1. **Aim/Purpose of this Guideline**
   This guideline is for the management of acute cholangitis in adults. It has been benchmarked against national guidelines to provide a detailed guidance of clinical management of acute cholangitis in line with best practice guidelines. This guideline applies to all healthcare professionals involved in the treatment of acute cholangitis.

2. **The Guidance**
   The following pathway should be followed.
**ACUTE CHOLANGITIS TREATMENT PATHWAY**

**Diagnosis**
- **A - Systemic inflammation**
  - Fever +/- rigors
  - Raised inflammatory markers

- **B - Cholestasis**
  - Jaundice
  - Deranged LFTs

- **C - Imaging**
  - Biliary dilatation
  - Evidence of aetiology on imaging (stricture, stone, stent etc.)

Suspected: One item in A + one item in B or C
Definite: One item in A and B and C

**Detailed History & Examination**
- History of gallstones
- Medication and drug intake
- Recent intervention (e.g. ERCP / stent)
- History of biliary stricture / malignancy
- Co-morbidities (respiratory, cardiac, diabetes, high BMI)

**Investigations**
- a) FBC, U+Es, LFTs, amylase, CRP, clotting
- b) Blood cultures
- c) Arterial blood gas (to assess hypoxia or metabolic acidosis)
- d) Upper abdominal ultrasound

**Immediate Management**
- **A** Ensure patent airway
- **B** Oxygen – target 94-98% saturation (88-92% if COPD)
- **C** Intravenous fluids
  - Hartmanns solution
  - Administer 30ml/kg for hypotension or lactate ≥4mmol/l
  - 5-10mls/kg/h first 24 hours until goals met
  - Goals to meet :-
    - Heart rate <120/min
    - Mean arterial pressure = 65-85mmHg
    - Urine output = 0.5-1ml/kg/h
- Urinary catheter – hourly urine output monitoring
- **D/E** Antibiotics
  - Amoxicillin IV 500mg 8 hourly + Gentamicin
  - Add metronidazole IV 500mg 8 hourly if anaerobes suspected
  - If penicillin allergy: Vancomycin + Gentamicin +/- metronidazole
### Severe Assessment (TG13 classification)

- **Severity Assessment (TG13 classification)** - Assess at admission, 24 hours and 48 hours.

**Severe:** At least one organ dysfunction*

**Moderate:** Any two of the following:
- WCC >12 or <4
- Temp >36-C or >38-C

**Mild:** Do not meet above criteria

#### Urgent senior medical & ITU outreach review if any of below:

<table>
<thead>
<tr>
<th>Clinical signs</th>
<th>Bloods</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Airway not maintained</td>
<td>pH &lt;7.1 or &gt;7.7</td>
</tr>
<tr>
<td>B Resp. rate &gt;35/min paO\textsubscript{2} &lt;6.7kPa</td>
<td>Sodium &lt;110 or &gt;170mmol/l</td>
</tr>
<tr>
<td>C HR &lt;40 or &gt;150/min Systolic blood pressure &lt;80mmHg MAP &lt;60mmHg Diastolic blood pressure &gt;120mmHg Anuria</td>
<td>Calcium &gt;3.75mmol/l</td>
</tr>
<tr>
<td>D Coma (GCS &lt;8)</td>
<td>Severity grading</td>
</tr>
</tbody>
</table>

#### Consideration of HDU involvement where:
- Persistent SIRS >48h
- Elderly (aged >75yrs)
- Obese (BMI>35)
- Moderately severe cholangitis

*Organ dysfunction definitions:*
- Cardiovascular - Hypotension requiring inotropes
- Respiratory - Type 1 or 2 respiratory failure
- Renal - Oliguria or creatinine >177umol/L
- Hepatic - INR >1.5
- Haematological - Platelets <100 (10\textsuperscript{9}/L)
- Neuro - Impaired consciousness

Presence of SIRS on admission is a predictor of SEVERE cholangitis and requires senior medical review.
3. **SPECIFIC GUIDELINES REGARDING MANAGEMENT**

3.1. **Ownership**
   - All patients with a DEFINITE diagnosis of acute cholangitis should be managed by the gastroenterologists.

3.2. **Imaging**
   - Gold standard first line investigation is USS abdomen
   - CT Indications
     - Diagnostic uncertainty
     - Suspected complication of acute cholangitis (e.g. liver abscess)
   - MRCP indications:
     - Where aetiology remains unclear
     - Confirmation of bile duct stone where LFTs have settled or CBD diameter is normal
     - Suspected malignant biliary obstruction

3.3. **Use of ERCP and PTC for biliary drainage**
   - Severe cholangitis: URGENT biliary drainage <24 hours
   - Moderate cholangitis: EARLY biliary drainage <48 hours
   - Mild cholangitis: Antibiotics +/- ELECTIVE biliary drainage
   - Patients requiring URGENT biliary drainage should be discussed initially with a Consultant gastroenterologist specialising in ERCP or alternatively a Consultant interventional radiologist that performs PTC (percutaneous transhepatic cholangiopancreatography).

3.4. **Future cholecystectomy**
   - All patients with confirmed biliary cholangitis secondary to gallstones, considered fit for surgery, should be discussed with the upper GI surgery team prior to discharge (registrar or Consultant level referral) to ensure a definitive long term plan regarding cholecystectomy. In most cases surgery will be deferred for 6 weeks from the episode of cholangitis.

3.5. **References**
   - AUGIS. Pathway for the management of acute gallstone diseases. AUGIS 2015.
4. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Mr Michael Clarke</td>
</tr>
<tr>
<td>Tool</td>
<td>Patient documentation and Rolling audit</td>
</tr>
<tr>
<td>Frequency</td>
<td>Adult acute cholangitis patients who are reviewed by specialist teams. Audit 6 monthly</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Involved specialties governance committees. Repeated non-compliance to be reported via Datix</td>
</tr>
</tbody>
</table>
| Acting on recommendations and Lead(s) | Hospital Working Group  
Michael Clarke (Consultant upper GI surgeon) - Chair  
Mohamed Abdelrahman (ST3 General Surgery)  
Ian Finlay (Consultant upper GI surgeon)  
Hyder Hussaini (Consultant gastroenterologist)  
Bill Stableforth (Consultant gastroenterologist)  
Madeline Strugnell (Consultant radiologist)  
Dushyant Shetty (Consultant radiologist)  
John Hancock (Consultant interventional radiologist)  
Mike Spivey (Consultant in Intensive Care) |
| Change in practice and lessons to be shared | Required changes to practice will be identified and actioned within 6 months. A lead member of the team will be identified to take each change forward where appropriate. Lessons learned or changes to practice will be shared with all stakeholders. |

5. Equality and Diversity

5.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the "Equality, Diversity & Human Rights Policy" or the Equality and Diversity website.

5.2. Equality Impact Assessment
The Initial Equality Impact Assessment Screening Form is at Appendix 2.
Appendix 1. Governance Information

<table>
<thead>
<tr>
<th>Document Title</th>
<th>Clinical Guideline for Management of Acute Cholangitis in Adults.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>23/02/2016</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>23/02/2016</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>23/02/2019</td>
</tr>
</tbody>
</table>
| Directorate / Department responsible (author/owner): | Mr Michael Clarke (Consultant Upper GI and Bariatric Surgeon)  
|                      | Mr Mohamed Abdelrahman (Upper GI Spr)                        |
| Contact details:     | Mr Michael Clarke (01872 252373)                             |
| Brief summary of contents | This guideline is for the management of acute cholangitis in adults. This guideline applies to all healthcare professionals involved in the treatment of acute cholangitis. |
| Suggested Keywords:  | Cholangitis                                                  |
| Target Audience:     | RCHT PCH CFT KCCG                                           |
| Executive Director responsible for Policy: | Medical Director |
| Date revised:        | None                                                         |
| This document replaces (exact title of previous version): | Nil |
| Approval route (names of committees)/consultation: | Hospital working group  
|                      | Michael Clarke (Consultant upper GI surgeon)  
|                      | Ian Finlay (Consultant upper GI surgeon)                     |
|                      | Hyder Hussaini (Consultant gastroenterologist)               |
|                      | Bill Stableforth (Consultant gastroenterologist)             |
|                      | Madeline Strugnell (Consultant radiologist)                  |
|                      | Dushyant Shetty (Consultant radiologist)                     |
|                      | John Hancock (Consultant interventional radiologist)        |
|                      | Mike Spivey (Consultant in Intensive Care)                  |
|                      | Divisional Governance Committee                               |
| Divisional Manager confirming approval processes | Divisional Director  
|                      | Duncan Bliss                                                 |
| Name and Post Title of additional signatories | Not Required |
| Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings | {Original Copy Signed} |
| Signature of Executive Director giving approval | {Original Copy Signed} |
| Publication Location (refer to Policy on Policies – Approvals and Ratification): | Internet & Intranet  
|                      | Intranet Only                                                 |
| Document Library Folder/Sub Folder | Clinical / General Surgery |
| Links to key external standards | None |
| Related Documents:   | Nil                                                          |
| Training Need Identified? | No                |
### Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 09 15</td>
<td>V1.0</td>
<td>Draft for consultation</td>
<td>Michael Clarke – Consultant Upper GI and Bariatric Surgeon</td>
</tr>
<tr>
<td>23 Feb 16</td>
<td>V2.0</td>
<td>Approved for implementation</td>
<td>Michael Clarke – Consultant Upper GI and Bariatric Surgeon</td>
</tr>
</tbody>
</table>

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This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

**Controlled Document**

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## Appendix 2. Initial Equality Impact Assessment Form

**Name of Service, strategy, policy or project to be assessed (hereafter referred to as policy) : Clinical Management of Acute Cholangitis in Adults**

<table>
<thead>
<tr>
<th>Directorate and service area: General Surgery</th>
<th>Is this a new or existing Policy?  New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of individual completing assessment:  Mr Michael Clarke</td>
<td>Telephone: 01872252373</td>
</tr>
</tbody>
</table>

1. **Policy Aim**
   - Who is the strategy / policy / proposal / service function aimed at?
   - To provide detailed guidance on the clinical management of acute cholangitis in line with best practice guidelines.

2. **Policy Objectives**
   - To provide a consistent approach to the management of acute cholangitis at RCHT sites.
   - To maintain patient safety and improve outcomes for patients experiencing acute cholangitis whilst inpatients at RCHT sites

3. **Policy – intended Outcomes**
   - Consistent management of acute cholangitis at RCHT sites.
   - Prompt and safe management of acute cholangitis and follow up care.

4. **How will you measure the outcome?**
   - Audit
   - Datix Reporting
   - Review of nursing/ medical documentation as required

5. **Who is intended to benefit from the policy?**
   - All patients who experience acute cholangitis in hospital at RCHT sites.

6a) **Is consultation required with the workforce, equality groups, local interest groups etc. around this policy?**
   - Yes

   b) **If yes, have these *groups been consulted?**
   - Yes

   C) **Please list any groups who have been consulted about this procedure.**
   - General surgery team (Audit meeting). Consultants (Radiology, Gastroenterology, Microbiology, Intensive care)
### 7. The Impact

Please complete the following table.

Are there concerns that the policy could have differential impact on:

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong> (male, female, transgender / gender reassignment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Race / Ethnic communities / groups</strong></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Disability</strong> - Learning disability, physical disability, sensory impairment and mental health problems</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Religion / other beliefs</strong></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marriage and civil partnership</strong></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pregnancy and maternity</strong></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sexual Orientation</strong>, Bisexual, Gay, heterosexual, Lesbian</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:
- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation - this excludes any policies which have been identified as not requiring consultation. or
- Major service redesign or development

8. Please indicate if a full equality analysis is recommended. 

<table>
<thead>
<tr>
<th></th>
<th>No</th>
</tr>
</thead>
</table>

9. If you are not recommending a Full Impact assessment please explain why.

---

Signature of policy developer / lead manager / director  
Michael Clarke Consultant GI Surgeon and Bariatric Consultant. 

Date of completion and submission  
23rd February 2016

Names and signatures of members carrying out the Screening Assessment  
1. x  
2.

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Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead,  
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa,  
Truro, Cornwall, TR1 3HD

A summary of the results will be published on the Trust’s web site.

Signed _______________

Date _______________

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