governance

Steering Committee
Members: NCSS, ISD, DQPS, HSE ICT, IHAI, DOHC, RCPI, RCSI, Endoscopist – Surgeon, Endoscopist – Physician
Observer: HIQA

Conjoint Board

Executive Management
QA Department, RCPI

HSE ICT

Working Group

Local Hospital Project Teams
## REVISION HISTORY

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Reason For Changes</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Team (S Boyle / G Farr)</td>
<td>19.09.11</td>
<td>Original Baseline Guidelines</td>
<td>1.0</td>
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</table>
| Project Team (S Boyle / G Farr) | 17.05.12 | Updated to reflect the requirements specification for the ICT solution of the programme  
Also changes to membership of the Steering Committee | 2.0     |