These guidelines related specifically to females over 16 years old presenting with PID. If under this age group seek further advice from Gynaecology and Microbiology.

1. Introduction

Pelvic Inflammatory Disease (PID) is a complication of genital infection ascending from the endocervix causing endometritis, salpingitis, parametritis, oophoritis, tuboovarian abscess and/or pelvic peritonitis. Common organisms that are associated with PID include, *Chlamydia trachomatis, Neisseria gonorrhoea*, *Mycoplasma genitalium, Gardnerella vaginalis* and anaerobes.

Sexually transmitted infections (*Neisseria gonorrhoeae*, *Chlamydia trachomatis)* account for a quarter of UK cases. PID may also be caused by a number of less common infections that may, or may not, be sexually transmitted. Occasionally, PID can develop after a miscarriage or termination of pregnancy, after a child birth or after insertion of an intrauterine device (IUD).

PID may be symptomatic or asymptomatic. Clinical signs and symptoms, when present, lack sensitivity and specificity, which can lead to a delay in initiating appropriate treatment contributing to further complications. A high index of suspicion is therefore required to establish a diagnosis of PID particularly among young sexually active women with lower abdominal pain.

A diagnosis of PID, and empirical antibiotic treatment, should be considered and usually offered in any young (under 25 years old) sexually active woman who has recent onset, bilateral lower abdominal pain associated with local tenderness on bimanual vaginal examination, in whom pregnancy has been excluded.

2. Guideline Standards and Procedures

2.1. Clinical Features

- Lower abdominal pain (of recent onset, i.e. less than 6 months)
- Deep dyspareunia (painful intercourse especially of recent onset)
- Abnormal vaginal bleeding (of recent onset), +/-intermenstrual bleeding+/- post-coital bleeding
- Abnormal cervical/vaginal discharge
- Secondary dysmenorrhoea
- Fever, vomiting (may not be present)
- Physical signs:
  - Adnexal/Pelvic tenderness (usually bilateral)
  - Cervical motion (excitation) tenderness
  - Muco-purulent cervical discharge
  - Pelvic/Adnexal mass

2.2. Suggested Indications for admission to hospital

- When surgical emergency (eg appendicitis, ectopic pregnancy) cannot be excluded
- PID in pregnancy
- Poor response to antibiotics after 72 hours of **adequate** treatment
- Patient is unable to comply with or tolerate the out-patient oral antibiotic regimen
- Severely ill patient with nausea and vomiting
- Presence of tubo-ovarian abscess
- Clinically severe disease with fever >38 °C

2.3. Investigations

- Pregnancy test – if positive consider normal or ectopic pregnancy. (NB Pregnancy does not exclude concomitant PID)
- Collect 2 vaginal swabs
  - High vaginal swab (charcoal swab) for evidence of bacterial vaginosis/trichomonas vaginalis
  - Single Vulvo-vaginal swab (orange Aptima swab) for *Neisseria gonorrhorea*, *Chlamydia trachomatis and Mycoplasma genitalium.*

A positive test for gonorrhoea, chlamydia or *M. genitalium* supports the diagnosis but the absence of these organisms does not exclude PID. Testing for all three organisms is recommended.

- Exclude urinary tract infection – refer to adult UTI guideline (B20/2019)
- Imaging (USS or CT as indicated in severe cases)
- Consider FBC and CRP
- Blood cultures especially if signs of sepsis or systemically unwell
    - If concerns of sepsis: Follow adult sepsis guidelines for assessment and supportive management (B11/2014)
    - Do not give Meropenem to patients with likely pelvic inflammatory disease – follow the treatment regimens given below.

2.3. Treatment

(Also see additional information on prescribing section 2.5)

Empiric antimicrobials for ***Women who are NOT pregnant***	
Mild to severe Uncomplicated PID Can be managed as an outpatient No indications for hospitalisation	**1st Line** IM ceftriaxone 1g single STAT dose **AND** oral doxycycline 100mg BD and oral metronidazole 400mg BD for 14 days
	2nd Line (if first line treatment not appropriate) Oral moxifloxacin 400mg OD for 14 days *Avoid in severe liver impairment or at risk of cardiac arrhythmias. Avoid in history of tendon rupture secondary to quinolones. Caution with increased risk of aortic aneurism or dissection.* *Discuss with microbiology or GUM if high risk of N. gonorrhoea infection (e.g. partner with confirmed gonorrhoea or sexual contact abroad in past 6-months)*
	Review microbiology when results available If *M. genitalium* isolated from swabs, ensure treatment is oral moxifloxacin 400mg OD for 14 days
Complicated PID e.g. tubo-ovarian abscess/complex, signs of pelvic peritonitis Presence of indications for hospitalisation Admit and treat as an inpatient initially	**For patients with sepsis:** Do NOT give meropenem 1g IV, use the treatment options listed here. Follow the sepsis guideline for other supportive treatment.
	1st Line IV ceftriaxone 2g OD, continued until clinically improving for 24-hours **AND** oral doxycycline 100mg BD and oral metronidazole 400mg BD to complete 14 days' treatment
	2nd Line (if first line treatment not appropriate) IV Clindamycin 900mg TDS and IV Gentamicin, continued until clinically improving for 24-hours **THEN** oral clindamycin 450mg QDS to complete 14 days' treatment **OR** oral doxycycline 100mg BD and metronidazole 400mg BD to complete 14 days' treatment. *For Gentamicin: Use UHL guidelines for prescribing once-daily gentamicin in adults - contact pharmacist prior to prescribing*
	If symptoms not improving: discuss with a gynaecologist or microbiologist

Empiric antimicrobials for ***Pregnant Women***	
Complicated PID **All pregnant women** should be managed as having complicated PID Admit and treat as an inpatient initially	**For patients with sepsis:** Do NOT give meropenem 1g IV, use the treatment options listed here. Follow the sepsis guideline for other supportive treatment.
	1st Line IV ceftriaxone 2g OD and IV erythromycin 500mg QDS and IV metronidazole 500 mg BD, continued until clinically improving for 24-hours **THEN** Oral erythromycin 500mg QDS and oral metronidazole 400mg BD to complete 14 days' treatment
	2nd Line (if first line treatment not appropriate) IV Clindamycin 900mg TDS and IV Gentamicin, continued until clinically improving for 24-hours **THEN** Oral clindamycin 450mg QDS to complete 14 days' treatment *For Gentamicin: Use UHL guidelines for prescribing gentamicin in obstetric patients - contact pharmacist prior to prescribing*
	If symptoms not improving: discuss with Obstetrician/Gynaecologist or microbiologist

Advice to be given to all patients
• Explain condition, treatment (possible side effects) and complications. • Avoid unprotected intercourse • Give PID patient information leaflet which includes information on partner notification/ treatment. https://www.bashhguidelines.org/media/1034/pid-pil-2015-screen-friendly.pdf (Leicester Sexual Health contact details below in additional information) • For patients treated as an outpatient: if there is no significant improvement within 72-hours (3 days) then the patient should return for assessment at hospital.

2.4. Follow-up

- **Patients should show significant improvement within 72-hours** (diminishing abdominal tenderness, diminished pelvic tenderness, adnexal tenderness and cervical excitation tenderness).
- **In outpatients, failure to show improvement necessitates re-evaluation** of diagnosis and hospital admission for further investigations, parenteral therapy and/or surgical intervention
- **Empirical PID treatment must be reviewed in line with swab/culture results.**
  - If cultures are positive for *Neisseria gonorrhoea*, *Chlamydia trachomatis* or *Mycoplasma genitalium,* treatment should be reviewed and given as per specific positive organism isolated and patient advised of the need for test of cure 4-weeks after treatment with GP or sexual health clinic (self referral by patient).
  - If *M. genitalium* isolated from swabs in non-pregnant women with uncomplicated PID, ensure treatment is oral moxifloxacin 400mg OD for 14 days
  - If Neisseria Gonorrhoea is isolated needs sending endocervical charcoal swab for culture and sensitivity
  - If resistance suspected or proven on microbiology, treatment should be discussed with a microbiologist.

2.5. Additional Information

Prescribing
Delaying treatment is likely to increase the risk of long-term sequelae such as ectopic pregnancy, infertility and pelvic pain. Because of this, and the lack of definitive diagnostic criteria, a low threshold for empiric treatment of PID is recommended. Broad spectrum antibiotic therapy is required to cover a wide variety of aerobic and anaerobic bacteria

Dose reductions may be required for patients with renal impairment, discuss with a pharmacist if advice needed. Refer to a pharmacist or microbiologist for advice on treatment in patients with liver impairment. For general information on contraindications, cautions, drug interactions and adverse effects refer to the British National Formulary www.bnf.org or the Medicines Compendium www.medicines.org.uk

Discharge Summary
PID is often a diagnosis of exclusion following admission to a Gynaecology ward. If there is a high clinical suspicion of PID please code 'PID' or 'probable/suspected PID'.

Pregnancy
This may be associated with a high risk of both foetal and maternal morbidity and pre-term delivery. All cases should be treated initially in hospital with parenteral antibiotics. Doxycycline use should be avoided.

HIV Infection
No change in treatment of PID is needed. For patients who are HIV positive, ensure the responsible clinician has been informed.

Tubo-ovarian Abscess
Small tubo-ovarian abscess often resolve spontaneously with parenteral therapy. Larger abscess may require surgical intervention (drainage or salpingo-oophorectomy) as well as parenteral therapy if not responding to parenteral therapy alone.

Intra-uterine Device
Removal of an intra-uterine device should be considered if symptoms fail to resolve after 48-72 hours on appropriate therapy.

Leicester Sexual Health: Contact Details and address

Tel: 0300124 0102

Leicester Sexual Health

Haymarket Health

1st Floor

Haymarket Shopping Centre

Leicester LE1 3YT

http://leicestersexualhealth.nhs.uk

3. Education and Training

Nil

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements

Adherence to recommended antimicrobial regimen (target 95%)	Annual Trust Wide Antimicrobial Prescribing Audit	Antimicrobial Pharmacists	Annual	AWP and TIPAC

5. Supporting References

- UK National Guideline for Management of Pelvic Inflammatory Disease (BASHH) (2019 Interim Update) J.Ross et al 2018. http://www.bashh.org/guidelines
- Drugs in pregnancy and lactation. 7th Ed. Briggs CG, Freeman RK, Yaffe SJ.

6. Key Words

- PID
- Pelvic Inflammatory Disease
- Pelvic
- Inflammatory
- Disease

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Miss Manjula Kurni – Consultant Gynaecologist	**Executive Lead** Medical Director
Guideline Reviewers Dr Sharon Koo – Consultant Microbiologist Dr Ryan Hamilton – Antimicrobial Pharmacist Miss. Neelam Potdar- Consultant Gynaecologist	**Ratified by AWP:** 10th March 2020 (Ref: AWP31) Approved PGC 24 April 2020
Details of Changes made during review: • Dose of ceftriaxone amended in line with national guidance • Antimicrobial choices reviewed and clarified • Follow up advice amended	