Blackpool Teaching Hospitals NHS
NHS Foundation Trust

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Does this document meet the requirements of the Equality Act 2010 in relation to Race, Religion and Belief, Age, Disability, Gender, Sexual Orientation, Gender Identity, Pregnancy & Maternity, Marriage and Civil Partnership, Carers, Human Rights and Social Economic Deprivation discrimination? Initial Assessment		

26/01/2018 – TEMPORARY NOTICE: Due to a shortage of IV clindamycin, please see the notices attached here.

CONTENTS

1 PURPOSE

This guideline has been produced to provide evidence based recommendations to optimise the benefits of using prophylactic antibiotics:

The goals of prophylactic administration of antibiotics to surgical patients are to:

- Reduce the incidence of surgical site infection.
- Use antibiotics in a manner that is supported by evidence of effectiveness.
- Minimise the effect of antibiotics on the patient's normal bacterial flora including driving healthcare associated infections.
- Minimise adverse effects.
- Cause minimal changes to the patient's host defences.

2 SCOPE

This guideline applies to all adult patients in Blackpool Teaching Hospitals NHS Foundation Trust whom are undergoing a surgical procedure.

This guideline must be used by all authorised prescribers involved in the patients care.

Currently this guideline covers surgical prophylaxis to be used in Cardiology, General Surgery, Orthopaedics, Urology and Obstetrics and Gynaecology.

Other areas should continue to use their existing in-house surgical prophylaxis protocols.

3 PROCEDURE

3.1 Benefits and risks of antibiotic prophylaxis

The final decision regarding the benefits and risks of prophylaxis for an individual patient will depend on:

- The patient's risk of surgical site infection (SSI).
- The potential severity of the consequence of SSI.
- The effectiveness of prophylaxis in that operation.
- The consequences of prophylaxis for that patient (e.g. increased risk of colitis).

3.2 Antibiotic choice and dosing

- The antibiotics selected for prophylaxis must cover the expected pathogens for that operative site.

- The choice of antibiotic should take into account local resistance patterns.

- A single standard therapeutic dose of antibiotic is sufficient for prophylaxis under most circumstances.

3.3 Classification of type of surgery

Surgery may be classified as clean, clean-contaminated, contaminated or dirty.

Class	Definition
Clean	Non-traumatic No inflammation Respiratory, alimentary or genitourinary tracts are NOT entered No break in aseptic technique
Clean-contaminated	Operations in which the respiratory, alimentary or genitourinary tracts are entered but without significant spillage
Contaminated	Operations where acute inflammation (without pus) is encountered, or where there is visible contamination of the wound.
Dirty	Operations in the presence of pus, where there is a previously perforated hollow viscous or compound / open injuries more than four hours old.

Antibiotic prophylaxis is not routinely required for clean non-prosthetic uncomplicated surgery. Antibiotic prophylaxis is required for clean surgery involving the placement of a prosthesis or implant, clean-contaminated surgery and contaminated and dirty surgery.

3.4 Duration of surgery

Prophylactic antibiotic should be limited to an evidence based single dose except in special circumstances (e.g. prolonged surgery, major blood loss or as indicated).

For operations lasting more than 4 hours, re-dosing may be necessary depending on the half-life [T½] antibiotics used. Subsequent doses may be used at the following intervals:

- Cefuroxime 8-hourly
- Metronidazole 8-hourly
- Gentamicin No further doses necessary
- Teicoplanin No further doses necessary

Gentamicin is ALWAYS given as a single dose, and NO subsequent doses should be required, except in exceptional circumstances. Discuss with Microbiology if this situation arises.

In the event of major intra-operative blood loss in adults (>1500mL) additional dosage of antibiotic should be considered after fluid replacement.

3.5 Timing of administration

The aim of prophylaxis is to have maximum tissue levels at the time of first incision (the only exception is where microbiological specimens are to be taken, in which case prophylaxis should be given immediately after specimens have been obtained).

For this reason, oral and intramuscular prophylaxis is usually administered 1 hour pre-op, whereas intravenous antibiotics are given so that the infusion or dose has just been completed at the time of incision.

3.6 Prophylaxis in patients known to be colonised with Methicillin-Resistant Staphylococcus Aureus (MRSA), or at high risk of MRSA

ALL patients undergoing elective surgery should be screened for MRSA pre-operatively and managed accordingly. In elective patients known to be colonised with MRSA, emergency patients known to be colonised with MRSA and those admitted from Nursing Homes and Care Homes (at higher risk of MRSA carriage) undergoing prosthetic/implant surgery, the antibiotic choice should cover MRSA (i.e. add Teicoplanin, unless already included as part of regimen).

For ease and practicality, Teicoplanin is the antibiotic of choice for prophylaxis against MRSA. Vancomycin remains the glycopeptide of choice for the treatment of MRSA infection (see Antimicrobial Formulary)

Teicoplanin should be used in the following dose regimen:

Teicoplanin 600mg IV as a single dose at induction.

3.7 MRSA Carriage, Cardiac and Orthopaedic Surgery:

Please contact MRSA Decolonisation Failure Clinic if patients with MRSA carriage have failed primary MRSA decolonisation regime before elective surgery.

MRSA Decolonisation Failure Clinic contacts see Appendix 2.

3.8 Surgical prophylaxis guidance

See Appendix 1.

4 ATTACHMENTS	
Appendix Number	**Title**
Appendix 1	Surgical prophylaxis guidance

5 ELECTRONIC AND MANUAL RECORDING OF INFORMATION
Electronic Database for Procedural Documents
Held by Policy Co-ordinators/Archive Office

6 LOCATIONS THIS DOCUMENT ISSUED TO		
Copy No	**Location**	**Date Issued**
1	Intranet	18/06/2015
2	Wards, Departments and Service	18/06/2015

7 OTHER RELEVANT/ASSOCIATED DOCUMENTS	
Unique Identifier	**Title and web links from the document library**

8 SUPPORTING REFERENCES/EVIDENCE BASED DOCUMENTS
References In Full
SIGN Guideline 104: Antibiotic prophylaxis in surgery. April 2014. Scottish Intercollegiate Guidelines Network. http://sign.ac.uk/pdf/sign104.pdf <accessed 5.2.15>
European society of urology. European urological infection 2014 http://www.uroweb.org/gls/pdf/19%20Urological%20infections_LR.pdf <accessed 1/9/14>
American urological association 2014 https://www.auanet.org/common/pdf/education/clinical-guidance/Antimicrobial-Prophylaxis-PocketTable.pdf <accessed 5.2.15>

9 CONSULTATION WITH STAFF AND PATIENTS	
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10 DEFINITIONS/GLOSSARY OF TERMS	
MRSA	Methicillin-Resistant Staphylococcus Aureus
SSI	surgical site infection

11 AUTHOR/DIVISIONAL/DIRECTORATE MANAGER APPROVAL			
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Date	May 2015	**Date**	May 2015

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Cardiovascular Procedures	
Surgery / Procedure	**Regimen**
PERMANENT PACEMAKER AND CARDIOVERTER DEFIBRILLATOR IMPLANTATION	**Flucloxacillin** 1g IV as a single dose at induction
Hypersensitivity to penicillins or cephalosporins	**Clindamycin** 600mg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction
Subsequent doses are NOT usually required	
TEMPORARY PACING WIRE IMPLANTATION	**Teicoplanin** 600mg IV as a single dose at induction, followed by two further doses of 600mg at 12-hours followed by 600mg 24-hourly until permanent pacing wire is situated or temporary pacing wire is removed
TRANSCATHETER AORTIC VALVE REPLACEMENT	Single dose **Teicoplanin** 600mg IV at induction [preferably 20min before incision] Plus Single dose Gentamicin 160mg IV [240mg if over 90Kg] at induction (ensure patient does not have any renal impairment]
Patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g plus 2 further doses at 8 and 16 hours post-op

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Cardiovascular Procedures	
Surgery / Procedure	**Regimen**
CARDIO-THORACIC SURGERY	**Gentamicin** IV 3mg/kg as a single dose at induction plus **Flucloxacillin** IV 1g as a single dose at induction, followed by 3 further doses of **flucloxacillin** 1g at 6, 12 and 18hours post op
Hypersensitivity to penicillins / In patients known to be colonised with MRSA	**Gentamicin** IV 3mg/kg as a single dose at induction plus **Teicoplanin** IV 800mg as a single dose at induction
***patients with severe renal impairment CrCl <10mL/min*	Discussed with microbiologist for an individualised plan
***Patients for thoracic surgery with existing active infection*	Discussed with microbiologist for an individualised plan
Consultant cardiac surgeons may choose to use a 2nd dose of gentamicin on day 2 post op. However this should be a clinical decision and following obtaining a gentamicin trough level <1mg/l (sample collected between 18-24hours after 1st dose) before administering the 2nd dose.	

Appendix 1: Antibiotic prophylaxis for surgical procedures

Prophylaxis against infective endocarditis

In March 2008, NICE issued guidance on antimicrobial prophylaxis against infective endocarditis in adults and children undergoing interventional procedures.

Antibiotic prophylaxis has not been proven to be effective and there is no clear association between episodes of infective endocarditis and interventional procedures. Any benefits from prophylaxis need to be weighed against the risks of adverse effects for the patient and of antibiotic resistance developing. As a result, **NICE have recommended that antibiotic prophylaxis is no longer offered routinely for defined interventional procedures.**

When to offer prophylaxis

Do **NOT** offer antibiotic prophylaxis against infective endocarditis:

- To people undergoing dental procedures
- To people undergoing non-dental procedures at the following sites:
- Lower and upper gastrointestinal tract
- Genitourinary tract; this includes urological, gynaecological and obstetric procedures and childbirth
- Upper and lower respiratory tract; this includes ear, nose and throat procedures and bronchoscopy.

Do **NOT** offer chlorhexidine mouthwash as prophylaxis against infective endocarditis to people at risk undergoing dental procedures.

Whilst these procedures can cause bacteraemia, there is no clear association with the development of infective endocarditis. Prophylaxis may expose patients to the adverse effects of antimicrobials when the evidence of benefit has not been proven.

Managing infection

Any infection in patients at risk of endocarditis should be **investigated promptly** and **treated appropriately** to reduce the risk of endocarditis.

If patients at risk of endocarditis are undergoing a gastro-intestinal or genitourinary tract procedure at a site where infection is suspected, they should receive appropriate antibacterial therapy that includes cover against organisms that cause endocarditis.

Appendix 1: Antibiotic prophylaxis for surgical procedures

Advice

Offer people at risk of infective endocarditis clear and consistent information about prevention including:

- The benefits and risks of antibiotic prophylaxis, and an explanation of why antibiotic prophylaxis is no longer recommended
- The importance of maintaining good oral health
- Symptoms that may indicate infective endocarditis and when to seek expert advice
- The risks of undergoing invasive procedures, including non-medical procedures such as body piercing or tattooing

The following cardiac conditions are at risk of developing infective endocarditis:

- Acquired valvular heart disease with stenosis or regurgitation
- Valve replacement
- Patients with a prosthetic cardiac valve
- Structural congenital heart disease including:
    - Unrepaired cyanotic CHD, including palliative shunts and conduits
    - Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure (i.e. pre-endothelialisation)
    - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialisation)
- Hypertrophic cardiomyopathy
- Patients with previous infective endocarditis
- Cardiac transplantation recipients who develop cardiac valvulopathy

If prophylaxis is considered appropriate for individual patients, please choose from one of the regimens below:

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Surgery / Procedure	**Regimen**
PROPHYLAXIS AGAINST INFECTIVE ENDOCARDITIS	Amoxicillin 1g IV as a single dose at induction PLUS Gentamicin 3mg/kg IV as a single dose at induction
Serious allergy to penicillins/allergy to cephalosporins	Teicoplanin 600mg IV as a single dose at induction PLUS Gentamicin 3mg/kg IV as a single dose at induction
Patients with renal impairment (CrCl < 50mL/min)	Cefuroxime 1.5g IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	Teicoplanin 600mg IV as a single dose at induction PLUS Gentamicin 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures

Antibiotic prophylaxis for Urological Procedures

MUST check previous sensitivity if available and if resistance to suggested regimen - discuss with microbiologist

Surgery / Procedure	Regimen
ROUTINE SHORT-TERM CATHETERISATION **Acute retention and peri-operatively** **Catheter insertion:** *If febrile (>38°C) or urine dipstick positive for nitrites, send urine for culture and treat appropriately i.e. symptomatic* **Catheter removal:**	Antibiotic prophylaxis is NOT required Antibiotic prophylaxis is NOT required
LONG-TERM CATHETERISATION (including intermittent self-catheterisation)	No antibiotic prophylaxis required for routine change, even if colonised with bacteria. Prophylaxis is ONLY indicated if there has been a history of sepsis with previous catheter changes. The antibiotic chosen in these cases should be based on sensitivity of urine isolate. *If systemic signs of infection, treat appropriately*
TRANSURETHRAL RESECTION OF PROSTATE (TURP) Patients with renal impairment (CrCl < 50mL/min)	**Gentamicin** 3mg/kg IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction
TRANSURETHRAL RESECTION OF BLADDER TUMOUR (TURBT) Patients with renal impairment (CrCl < 50mL/min)	Antibiotic prophylaxis is NOT required If prophylaxis indicated (*high risk – see patient related factors on next page and large tumours), use **Gentamicin** 3mg/kg IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction
TRANSRECTAL PROSTATE BIOPSY	**Ciprofloxacin** 500mg PO (1 hour before) induction followed by one further dose of 500mg PO 12 hours later or **Gentamicin** 3mg/kg IV as a single dose at induction if no renal impairment

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Surgery / Procedure	**Regimen**
URO-DYNAMICS	**Ciprofloxacin** 500mg PO (1 hour before) induction followed by one further dose of 500mg PO 12 hours later or **Gentamicin** 3mg/kg IV as a single dose at induction if no renal impairment
SHOCK WAVE LITHOTRIPSY Prophylaxis is NOT required unless: Known infected stone, bacteriuria, indwelling catheter, stent, nephrostomy tube Patients with renal impairment (CrCl < 50mL/min)	**Gentamicin** 3mg/kg IV as a single dose at induction Cefuroxime 1.5g IV as a single dose at induction
CYSTOSCOPY (include hydrodistension, urethral dilation) Patients with renal impairment (CrCl < 50mL/min) In patients known to be colonised with MRSA or at high risk of MRSA	Antibiotic prophylaxis is NOT required unless high risk of UTI: patients with bacteriuria, indwelling catheters, history of a urogenital infection (recurrent or recent infection in the last month) or other patient related risk factors* **Gentamicin** 3mg/kg IV as a single dose at induction or according to MSU **Cefuroxime** 1.5g IV as a single dose at induction or according to MSU **Teicoplanin** 600mg IV as a single dose at induction PLUS **gentamicin** 3mg/kg IV as a single dose at induction (if MSU resistant to gentamicin – replace gentamicin with alternative sensitive antimicrobial)

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Surgery / Procedure	**Regimen**
URETEROSCOPY Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) Serious allergy to penicillins/allergy to cephalosporins/ In patients known to be colonised with MRSA or at high risk of MRSA In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	Antibiotic prophylaxis is NOT required unless high risk of UTI: patients with bacteriuria, indwelling catheters, history of a urogenital infection (recurrent or recent infection in the last month) or other patient related risk factors* **Amoxicillin** 1g IV as a single dose at induction PLUS **gentamicin** 3mg/kg IV as a single dose at induction or according to MSU **Cefuroxime** 1.5g IV as a single dose at induction or according to MSU **Teicoplanin** 600mg IV as a single dose at induction PLUS **gentamicin** 3mg/kg IV as a single dose at induction (if MSU resistant to gentamicin – replace gentamicin with alternative sensitive antimicrobial) **Teicoplanin** 600mg IV as a single dose at induction PLUS **Cefuroxime** 1.5g IV as a single dose at induction

*Other patient related factors for infectious complications:

General risk factors	Special risk factors associated with an increased bacterial load
Older age	Long preoperative hospital stay or recent hospitalisation
Deficient nutritional status	History of recurrent urogenital infections
Impaired immune response	Surgery involving bowel segment
Diabetes mellitis	Colonisation with microorganisms
Smoking	Long term drainage
Extreme weight	Urinary obstruction or stone
Co-existing infection at a remote site	

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Surgery / Procedure	**Regimen**
BLADDER LITHOPAXY	Antibiotic prophylaxis is NOT required unless high risk of UTI: patients with bacteriuria, indwelling catheters, history of a urogenital infection (recurrent or recent infection in the last month) or other patient related risk factors* **Gentamicin** 3mg/kg IV as a single dose at induction or according to MSU
Patients with renal impairment (CrCl < 50mL/min)	**Cefuroxime** 1.5g IV as a single dose at induction or according to MSU
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction PLUS **gentamicin** 3mg/kg IV as a single dose at induction (if MSU resistant to gentamicin – replace gentamicin with alternative sensitive antimicrobial)
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction PLUS Cefuroxime 1.5g IV as a single dose at induction
Renal stent change/removal	**Gentamicin** 3mg/kg IV as a single dose at induction or according to MSU
Patients with renal impairment (CrCl < 50mL/min)	**Cefuroxime** 1.5g IV as a single dose at induction or according to MSU

*Other patient related factors for infectious complications:

General risk factors	Special risk factors associated with an increased bacterial load
Older age	Long preoperative hospital stay or recent hospitalisation
Deficient nutritional status	History of recurrent urogenital infections
Impaired immune response	Surgery involving bowel segment
Diabetes mellitis	Colonisation with microorganisms
Smoking	Long term drainage
Extreme weight	Urinary obstruction or stone
Co-existing infection at a remote site	

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Surgery / Procedure	**Regimen**
CORRECTION OF HYDROCELE	Antibiotic prophylaxis is NOT required unless high risk of infections e.g. immunocompromised - discuss with microbiologist
CIRCUMCISION	Antibiotic prophylaxis is NOT required for routine elective procedures
FRENULOPLASTY	Flucloxacillin 1g IV as a single dose at induction PLUS gentamicin 3mg/kg IV as a single dose at induction
Mild allergy to penicillins/ Patients with renal impairment (CrCl < 50mL/min)	Cefuroxime 1.5g IV as a single dose at induction
SERIOUS ALLERGY TO PENICILLINS OR MRSA COLONISED OR SUSPECTED	Teicoplanin 600mg IV as a single dose at induction PLUS gentamicin 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	Teicoplanin 600mg IV as a single dose at induction PLUS Cefuroxime 1.5g IV as a single dose at induction
Excision of epidymal cyst	Antibiotic prophylaxis is NOT required
Penile biopsy	Antibiotic prophylaxis is NOT required
Optical urethrotomy	Antibiotic prophylaxis is NOT required unless high risk of UTI: patients with bacteriuria, indwelling catheters, history of a urogenital infection (recurrent or recent infection in the last month) or other patient related risk factors* Amoxicillin 1g IV as a single dose at induction PLUS gentamicin 3mg/kg IV as a single dose at induction
Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min)	Cefuroxime 1.5g IV as a single dose at induction
SERIOUS ALLERGY TO PENICILLINS/ In patients known to be colonised with MRSA or at high risk of MRSA	Teicoplanin 600mg IV as a single dose at induction PLUS gentamicin 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	Teicoplanin 600mg IV as a single dose at induction PLUS Cefuroxime 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Upper Gastro-Intestinal Surgery	
Surgery / Procedure	**Regimen**
OESOPHAGEAL SURGERY **GASTRO DUODENAL SURGERY** **GASTRIC BYPASS SURGERY** **BARIATRIC SURGERY**	**Gentamicin** 3mg/kg IV as a single dose at induction
Patients with renal impairment (CrCl < 50mL/min)	**Cefuroxime** 1.5g IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Hepato-biliary Surgery	
Surgery / Procedure	**Regimen**
BILIARY SURGERY – OPEN **PANCREATIC SURGERY** **LIVER SURGERY** **GALL BLADDER SURGERY (OPEN)** **GALL BLADDER SURGERY (LAPAROSCOPIC**)	**Gentamicin** 3mg/kg IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction
Patients with renal impairment (CrCl < 50mL/min)	**Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction
LAPAROSCOPIC CHOLECYSTECTOMY – UNCOMPLICATED	Antibiotic prophylaxis is NOT required
ERCP	**Gentamicin** IV 3 mg/Kg [preferred] or **Ciprofloxacin** 500mg PO as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Lower Gastro-Intestinal Surgery	
Surgery / Procedure	**Regimen**
APPENDECTOMY **COLORECTAL SURGERY** **SMALL BOWEL SURGERY**	**Gentamicin** 3mg/kg IV as a single dose at induction + **Metronidazole** 500mg IV as a single dose at induction
Patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g IV as a single dose at induction +/- **Metronidazole** 500mg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic prophylaxis for Abdominal Surgery	
Surgery / Procedure	**Regimen**
HERNIA REPAIR – WITHOUT MESH	Antibiotic prophylaxis is NOT usually required
HERNIA REPAIR – WITH MESH	**Gentamicin** 3mg/kg IV as a single dose at induction
Patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic Prophylaxis in Vascular Surgery	
Surgery / Procedure	**Regimen**
VASCULAR PROCEDURES: includes lower limb amputations and all grafts whether vein or prosthetic	**Flucloxacillin** 1g IV as a single dose at induction, followed by three further doses of 1g at 6, 12, and 18 hours **PLUS Metronidazole** 500mg IV as a single dose at induction, followed by two further doses of 500mg at 8 and 16 hours **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g IV as a single dose at induction, followed by two further doses of 750mg at 8 and 16 hours **PLUS Metronidazole** 500mg IV as a single dose at induction, followed by two further doses of 500mg at 8 and 16 hours
Serious allergy to penicillins/allergy to cephalosporins/ MRSA colonised or suspected	**Teicoplanin** 600mg IV as a single dose at induction, followed by one further dose of 600mg at 12 hours **PLUS Metronidazole** 500mg IV as a single dose at induction, followed by two further doses of 500mg at 8 and 16 hours **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction, followed by one further dose of 600mg at 12 hours **PLUS Metronidazole** 500mg IV as a single dose at induction, two further doses of 500mg at 8 and 16 hours **PLUS Cefuroxime** 1.5g IV as a single dose at induction, followed by two further doses of 750mg at 8 and 16 hours

Appendix 1: Antibiotic prophylaxis for surgical procedures	
Antibiotic Prophylaxis for Orthopaedic Procedures	
Surgery / Procedure	**Regimen**
ARTHROSCOPY	Antibiotic prophylaxis is NOT required
ORTHOPAEDIC SURGERY WITHOUT PROSTHESIS (except spinal surgery, open traumatic wound)	Antibiotic prophylaxis is NOT required
MINOR METALWORK INSERTION (e.g. K-wires, screws, small orthopaedic plates)	**Flucloxacillin** 1g IV +/- **Gentamicin** 3mg/kg IV at induction (single dose)
MINOR METALWORK REMOVAL	If removing uninfected metal work – Antibiotic prophylaxis is NOT required If removing infected metal work – empiric antibiotic prophylaxis or guided by positive bacteriology would be needed
Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min	Cefuroxime 1.5g IV as a single dose at induction, followed by two further doses of 750mg at 8 and 16 hours
Serious allergy to penicillins/allergy to cephalosporins/ MRSA colonised or suspected	Teicoplanin 600mg IV as a single dose at induction PLUS Gentamicin 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	Teicoplanin 600mg IV as a single dose at induction PLUS Cefuroxime 1.5g IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
ORTHOPAEDIC SURGERY WITH PROSTHESIS (joint replacement surgery, hip fracture repair, spinal surgery, insertion of prosthetic device, internal fixation of closed fracture, clean open fracture)	**Flucloxacillin** 1g IV as a single dose at induction, followed by three further doses of 1g at 6, 12, and 18 hours **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g IV as a single dose at induction, followed by two further doses of 750mg at 8 and 16 hours
Serious allergy to penicillins/allergy to cephalosporins/ MRSA colonised or suspected	**Teicoplanin** 600mg IV as a single dose at induction, followed by one further dose of 600mg at 12 hours **PLUS Gentamicin** 3mg/kg IV as a single dose at induction
In patients known to be colonised with MRSA or at high risk of MRSA with renal impairment (CrCl < 50mL/min)	**Teicoplanin** 600mg IV as a single dose at induction **PLUS Cefuroxime** 1.5g IV as a single dose at induction
DIRTY FRACTURE (CONTAMINATED)	Add **Metronidazole** 500mg IV as a single dose at induction, followed by two further doses of 500mg at 8 and 16 hours
NB – consider tetanus immunity for contaminated wound	

Appendix 1: Antibiotic prophylaxis for surgical procedures

Antibiotic Prophylaxis for Obstetric Procedures

Patients who are known to be **colonised with MRSA** should be treated as per hospital policy with **Teicoplanin 600mg IV as a single dose at induction**.

Surgery / Procedure	Regimen
CAESAREAN SECTION All patients undergoing caesarean section must receive prophylactic antibiotics. Antibiotics should be administered wherever possible prior to knife incision, or as soon as possible during the procedure (e.g. in the case of Grade 1 Caesarean section).	**Cefuroxime** 1.5g IV as a single dose at induction
History of immediate rash, angioedema or anaphylaxis to penicillin	**Clindamycin** IV 600mg as a single dose at induction **PLUS (if emergency caesarean section) Gentamicin** 3mg/kg IV as a single dose calculated according to ideal (pre-pregnancy) body weight after the cord is clamped
If renal impairment and concern with the use of gentamicin	Discuss with microbiologist Single dose prophylaxis is usually sufficient. Some patients with prolonged ruptured membranes, a long labour, raised CRP or raised white cell count may require further doses of antibiotic therapy.
MANUAL REMOVAL OF PLACENTA	**Gentamicin** 3mg/kg IV as a single dose calculated according to ideal (pre-pregnancy) body weight and metronidazole 500mg IV as single dose at induction
Patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
THIRD OR FOURTH DEGREE TEARS	Flucloxacillin IV 1g as a single dose plus gentamicin 3mg/kg* IV calculated according to ideal (pre-pregnancy) body weight as a single dose plus metronidazole 500mg IV as a single dose at induction
Allergy to penicillins	Clindamycin 600mg IV as a single dose plus gentamicin 3mg/kg* IV calculated according to ideal (pre-pregnancy) body weight as a single dose at induction
If renal impairment and concern with the use of gentamicin	Discuss with microbiologist

Appendix 1: Antibiotic prophylaxis for surgical procedures

Antibiotic Prophylaxis for Gynaecological Procedures

Patients who are known to be **colonised with MRSA** should be treated as per hospital policy with **Teicoplanin 600mg IV as a single dose at induction**.

Surgery / Procedure	Regimen
CONSERVATIVE MANAGEMENT OF RUPTURED MEMBRANES	Use O&G Directorate Policy
KNOWN GROUP B HAEMOLYTIC STREPTOCOCCUS +VE PATIENTS	Use O&G Directorate Policy for antibiotic prophylaxis during labour
Prophylaxis for any gynaecological procedure involving opening of the peritoneum i.e. **HYSTERECTOMY** **OOPHORECTOMY** Mild allergy to penicillins *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min* Antibiotic prophylaxis to be part of WHO check list during time-out.	**Gentamicin** 3mg/kg IV as a single dose calculated according to ideal (pre-pregnancy) body weight and metronidazole 500mg IV as single dose at induction or if gentamicin is contraindicated: **Co-amoxiclav** 1.2g IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction
Endoscopic procedures e.g. **LAPAROSCOPY** **CYSTOSCOPY** **COLPOSCOPY**	Antibiotic prophylaxis is not usually required. Consider prophylaxis for some cardiac patients, see “Prophylaxis against infective endocarditis”.
VAGINAL HYSTERECTOMY Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Gentamicin** 3mg/kg IV as a single dose calculated according to ideal (pre-pregnancy) body weight and metronidazole 500mg IV as single dose at induction or if gentamicin is contraindicated: **Co-amoxiclav** 1.2g IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction

Appendix 1: Antibiotic prophylaxis for surgical procedures	
VAGINAL REPAIR PROCEDURES	Antibiotic prophylaxis is not usually required provided the abdominal peritoneum is not opened.
TRANSURETHRAL TAPE OR TRANSOBTURATOR TAPE PROCEDURES	Discuss with Consultant Gynaecologist

Antibiotic Prophylaxis for Gynaecological Procedures Continued

Patients who are known to be **colonised with MRSA** should be treated as per hospital policy with **Teicoplanin 600mg IV as a single dose at induction**.

Surgery / Procedure	**Regimen**
SUCTION TERMINATION OF PREGNANCY	Appropriate antibiotic treatment for patients who have screened Chlamydia positive. If genital Chlamydial infection cannot be ruled out, post-operative Azithromycin 1g PO as a single oral dose should be given.
SURGICAL EVACUATION OF RETAINED PRODUCTS	As per Suction Termination
PERFORATION OF UTERUS DURING HYSTEROSCOPY, D&C OR ABLATION TREATMENT Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Co-amoxiclav** 1.2g IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction
BOWEL PERFORATION DURING OPEN OR ENDOSCOPIC PROCEDURE	Follow hospital prophylaxis for clean-contaminated surgery. Provided prophylaxis has not already been given: **Gentamicin** 3mg/kg IV as a single dose **PLUS Metronidazole** 500mg IV as a single dose at the time of recognising perforation. If prior prophylaxis, consider the addition of Gentamicin dependent on the degree of perforation and after discussion with a Consultant Microbiologist.

Appendix 1: Antibiotic prophylaxis for surgical procedures

Antibiotic Prophylaxis for Gynaecological Procedures Continued

Patients who are known to be **colonised with MRSA** should be treated as per hospital policy with **Teicoplanin 600mg IV as a single dose at induction**.

Surgery / Procedure	**Regimen**
PROCEDURES FOR SUSPECTED TUBO-OVARIAN ABSCESS	Consider contaminated-dirty open surgery. **Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction **PLUS Gentamicin** 3mg/kg IV as a single dose at induction. Post-operative therapy to continue with advice from the Consultant Microbiologist as required.
REMOVAL OF TRANSLOCATED IUCD Mild allergy to penicillins / patients with renal impairment (CrCl < 50mL/min) *Lower doses may be required in patients with severe renal impairment CrCl < 10mL/min*	**Co-amoxiclav** 1.2g IV as a single dose at induction **Cefuroxime** 1.5g IV as a single dose at induction **PLUS Metronidazole** 500mg IV as a single dose at induction

Appendix 2: MRSA Decolonisation Failure Clinic Contacts

- Jan Tipping [Orthopaedics]
- Bernadette McAlea [Cardio-thoracic]
- Dr Guleri [Consultant Microbiologist].

Appendix 3: Equality Impact Assessment Form

Department	Organisation Wide	**Service or Policy**	Guideline	**Date Completed:**	July 2015

GROUPS TO BE CONSIDERED

Deprived communities, homeless, substance misusers, people who have a disability, learning disability, older people, children and families, young people, Lesbian Gay Bi-sexual or Transgender, minority ethnic communities, Gypsy/Roma/Travellers, women/men, parents, carers, staff, wider community, offenders.

EQUALITY PROTECTED CHARACTERISTICS TO BE CONSIDERED

Age, gender, disability, race, sexual orientation, gender identity (or reassignment), religion and belief, carers, Human Rights and socio economic/deprivation.

QUESTION	**RESPONSE**			**IMPACT**
	Issue	Action	Positive	Negative
What is the service, leaflet or policy development? What are its aims, who are the target audience?	The Procedural Document is to ensure that all members of staff have clear guidance on processes to be followed. The target audience is all staff across the Organisation who undertakes this process.	Raise awareness of the Organisations format and processes involved in relation to the procedural document.	Yes – Clear processes identified	
Does the service, leaflet or policy/ development impact on community safety • Crime • Community cohesion	Not applicable to community safety or crime	N/A	N/A	
Is there any evidence that groups who should benefit do not? i.e. equal opportunity monitoring of service users and/or staff. If none/insufficient local or national data available consider what information you need.	No	N/A	N/A	
Does the service, leaflet or development/ policy have a negative impact on any geographical or sub group of the population?	No	N/A	N/A	
How does the service, leaflet or policy/ development promote equality and diversity?	Ensures a cohesive approach across the Organisation in relation to the procedural document.	All policies and procedural documents include an EA to identify any positive or negative impacts.		
Does the service, leaflet or policy/ development explicitly include a commitment to equality and diversity and meeting needs? How does it demonstrate its impact?	The Procedure includes a completed EA which provides the opportunity to highlight any potential for a negative / adverse impact.			
Does the Organisation or service workforce reflect the local population? Do we employ people from disadvantaged groups	Our workforce is reflective of the local population.			
Will the service, leaflet or policy/ development i. Improve economic social conditions in deprived areas ii. Use brown field sites Improve public spaces including creation of green spaces?	N/A			
Does the service, leaflet or policy/ development promote equity of lifelong learning?	N/A			
Does the service, leaflet or policy/ development encourage healthy lifestyles and reduce risks to health?	N/A			
Does the service, leaflet or policy/ development impact on transport? What are the implications of this?	N/A			
Does the service, leaflet or policy/development impact on housing, housing needs, homelessness, or a person's ability to remain at home?	N/A			
Are there any groups for whom this policy/ service/leaflet would have an impact? Is it an adverse/negative impact? Does it or could it (or is the perception that it could exclude disadvantaged or marginalised groups?	None identified			

Appendix 3: Equality Impact Assessment Form

ACTION:			
Please identify if you are now required to carry out a Full Equality Analysis		**No**	**(Please delete as appropriate)**
Name of Author: **Signature of Author:**	Michelle Wong	**Date Signed:**	
Name of Lead Person: **Signature of Lead Person:**	Rashmi Sharma	**Date Signed:**	
Name of Manager: **Signature of Manager**	Alastair Gibosn	**Date Signed:**	