University Hospitals of Derby and Burton NHS Foundation Trust

PATIENT GROUP DIRECTION (PGD) FOR MANAGEMENT OF SUSPECTED NEUTROPENIC SEPSIS IN ADULT ONCOLOGY AND HAEMATOLOGY PATIENTS

Documentation details

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Change history

Version number	Change details	Date
1	New format	November 2021

Glossary

Abbreviation	Definition
CVAD	Central Venous Access Device
PGD	Patient group Directive
CTAU	Combined Triage Assessment Unit
MAU	Medical Assessment Unit
IV	Intravenous

1. PGD template development (PGD Working Group)

PGD Working Group Membership (minimum requirement of consultant, pharmacist and a registered professional who can work under a PGD, or manages the staff who do). If this is a review of existing PGD, replace previous names with the individuals involved for this version

Name	Designation
Jenny Sinclair	Matron - Cancer
Colin Ward	Directorate/Senior Clinical Pharmacist Divisional Pharmacist
Ian Amott	Haematologist
Prantik Das	Oncologist

Where an antimicrobial is included, confirm the name, designation and date of the antimicrobial pharmacist who has reviewed this version

Name of antimicrobial pharmacist	Designation	Date Reviewed
Kayleigh Lehal	Lead Antimicrobial Pharmacist	26/11/2021

2. Organisational authorisations

The PGD is not legally valid until it has had the relevant organisational authorisation.

University Hospitals of Derby & Burton NHS Foundation Trust authorises this PGD for use by the services or providers listed below:

Authorised for use by the following organisation and/or services
Oncology, Haematology, including Combined Triage Assessment Unit RDH, and Chemotherapy unit QHB, Medical Assessment Unit and Emergency Departments on both sites
Limitations to authorisation
The nurse is expected to practice only within the bounds of their own competency, using their own clinical judgement and refer the patient to appropriate services as they see fit.

Organisational Authorisation (legal requirement).			
Role	**Name**	**Sign**	**Date**
Medicines Safety Officer	**James Hooley**	**Signed copy held by Pharmacy**	**17/02/2022**

Additional signatories (required as per legislation and locally agreed policy)			
Role	**Name**	**Sign**	**Date**
Antimicrobial Lead Pharmacist *Clinical Pharmacist from PGD working group*	Kayleigh Lehal	**Signed copy held by Pharmacy**	**21/01/2022**
Haematology Consultant	Ian Amott	**Signed copy held by Pharmacy**	**17/02/2022**
Matron *Registered Professional representing users of the PGD*	Jenny Sinclair	**Signed copy held by Pharmacy**	**21/01/2022**

Local enquiries regarding the use of this PGD may be directed to UHDB.PGDgovernance@nhs.net

Section 7 provides a registered health professional authorisation sheet. Individual professionals must be authorised by name to work to this PGD.

3. Characteristics of staff

Qualifications and professional registration	Registered Nurse with a current NMC registration Cancer Services – Adult Oncology/Haematology Wards and Chemotherapy Combined Day Unit, Combined Triage and Assessment unit, QHB chemo unit MAU and Emergency Department registered nurses with a current NMC registration. Or Health & Care Professions Council (HCPC) registered Practitioner holding current professional registration, working within the Adult Emergency Department (ED) as a Qualified Advanced Clinical Practitioner (ACP) or other senior role acting within their usual scope of practice.
Initial training	• Completion of all Essential-to-role training as outlined in the UHDB PGD policy. • Individual has read and understood full content of this PGD and signed authorisation (section 7) • Completion of Medicines Management Drug Assessment • Completion of approved IV medication administration or CVAD
Competency assessment	• The practitioner must demonstrate an appropriate level of understanding and knowledge with regards to the medication, therapeutic use, side effects, interactions, and storage and handling requirements. • Approved sign off of competency for medicines management scope including any mandatory updates • Approved sign off of competency for intravenous administration scope including any mandatory updates • Approved sign off of competency for Central Venous Devices scope including any mandatory updates • Has undertaken appropriate training to carry out clinical assessment of patient leading to diagnosis that requires treatment according to the indications listed in the PGD. • Has undertaken appropriate training for working under Patient Group Directions for the supply and administration of medicines. Staff operating under this PGD are encouraged to review their competency using the NICE Competency Framework for health professionals using patient group directions Individuals operating under this PGD are personally responsible for ensuring they remain up to date with the use of all medicines included in the PGD - if any training needs are identified these should be discussed with either authorising manager (section 7) or the manager within the PGD working group (section 1) so that further training can be provided as required.
Ongoing training and competency	• Up to date mandatory training including anaphylaxis • Organisation PGD eLearning • Annual Medicines Safety Training (essential to role) • Review/repeat initial training above when this PGD is revised
The decision to supply any medication rests with the individual registered health professional who must abide by the PGD and any associated organisation policies.	

4. Clinical condition or situation to which this PGD applies

Clinical condition or situation to which this PGD applies	Actual/suspected febrile neutropenic sepsis: Absolute neutrophil count of <1.0x 10^9 and life threatening organ dysfunction caused by dysregulated host immune response to infection
Criteria for inclusion	Low levels of suspicion for investigating and treating infectious disease are recommended by physicians regarding patients with: Past medical histories of haematological/oncological disease and other immunodeficiencies; and /or Drug histories of immunosuppression Patients over 16 years presenting with the below symptoms: Clinical suspicions of infectious disease can be combined with ≥ 1 of the UK Sepsis Trust red flags: • (1) Recent chemotherapy (≤ 6 weeks) • (2) Not passed urine in 18 hours (< 0.5 ml/kg/hr if catheterised) • (3) Objective evidence of new or altered mental state • (4) Systolic blood pressure (SBP) ≤ 90 mmHg (or drop of > 40 from normal) • (5) Heart rate ≥ 130 per minute • (6) Respiratory rate ≥ 25 per minute • (7) Needs O2 to keep SpO2 ≥ 92% (88% in COPD) • (8) Non-blanching rash/mottled/ashen/cyanotic • (9) Lactate ≥ 2 mmol/l First line - Piperacillin- Tazobactam If history of allergy to Penicillins then Ciprofloxacin 400mg IV and Teicoplanin IV (dose as per hospital guidelines) until medical documentation of severity of allergy
Criteria for exclusion	• Previous sensitivity or intolerance to the drug required or any ingredient • Non competent patients, e.g. vulnerable adult • Undiagnosed medical symptoms • Reservations/concerns by patient about side effects of the treatment • If one or more of the following high risk criteria present, then the PGD should still be considered but **immediate** referral for medical attention is required: - Behaviour: objective evidence of new altered mental state - Heart rate: more than 130 beats per minute - Respiratory rate: 25 breaths per minute or more OR new need for 40% oxygen or more to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease) - Systolic blood pressure: 90 mmHg or less OR more than 40 mmHg below normal - Not passed urine in previous 18 hours, or for catheterised patients passed less than 0.5 ml/kg of urine per hour - Mottled or ashen appearance Cyanosis of skin, lips or tongue· Non-blanching rash of skin - A NEWS score which indicates that immediate medical attention is required. • Patients under 16 years old

	• If meningitis is suspected • Renal failure, eGFR < 10ml/min or patient on dialysis • Pregnant or breast feeding • Patient using any drug with a potentially hazardous interaction indicated in the current British National Formulary (BNF). • Previous microbiology culture and sensitivity results which indicate the chosen PGD medication treatment is not an appropriate choice • For CIPROFLOXACIN ONLY: Known epilepsy or conditions which predispose to seizures if ciprofloxacin is indicated. • For CIPROFLOXACIN ONLY: Known myasthenia gravis. • For CIPROFLOXACIN ONLY: History of tendon damage related to quinolone use if ciprofloxacin is indicated • For CIPROFLOXACIN ONLY: Known G6PD deficiency • For PIPERACILLIN TAZOBACTAM ONLY: penicillin allergy – move to second line treatments in this PGD.
Cautions including any relevant action to be taken	**Piperacillin Tazobactam** History of acute severe allergic reaction to any other beta-lactam active substances (e.g. cephalosporin, monobactam or carbapenem). High doses may lead to hypernatraemia (owing to sodium content of preparations) . **Ciprofloxacin** Can prolong the QT interval; children or adolescents (arthropathy has developed in weight-bearing joints in young *animals*) (in children); conditions that predispose to seizures; diabetes (may affect blood glucose); exposure to excessive sunlight and UV radiation should be avoided during treatment and for 48 hours after stopping treatment; G6PD deficiency; history of epilepsy; myasthenia gravis (risk of exacerbation); psychiatric disorders. Acute myocardial infarction (risk factor for QT interval prolongation); avoid excessive alkalinity of urine (risk of crystalluria); bradycardia (risk factor for QT interval prolongation); congenital long QT syndrome (risk factor for QT interval prolongation); electrolyte disturbances (risk factor for QT interval prolongation); ensure adequate fluid intake (risk of crystalluria); heart failure with reduced left ventricular ejection fraction (risk factor for QT interval prolongation); history of symptomatic arrhythmias (risk factor for QT interval prolongation). **Contra-indicated in history of tendon disorders related to quinolone use** **Teicoplanin** Vancomycin sensitivity; blood counts and liver and kidney function tests required; monitor renal and auditory function during prolonged treatment in renal impairment or if other nephrotoxic or neurotoxic drugs given; monitor plasma-teicoplanin concentration during parenteral maintenance treatment if severe sepsis or burns, deep-seated staphylococcal infection (including bone and joint infection), endocarditis, renal impairment, in elderly, and in intravenous drug abusers. **Sodium chloride** Restrict intake in impaired renal function, cardiac failure, hypertension, peripheral and pulmonary oedema, toxaemia of pregnancy.
Action to be taken if the patient is excluded	• Record reasons for exclusion in patient notes • Advise patient on alternative treatment
Action to be taken if the	Document refusal, action taken and advice given in nursing documentation and refer to medical staff if appropriate.

patient or carer declines treatment	
Arrangements for referral for medical advice	Discuss with the consultant team on call or doctor responsible for the patient

5. Description of treatment

Name, strength & formulation of drug	1st line except where contraindicated/excluded e.g. penicillin allergy: Piperacillin 4g + Tazobactam 500mg injection plus 50 mls sodium chloride 0.9% infusion
Legal category	POM
Route / method of administration	Intravenous infusion over 30 minutes
Indicate any off-label use (if relevant)	NA
Dose and frequency of administration	• Before antibiotics are started take the following samples **DO NOT WAIT FOR RESULTS**: • FBC, LFT's, U&E's, CRP • Blood culture- central line (both lumens are present) and from a peripheral vein • Urinalysis • Take MSU/swabs/specimens from any other suspected infected foci. • MRSA swab (if not done in previous 2 weeks) check for previous ESBL/AMPc/VRE. If positive, discuss with microbiologist • Order chest xray • **If the patient is unwell do not delay antibiotic administration to obtain these tests** • One Piperacillin 4g + tazobactam 500mg infusion to be infused over 20-30 minutes (One vial of piperacillin 4g + tazobactam 0.5g to be reconstituted using a 50ml sodium chloride 0.9% infusion bag: either using Transofix device or Ecoflac system)
Duration of treatment	Maximum of ONE dose (4.5g) only to be administered without a prescription
Quantity to be supplied (leave blank if PGD is administration ONLY)	*n/a*
Storage	Stock must be securely stored according to UHDB medicines policy and in conditions in line with SPC as detailed below: Do not store above 25°C. Store in the original package
Drug interactions	For details of potential interactions and their severity see https://bnf.nice.org.uk/interaction/piperacillin.html A detailed list of drug interactions is available in the SPC, which is available from the electronic Medicines Compendium website:

	www.medicines.org.uk or BNF online
Adverse reactions	The following side effects are common: • Diarrhoea • Candida infection • Thrombocytopenia • Anaemia • Insomnia • Headache • Abdominal pain, vomiting, constipation, nausea, dyspepsia • Rash, pruritus • Pyrexia, injection site reaction • Alanine aminotransferase increased, aspartate aminotransferase increased, protein total decreased, blood albumin decreased, Coombs direct test positive, blood creatinine increased, blood alkaline phosphatase increased, blood urea increased, activated partial thromboplastin time prolonged A detailed list of adverse reactions is available in the SPC, which is available from the electronic Medicines Compendium website: www.medicines.org.uk or BNF online
Management of and reporting procedure for adverse reactions	• Take immediate action following the anaphylaxis procedures • Healthcare professionals and patients/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme on: https://yellowcard.mhra.gov.uk • Record all adverse drug reactions (ADRs) in the patient's medical record. Serious adverse reactions (moderate harm or above as per NRLS definition) should be reported via trust incident management system (e.g. Datix) to ensure duty of candour and learning from harm during clinical use.
Written information to be given to patient or carer	Not routinely necessary but can offer marketing authorisation holder's patient information leaflet (PIL) provided with the product.
Patient advice / follow up treatment	Verbal advice on why drug administered, action of drug and subsequent management of condition. Inform the individual/carer of possible side effects and their management. Monitor for sensitivity reactions. The individual/carer should be advised to seek medical advice in the event of an adverse reaction.
Records	Either the system holding the record, or the healthcare practitioner working under the PGD, must capture/document all of the following: • name of individual, address, date of birth and GP with whom the individual is registered (if relevant) • name of registered health professional • name of medication supplied/administered • date of supply/administration • dose, form and route of supply/administration • quantity supplied/administered • batch number and expiry date (if applicable e.g. injections and

	implants) • advice given, including advice given if excluded or declines treatment • details of any adverse drug reactions and actions taken • Confirm whether supplied and/or administered and that this was done via Patient Group Direction (PGD) Records should be signed and dated (or a password controlled e-records). All records should be clear, legible and contemporaneous. If you are not recording in ePMA (or other electronic system which has ability to generate audit reports) then a record of all individuals receiving treatment under this PGD should also be in the clinical area for audit purposes as per UHDB PGD policy.

Name, strength & formulation of drug	2nd line option (with teicoplanin) in cases of allergy to penicillin: Ciprofloxacin 400mg in 200mls Infusion
Legal category	POM
Route / method of administration	Intravenous infusion over 60 minutes. If the patient only has one cannula, give the IV ciprofloxacin before IV Teicoplanin and flush the line with sodium chloride inbetween.
Indicate any off-label use (if relevant)	NA
Dose and frequency of administration	• Before antibiotics are started take the following samples **DO NOT WAIT FOR RESULTS**: • FBC, LFT's, U&E's, CRP • Blood culture- central line (both lumens are present) and from a peripheral vein • Urinalysis • Take MSU/swabs/specimens from any other suspected infected foci. • MRSA swab (if not done in previous 2 weeks) check for previous ESBL/AMPc/VRE. If positive, discuss with microbiologist • Order chest xray • **If the patient is unwell do not delay antibiotic administration to obtain these tests** • One Ciprofloxacin 400mg infusion to be given over 60 minutes
Duration of treatment	Maximum of ONE dose (400mg in 200ml) only to be administered without a prescription If history of allergy to Penicillin. Until medical documentation of severity of allergy has been established.
Quantity to be supplied (leave blank if PGD is administration ONLY)	*n/a*
Storage	Stock must be securely stored according to UHDB medicines policy and in conditions in line with SPC as detailed below: Store in the original package. Since the infusion solution is photosensitive, the infusion bags should be removed from the box only immediately before use.
Drug interactions	For details of potential interactions and their severity see https://bnf.nice.org.uk/interaction/ciprofloxacin-2.html Ciprofloxacin, like other fluoroquinolones, should be used with caution in patients receiving drugs known to prolong QT interval (e.g. Class IA and III anti-arrhythmics, tricyclic antidepressants, macrolides, antipsychotics) A detailed list of drug interactions is available in the SPC, which is

	available from the electronic Medicines Compendium website: www.medicines.org.uk or BNF online
Adverse reactions	The following side effects are common: • Injection and infusion site reactions (only intravenous administration) • Nausea • Diarrhoea • Mycotic super-infections • Eosinophilia • Decreased appetite • Psychomotor, hyperactivity / agitation • Headache, Dizziness, Sleep disorders, Taste disorders • Vomiting, Gastrointestinal and abdominal pains, Dyspepsia, Flatulence • Increase in transaminases, Increased bilirubin • Rash, Pruritus, Urticaria • Musculoskeletal pain (e.g. extremity pain, back pain, chest pain), Arthralgia • Renal impairment • Asthenia, Fever • Increase in blood alkaline phosphatase • QT interval prolongation The drug should be discontinued if neurological, psychiatric, tendon disorders or hypersensitivity reactions (including severe rash) occur. For more information regarding the safety of fluoroquinolones, please see Important Safety Information. A detailed list of adverse reactions is available in the SPC, which is available from the electronic Medicines Compendium website: www.medicines.org.uk or BNF online
Management of and reporting procedure for adverse reactions	• Take immediate action following the anaphylaxis policy • Healthcare professionals and patients/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme on: https://yellowcard.mhra.gov.uk • Record all adverse drug reactions (ADRs) in the patient's medical record. Serious adverse reactions (moderate harm or above as per NRLS definition) should be reported via trust incident management system (e.g. Datix) to ensure duty of candour and learning from harm during clinical use.
Written information to be given to patient or carer	Not routinely necessary but can offer marketing authorisation holder's patient information leaflet (PIL) provided with the product
Patient advice / follow up treatment	Verbal advice on why drug administered, action of drug and subsequent management of condition. Inform the individual/carer of possible side effects and their management. The individual/carer should be advised to seek medical advice in the event of an adverse reaction.
Records	Either the system holding the record, or the healthcare practitioner

	working under the PGD, must capture/document all of the following: • name of individual, address, date of birth and GP with whom the individual is registered (if relevant) • name of registered health professional • name of medication supplied/administered • date of supply/administration • dose, form and route of supply/administration • quantity supplied/administered • batch number and expiry date (if applicable e.g. injections and implants) • advice given, including advice given if excluded or declines treatment • details of any adverse drug reactions and actions taken • Confirm whether supplied and/or administered and that this was done via Patient Group Direction (PGD) Records should be signed and dated (or a password controlled e-records). All records should be clear, legible and contemporaneous. If you are not recording in ePMA (or other electronic system which has ability to generate audit reports) then a record of all individuals receiving treatment under this PGD should also be in the clinical area for audit purposes as per UHDB PGD policy.

Name, strength & formulation of drug	2nd line option (with ciprofloxacin) in cases of allergy to penicillin: Total dose to be prepared using either: Teicoplanin 400mg Injection or Teicoplanin 400mg in 100 mls Sodium Chloride 0.9% infusion (RDH Pharmacy pre-prepared infusion)
Legal category	POM
Route / method of administration	Intravenous infusion over 10-30 minutes to be used : Empiric antibiotic therapy (in combination with piperacillin/tazobactam) for the management of actual/suspected febrile neutropenia if clinical concerns regarding the risk of vascular catheter associated infection (VCAI) *OR* Empiric antibiotic therapy (in combination with piperacillin/tazobactam) for the management of actual/suspected febrile neutropenia in patients with a history of MRSA. ***OR*** Empiric antibiotic therapy (in combination with ciprofloxacin) for the management of actual/suspected febrile neutropenia in patients history of allergy to 'penicillin'. Until medical documentation of severity of allergy has been eastablished.
Indicate any off-label use (if relevant)	NA
Dose and frequency of administration	• Before antibiotics are started take the following samples **DO NOT WAIT FOR RESULTS**: • FBC, LFT's, U&E's, CRP • Blood culture- central line (both lumens are present) and from a peripheral vein • Urinalysis • Take MSU/swabs/specimens from any other suspected infected foci. • MRSA swab (if not done in previous 2 weeks) check for previous ESBL/AMPC/VRE. If positive, discuss with microbiologist • Order chest xray • **If the patient is unwell do not delay antibiotic administration to obtain these tests** **Dosing information** • Patients ≤70kg Teicoplanin 400mg as either an injection over 3-5 minutes or made up in 100ml sodium chloride as an infusion over 30 minutes. • Patients > 70kg Teicoplanin 800mg infusion (can be given as 2 x 400mg infusions in Derby where only 400mg infusion bags are available). Total dose to be infused over 10 - 30 minutes
Duration of treatment	Maximum of one dose 400mg or 800mg only to be administered without a prescription
Quantity to be supplied (leave blank if PGD is	*n/a*

administration ONLY)	
Storage	Stock must be securely stored according to UHDB medicines policy and in conditions in line with SPC as detailed below: Pre-made infusion bags made by pharmacy must be refrigerated. Injection from manufacturer can be stored at room temperature prior to reconstitution.
Drug interactions	No specific interaction studies have been performed. A detailed list of drug interactions is available in the SPC, which is available from the electronic Medicines Compendium website: www.medicines.org.uk
Adverse reactions	The following side effects are common: • Rash, erythema, pruritus • Pain, pyrexia A detailed list of adverse reactions is available in the SPC, which is available from the electronic Medicines Compendium website: www.medicines.org.uk
Management of and reporting procedure for adverse reactions	• Take immediate action following the anaphylaxis procedures • Healthcare professionals and patients/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme on: https://yellowcard.mhra.gov.uk • Record all adverse drug reactions (ADRs) in the patient's medical record. • Serious adverse reactions (moderate harm or above as per NRLS definition) should be reported via trust incident management system (e.g. Datix) to ensure duty of candour and learning from harm during clinical use.
Written information to be given to patient or carer	Not routinely necessary but can offer marketing authorisation holder's patient information leaflet (PIL) provided with the product
Patient advice / follow up treatment	Verbal advice on why drug administered, action of drug and subsequent management of condition. Inform the individual/carer of possible side effects and their management. The individual/carer should be advised to seek medical advice in the event of an adverse reaction.
Records	Either the system holding the record, or the healthcare practitioner working under the PGD, must capture/document all of the following: • name of individual, address, date of birth and GP with whom the individual is registered (if relevant) • name of registered health professional • name of medication supplied/administered • date of supply/administration • dose, form and route of supply/administration • quantity supplied/administered • batch number and expiry date (if applicable e.g. injections and implants)

	• advice given, including advice given if excluded or declines treatment • details of any adverse drug reactions and actions taken • Confirm whether supplied and/or administered and that this was done via Patient Group Direction (PGD) Records should be signed and dated (or a password controlled e-records). All records should be clear, legible and contemporaneous. If you are not recording in ePMA (or other electronic system which has ability to generate audit reports) then a record of all individuals receiving treatment under this PGD should also be in the clinical area for audit purposes as per UHDB PGD policy.

Name, strength & formulation of drug	**ONLY consider this fluid maintenance regimen if you are not trained or authorised to use the trust fluid resuscitation regimen which is aligned with sepsis guidelines** Sodium chloride 0.9% Infusion 1000mls
Legal category	POM
Route / method of administration	Intravenous infusion over 6 Hours Hydration for patients initiating empiric antibiotic therapy for the management of actual/suspected febrile neutropenia
Indicate any off-label use (if relevant)	NA
Dose and frequency of administration	• *1000ml over 6 hours intravenously as a single infusion until a prescriber is available to tailor fluid requirements*
Duration of treatment	Maximum 1000mls only to be administered without a prescription
Quantity to be supplied (leave blank if PGD is administration ONLY)	*n/a*
Storage	Stock must be securely stored according to UHDB medicines policy and in conditions in line with SPC as detailed below:
Drug interactions	N/A
Adverse reactions	N/A
Management of and reporting procedure for adverse reactions	• Take immediate action following the anaphylaxis policy • Healthcare professionals and patients/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme on: https://yellowcard.mhra.gov.uk • Record all adverse drug reactions (ADRs) in the patient's medical record. • Serious adverse reactions (moderate harm or above as per NRLS definition) should be reported via trust incident management system (e.g. Datix) to ensure duty of candour and learning from harm during clinical use.
Written information to be given to patient or carer	Not routinely necessary but can offer marketing authorisation holder's patient information leaflet (PIL) provided with the product
Patient advice / follow up treatment	Verbal advice on why drug administered, action of drug and subsequent management of condition. Inform the individual/carer of possible side effects and their management. The individual/carer should be advised to seek medical advice in the event of an adverse reaction.

Records	Either the system holding the record, or the healthcare practitioner working under the PGD, must capture/document all of the following: • name of individual, address, date of birth and GP with whom the individual is registered (if relevant) • name of registered health professional • name of medication supplied/administered • date of supply/administration • dose, form and route of supply/administration • quantity supplied/administered • batch number and expiry date (if applicable e.g. injections and implants) • advice given, including advice given if excluded or declines treatment • details of any adverse drug reactions and actions taken • Confirm whether supplied and/or administered and that this was done via Patient Group Direction (PGD) Records should be signed and dated (or a password controlled e-records). All records should be clear, legible and contemporaneous. If you are not recording in ePMA (or other electronic system which has ability to generate audit reports) then a record of all individuals receiving treatment under this PGD should also be in the clinical area for audit purposes as per UHDB PGD policy.

6. Key references

Key references	• British National Formulary www.bnf.org • Neutropenic Sepsis; investigation and treatment- full clinical guideline Guideline reference CG-T/2015/059 University Hospitals of Derby and Burton • SPC for individual drugs

Management

Haematology/Oncology disease or other history of immunocompromise

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Clinical suspicion of infection

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≥1 of the 9 red flags:

(1) Recent chemotherapy (≤ 6 weeks)
(2) Not passed urine in 18 hours (< 0.5 ml/kg/hr if catheterised)
(3) Objective evidence of new or altered mental state
(4) Systolic BP ≤ 90 mmHg (or drop of > 40 from normal)
(5) Heart rate ≥ 130 per minute
(6) Respiratory rate ≥ 25 per minute
(7) Needs O_2 to keep SpO_2 ≥ 92% (88% in COPD)
(8) Non-blanching rash/mottled/ashen/cyanotic
(9) Lactate ≥ 2 mmol/l

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Investigate:

- Past: review blood cultures, etc. for bacteria with resistance to first and second line options for neutropenic sepsis
- Present: **bloods** (FBC, CRP, lactate, U&E, and LFT); **blood cultures**, peripherally and centrally (if vascular catheter in situ); **urine culture**; if localising symptoms and/or signs, extra microbiology investigations as per hospital guidelines; **CXR**; if localising symptoms and/or signs, in collaboration with the medical senior, consider further imaging

AND

Treat:

- **Empiric antibiotics intravenously within 1 hour:**
  - First line: **piperacillin tazobactam** 4.5 g 6 hourly **± tobramycin** stat*, dose as per hospital guidelines. If clinical concerns re the risk of vascular catheter associated infection or methicillin resistant *Staphylococcus aureus*, add **teicoplanin**, dose as per hospital guidelines
  - If non-severe penicillin allergy**, second line: **ceftazidime** 2 g 8 hourly and **teicoplanin**, dose as per hospital guidelines, **± tobramycin** stat*, dose as per hospital guidelines. If the differential diagnosis includes an abdomen pelvis focus of infection, add **metronidazole** 500 mg 8 hourly
  - If severe penicillin allergy***, third line: **ciprofloxacin** 400 mg 8 hourly and **teicoplanin**, dose as per hospital guidelines, **± tobramycin** stat*, dose as per hospital guidelines. If the differential diagnosis includes an abdomen pelvis focus of infection, add **metronidazole** 500 mg 8 hourly
  - * **Tobramycin stat for haematology patients; with the exception/exclusion of myeloma patients**. Please note, tobramycin single dose/stat; doses thereafter require collaboration with the haematology senior, within the next week day or weekend review
  - ** I.e. Non-immediate without systemic involvement penicillin allergy
  - *** I.e. Immediate rapidly evolving or non-immediate with systemic involvement penicillin allergy
  - NB If the differential diagnosis includes candidiasis, aspergillosis, mucormycosis, or pneumocystosis, please note invasive fungal disease and *Pneumocystis jirovecii* hospital guidelines
- ± Administer oxygen; as per hospital guidance on Sepsis Management in non-pregnant adult patients
- ± Administer fluids intravenously; as per hospital guidance on Sepsis Management in non-pregnant adult patients
- ± Monitor fluid input and output; as per hospital guidance on Sepsis Management in non-pregnant adult patients

NB If there is neither neutropenia nor sepsis, please consider stopping the neutropenic sepsis pathway and starting relevant hospital guidelines

7. Registered health professional authorisation sheet

PGD Name [version]: Neutropenic Sepsis [v1.0] PGD ref: UHDB139

Valid from: 17/02/2022 Expiry date: 16/02/2025

Before signing check that the document you have read is published on Koha or is an in-date hard-copy with all necessary authorisations signed in section 2. The Name/Version/Ref of the document you have read MUST match this authorisation form.

Registered health professional

By signing this patient group direction you are indicating that

a) You agree to and understand all content and commit to only work within this framework.
b) You have completed any core PGD e-Learning or training records on My Learning Passport or within your department.
c) You meet the staff characteristics and have completed any additional learning/competency outlined in Section 3 of this PGD.

Patient group directions do not remove inherent professional obligations or accountability.
It is the responsibility of each professional to practise only within the bounds of their own competence and professional code of conduct.

I confirm that I have read and understood the content of this Patient Group Direction and that I am willing and competent to work to it within my professional code of conduct.			
Name	**Designation**	**Signature**	**Date**

Authorising manager / Assessor

I confirm that the registered health professionals named above have declared themselves suitably trained and competent to work under this PGD. I give authorisation on behalf of University Hospitals of Derby & Burton NHS Foundation Trust for the above named health care professionals who have signed the PGD to work under it.			
Name	**Designation**	**Signature**	**Date**

Note to authorising manager

Score through unused rows in the list of registered health professionals to prevent additions post managerial authorisation.

This authorisation sheet must be retained by a manager in the clinical department where the PGD is in-use to serve as a record of those registered health professionals authorised to work under this PGD.