**The Newcastle upon Tyne Hospitals NHS Foundation Trust**

# Guidelines for prophylaxis against infective endocarditis

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## 1 Introduction

This document makes recommendations for the identification and management of adults and children undergoing interventional procedures who are at risk of infective endocarditis. It is based on the National Institute for Health and Care Excellence Clinical Guideline [CG64] [1] and The European Society of Cardiology (ESC) 2023 guidelines for the management of endocarditis[2]. It forms part of the Trust's Antimicrobial Guideline available via Rx Guidelines.

## 2 Guideline scope

Adults and children undergoing interventional procedures.

## 3 Main guideline

### 3.1 Prophylaxis against infective endocarditis

Oro-dental Procedures

NICE advise that antibiotic prophylaxis against infective endocarditis is not routinely recommended for patients undergoing dental procedures[1]

However, the ESC guidelines do recommend antibiotic prophylaxis for patients with the highest risk of endocarditis when undergoing high risk oro-dental procedures and selected non-dental procedures at increased risk of infective endocarditis (section 3.2) and current NUTH guidelines endorse these recommendations also.

Nondental procedures

NICE advise that antibiotic prophylaxis against infective endocarditis is not routinely recommended for patients undergoing non dental procedures at the following sites:[1]

- Upper and lower gastrointestinal tract
- Genitourinary tract: urological, gynaecological and obstetric procedures, and childbirth
- Upper and lower respiratory tract: ear, nose and throat procedures and bronchoscopy

However, they do recommend that if patients at risk of infective endocarditis are to receive prophylactic antibiotics at induction of anaesthesia where an infection is suspected at the operative site, antibiotics should be modified to cover the organisms likely to cause infective endocarditis.

The ESC guidelines state that systemic antibiotic prophylaxis may be considered for high-risk patients undergoing an invasive diagnostic or therapeutic procedure of the respiratory, gastrointestinal, genitourinary tract, skin, or musculoskeletal systems.

## 3.2 Recommendations for infective endocarditis prevention in high risk patients

### 3.2.1 Identifying those at risk of developing infective endocarditis

Patients with the following cardiac conditions are considered to be at high risk of developing infective endocarditis[1, 2]:

- History of previous infective endocarditis
- Surgically implanted prosthetic valves including any prosthetic material used for surgical valve repair
- Trans-catheter aortic and pulmonary valve prostheses
- Cyanotic congenital heart disease
- Surgical or transcatheter procedures with residual shunts, valve prostheses or conduits
- Surgical or transcatheter procedures (e.g. ASD device closure) with no residual shunts, valve prostheses or conduits in the first 6 months after implantation
- Ventricular Assist Devices.

Some patients are regarded to be at intermediate risk for endocarditis and include the following:

- rheumatic heart disease
- non-rheumatic degenerative valve disease
- congenitally abnormal valves, e.g. bicuspid aortic valve
- endocardial pacemakers and implantable cardiac defibrillators
- hypertrophic cardiomyopathy
- trans-catheter mitral and tricuspid valve repair
- heart transplant recipients.

Antibiotic prophylaxis is not routinely recommended but should be considered on an individual basis and discussed if needed with a microbiologist.

### 3.2.2 Identifying high risk oro-dental procedures

- Dental extractions

- Oral surgery procedures (including periodontal surgery, implant surgery, and oral biopsies)
- Dental procedures involving manipulation of the gingival or periapical region of the teeth (including scaling and root canal procedures)
- Implant placement procedures, and invasive dental procedures on established implants,

### 3.2.3 High Risk non-Dental procedures

The NICE guidelines do recommend antibiotics if a person at high risk of infective endocarditis is undergoing a gastrointestinal (GI) or genitourinary (GU) procedure at a site where there is suspected infection. In these circumstances the person should receive an antibiotic that covers organisms that cause infective endocarditis.

### 3.3 Patient advice

Clinicians taking consent for procedures should offer clear and consistent information about prevention to at-risk patients and/or their legal advocates. This includes:

- Benefits and risks of antibiotic prophylaxis and, where appropriate, an explanation of why antibiotic prophylaxis is not recommended
- The importance of maintaining good oral health
- Symptoms that may indicate infective endocarditis and when to seek expert advice.

### 3.4 Prophylactic antibiotic regimens for high-risk patients undergoing high risk procedures

If patients at risk of infective endocarditis are to receive prophylactic antibiotics at induction of anaesthesia where an infection is suspected at the operative site, antibiotics should be modified to cover the organisms likely to cause infective endocarditis.

If the procedure is not listed below, the patient is colonised with MRSA or recently been diagnosed with *C.difficile* infection/carrier status, please discuss with a microbiologist.

#### 3.4.1 Prophylactic antibiotic regimens for high-risk patients undergoing high risk dental procedures:

Chlorhexidine mouthwash should not be offered as prophylaxis against infective endocarditis to people at risk of infective endocarditis undergoing dental procedures[1].

| **Situation** | **Antibiotic** | **Single dose 30-60mins (IV) or 1-2 hours (PO) prior to procedure** | **Single dose 30-60mins (IV) or 1-2 hours (PO) prior to procedure** |
|---|---|---|---|
| | | **Adult** | **Child** |
| No penicillin allergy | Amoxicillin | 1g IV or<br>3g PO | Refer to Childrens BNF |
| Penicillin allergy | Clindamycin | 600mg IV/PO | Refer to Childrens BNF |

#### 3.4.2 Prophylactic antibiotic regimens for high-risk patients undergoing high risk gastrointestinal procedures[2]

| **Procedure** | **First line (STAT dose only)** | **Penicillin hypersensitivity (STAT dose only)** |
|---|---|---|
| Appendicectomy where infection is suspected<br><br>Adults | Amoxicillin IV 1g<br>+<br>Metronidazole IV 500mg<br>+<br>*Gentamicin**<br><br>*Follow NuTH Guideline Gentamicin prophylaxis prescribing in the peri-operative setting | Teicoplanin iv:<br>•<50kg: 600mg<br><br>•50-80kg: 800mg<br><br>•>80kg: 1000mg<br><br>+<br>Metronidazole 500mg IV<br>+<br>*Gentamicin**<br><br>*Follow NuTH Guideline Gentamicin prophylaxis |

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| | | prescribing in the peri-operative setting. |
| Laparoscopic cholecystectomy or biliary tract surgery where infection is suspected.<br><br>Adults | Amoxicillin IV 1g<br>+<br>*Gentamicin**<br><br>* Follow NuTH Guideline Gentamicin prophylaxis prescribing in the peri-operative setting. | Teicoplanin iv:<br>•<50kg: 600mg<br><br>•50-80kg: 800mg<br><br>•>80kg: 1000mg<br><br>+<br><br>*Gentamicin**<br><br>*Follow NuTH Guideline Gentamicin prophylaxis prescribing in the peri-operative setting |

### 3.4.3 Prophylactic antibiotic regime for high-risk patients undergoing high risk urology procedures

Please refer to 'Antimicrobial Recommendations for Urology' within the antibiotic guidelines or contact a microbiologist for advice.

### 3.4.4 Prophylactic antibiotic regime for high-risk patients undergoing high-risk obstetric procedures

Please refer to 'Antibiotic Guidelines for Maternity Unit' within the antibiotic guidelines or contact a microbiologist for advice.

### 3.5 At risk patients who develop an infection

Any episodes of infection in people at risk of infective endocarditis should be investigated and treated promptly (according to the antimicrobial policy) thereby reducing the risk of endocarditis.

## 4 Monitoring Section

The organisation continually strives to achieve 100% compliance with this guideline and its intended outcomes. Where this is not met an action plan will be formulated and reviewed until completion. Please see the table below for standards and monitoring arrangements:

| ***Standards*** | ***Monitoring and audit*** | | | |
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| | ***Method*** | ***By*** | ***Group / Committee*** | ***Frequency*** |
| All antibiotic prescriptions will be in concordance with the guideline | Take Five ward based antibiotic audit | Antimicrobial Leads | AMSG | Monthly |
| | Serious infection rates | IPCC | IPCC | 6 monthly |

## 5 Evidence Review and Evaluation

Undertaken by Dr Catherine Aldridge Microbiology Consultant, Dr Graham Walton Clinical Director /Consultant in Special Care Dentistry, Dr Tim Irvine, Consultant Cardiologist, Dr Louise Coats Consultant Cardiologist.

## 6 References


1) *National Institute for Health and Care Excellence* (2016) Prophylaxis against infective endocarditis: antimicrobial prophylaxis against infective endocarditis in adults and children undergoing interventional procedures. Clinical guideline [CG64]

2) 2023 ESC Guidelines for the Management of Endocarditis: Developed by the Task Force on the Management of Endocarditis of the European Society of Cardiology (ESC). Eur Heart J 2023;Aug 25:[