University Hospital Southampton NHS
NHS Foundation Trust

SOUTHAMPTON Children's Hospital

# Nursing Febrile Neutropenia Care Plan

| Patient details (use sticky label if available)<br><br>Name:<br><br>Date of birth:<br><br>Hospital number: |
|---|

Date:

Time:

Completed by:

Grade:

**Problem:** The patient fulfils the following definitions of febrile neutropenia * :

- Temperature ≥ 38$^{o}$ Yes ☐ No ☐
- Neutrophil count is ≤ 0.5 Yes ☐ No ☐

**OR** temperature ≤ 35ºc Yes ☐ No ☐
**OR** suspicion of sepsis but absence of pyrexia. Yes ☐ No ☐

## Complete Paediatric Sepsis Screening tool ☐

**Initial Investigations**

Blood Cultures ☐ FBC ☐ U & E's ☐ Lactate ☐

**Goal:**

Ensure **Full Medical Examination** and **IV Antibiotics** commenced within **60** Minutes of Admission

| | |
|---|---|
| Date | |
| Time of Arrival | |
| Time first dose of antibiotics given | |

**Inform Piam Brown Clinical Trials Team of admission by leaving a message on the answerphone of Extension: 5778** ☐

**Inform Southampton POONS of admission: Extension: 6701** ☐
uhs.poons@nhs.net

**Nursing Febrile Neutropenia Care Plan [2 of 3]**

| | Nursing intervention | Rationale | Evaluation |
|---|---|---|---|
| | Assess for dehydration/shock.<br>Does the child need a fluid bolus?<br>Does the child need maintenance IVI?<br>Obtain blood cultures. | Monitor patient for signs of deterioration/ improvement. | Fluid bolus: ☐<br><br>IV fluids required:<br>Yes ☐ No ☐ |
| | Record 1-4 hourly observations: heart rate, blood pressure respiratory rate, oxygen saturations, capillary refill time, temperature and PEWS according to condition.<br>Escalate PEWS as per observation policy. | | |
| **MEDICATION** | Administer paracetamol for comfort after blood cultures taken and antibiotics commenced. | | |
| | Ensure regular medications are prescribed on drug chart. | | |
| | Check if child is taking oral chemotherapy; ask oncology medical team if this should continue. | | Oral chemotherapy to continue:<br>Yes: ☐<br>No: ☐ |
| | Daily reassessment of antibiotic regime in conjunction with blood culture results and/or clinical findings (Refer to Febrile neutropenia protocol on PIER guidelines). | | |
| **NUTRITION** | Strict fluid input and output to be documented on fluid chart.<br><br>Fluid balance to be calculated throughout the day and acted upon appropriately.<br><br>Weigh daily on IV fluids. | | |
| | Ensure clean diet is provided. | | |
| | Ensure nutritional needs are met, liaising with dieticians when needed. | | |
| | Ensure weight documented.<br><br>Recheck weight Mon/Weds/Fri | For prescribing requirements. | |
| **DAILY** | Full blood count, U+E, Liver, Bone, CRP<br><br>(Group and Save if indicated). | Review need for blood product transfusions / electrolyte correction. | |
| | Mouthcare/oral assessment. | Check for signs of mucositis. | |
| | Full clinical examination. | | |

| | Nursing intervention | Rationale | Evaluation |
|---|---|---|---|
| | Pain assessment using age appropriate tool. | | |
| OTHER | Weekly line care/Port needle re-access<br>Complete paediatric long term central line monthly checklist on a daily basis. | | |
| | Provide family care and support.<br>Keep family updated with the above plan of care.<br>Encourage parents to continue with basic care needs of infant/child. | | Parent to remain resident?<br><br>Yes ☐ No ☐ |
| DISCHARGE | Confirm with medical staff whether child needs to restart oral chemotherapy, if stopped for admission. | | |
| | Complete Oncology specific discharge paperwork: Please see next page. | | |
| | Document admission/blood counts and treatment in Parent Held Oncology Record. | | Parent Held Oncology Record up to date: |
| | If patient has a port, ensure hepsal is administered before de-accessing. | | |
| | Ensure child discharged home with appropriate medications. | | Patient own drugs returned: |
| | Informed on discharge:<br>• Southampton POONS 07881671332 uhs.poons@nhs.net<br>• Local CCN team (02380540031)<br>• Complete Piam Brown Inpatient discharge planning checklist. | | |

Nurse signature: _____Nurse Name (Print): _____ Date: _____

To BE COMPLETED BY ADMITTING DOCTOR

| Patient details (use sticky label if available)<br><br>Name:<br><br>Date of birth:<br><br>Hospital number: |
|---|

Date:

Time:

Completed by:

Grade:

The patient fulfils the following definitions of febrile neutropenia * :

- Temperature ≥ 38$^{o}$ Yes ☐ No ☐
- Neutrophil count is ≤ 0.5 Yes ☐ No ☐

** If the patient does not reach these criteria, this record does not necessarily need to be completed.* ***However, non-neutropenic children with a fever can still be unwell and potentially septic – use Paediatric Sepsis Screening Tool (PIER guidelines under Tools tab) and follow Febrile Neutropenia Guidelines Flowchart 2 on PIER.***

| | |
|---|---|
| Date and time fever first noted | |
| Date and time fever first documented in hospital | |
| Date and time first dose of antibiotics given | |

**Initial observations**

Temperature Weight

Pulse rate Blood pressure

Respiratory rate $O_2$ Saturations

A V P U CRT

Urinalysis

***Use the Paediatric Sepsis Screening Tool (PIER guidelines under Tools tab) to help determine if emergency treatment is required before completing the rest of this form.***

**History**

Diagnosis Protocol

Timing relative to last treatment course *(e.g. Day 10 post VIDE #2)*

**Doctors Episode of Febrile Neutropenia Record [2 of 4]**

| Name | Hosp No |
|---|---|

Drug allergies

Previous documented positive cultures

**Examination**

CVS

RS

Abdo

CNS

Mouth

Skin including peri-anal area

CVL and other sites of indwelling catheters

**Initial investigations**

| Test | Date and time taken |
|---|---|
| | |
| ***Minimum required*** | |
| Blood cultures<br>Central ☐ Peripheral (if indicated) ☐ | |
| FBC | |
| Biochemistry (U+Es, LFTs) | |
| CRP | |
| Lactate (with blood gas) | |
| Urine culture | |
| | |
| ***If indicated*** | |
| CXR (only if respiratory symptoms or signs) | |
| LP | |
| Skin/wound swabs<br>Site | |
| NPA / Respiratory screen | |
| Stool analysis | |
| Virology<br>Specify | |

SOUTHAMPTON Children's Hospital

## Doctors Episode of Febrile Neutropenia Record [3 of 4]

| Name | Hosp No |
|---|---|

### Risk assessment (Modified Alexander score)

Are any of the following risk factors present?

| *Factor* | *Criteria* | *Initial assessment* | *48 hour assessment* |
|---|---|---|---|
| | | Date:<br>Time:<br>Completed by:<br><br>Grade: | Date:<br>Time:<br>Completed by:<br><br>Grade: |
| Age | < 12 months old | | |
| Diagnosis/ Treatment | ALL or Infant ALL<br>AML<br>Intensive B-NHL protocols<br>ALCL<br>Stage 4 neuroblastoma<br>PBSCT pre-engraftment<br>Ewing's induction (VIDE)<br>Aplastic anaemia | | |
| Clinical features | Shock or compensated shock<br>Haemorrhage<br>Dehydration<br>Metabolic instability<br>Altered mental status<br>Pneumonitis<br>Significant mucositis<br>Respiratory distress/compromise<br>Peri-rectal infection<br>Soft tissue abscess/infection<br>Rigors<br>Irritability/meningism<br>Organ failure | | |
| Compliance with OPD treatment | Inability to take oral medicines<br>Poor compliance<br>Social or family concerns | | |
| At 48 hour assessment | Neutrophils < 0.1<br>Positive blood cultures<br>Not clinically well | | |

### Risk status at presentation or at 48 hours

*Standard risk : Any of the above criteria are present*

*Low risk: None of the above criteria are present*

| | | |
|---|---|---|
| Initial assessment * | Standard risk ☐ | Low risk ☐ |
| 48 hour assessment * | Standard risk ☐ | Low risk ☐ |

* If either assessment has been performed by a non-oncology doctor or SHO, it must be confirmed by a consultant or staff grade. The initial assessment confirmation must be done within the first 24 hours.

**Initial assessment confirmation performed by:**

Name ..... Date ..... Time.....

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## Doctors Episode of Febrile Neutropenia Record [4 of 4]

| Name | Hosp No |
|---|---|

**Initial treatment plan**

***NB: Is there any reason not to give standard first line antibiotics as per Febrile Neutropenia Guidelines (on PIER)? e.g. previous microbiology isolates; penicillin or other allergies; receiving high dose methotrexate or cisplatin.***

Antibiotics prescribed:

Piperacillin/Tazobactam

alone ☐

Piperacillin/Tazobactam + gentamicin ☐

Meropenem alone ☐

Other ☐

*Specify antibiotic and rationale*

.....

Fluid bolus or other intervention:

Next review required (once stable, must be at

least every 24 hours): Assessment completed

by:Name (PRINT)

Signature

Grade

Date and time:

*Please return to this form at 48 hours to complete the next section*

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**48 hours assessment plan**

Achieves all low risk criteria and is fit for discharge on oral antibiotics: Yes ☐ No ☐

If *yes*, antibiotic prescribed: Co-amoxiclav ☐ Other ☐

.....

If *no*, continue to review patient at least daily. Please read guidelines regarding changing antibiotics empirically, decisions to be made at 96 hours of fever and stopping antibiotics when appropriate.

Assessment completed by: Name (PRINT)
Signature

Grade

Date and time:

Commence planning on admission and use throughout the inpatient stay to enable a timely discharge

| | |
|---|---|
| **PIAM BROWN Inpatient DISCHARGE PLANNING CHECKLIST**<br>Admission Date……..<br>Expected Date of Discharge…….. | ***ADDRESSOGRAPH LABEL*** |

| **Planning for discharge** : | | | **Sign/date** |
|---|---|---|---|
| Diagnosis / Regimen: | | | |
| Parent held record completed – include admission & follow-up | | | |
| TTOs Ordered ☐ (date) | TTOs Received from pharmacy ☐ (date) | Checked & Explained to parents ☐ (date) | |
| GCSF required post chemotherapy Y / N | GCSF given to the patient ☐ | GCSF prescription ☐ scanned to POSCU | |

| **Follow up plans made:** | | **Sign/date** |
|---|---|---|
| Telephone contact with shared care centre informed of discharge and follow up<br>(document with whom and when) | | |
| **Ongoing care required: (tick if applicable)** | | |
| Bung change ☐ | Due on: ..... | |
| Dressing change ☐ | Due on: ..... | |
| PTC appointment ☐ | Date of next ..... | |
| POSCU appointment ☐ | Date of next ..... | |
| Next blood counts requested with CCN team & specified on the HMR? If unclear minimum pre-chemo bloods for solid tumours are: FBC/LFTS/Renal/Ca/Mg/Po4 | | |
| **Paperwork to be sent to POSC via generic NHS email account (tick if required, sign when sent)** | | |
| Copy of new patient consultant letter {1st admission only} ☐ | | |
| Copy of patient summary card (both sides) {1st admission only} ☐ | | |
| Copy of consent for chemotherapy +/- clinical trials {1st admission & if any changes} ☐ | | |
| Copy of inpatient discharge summary {every time} ☐ | | |
| **PLEASE Date and SIGN WHEN ALL OF THE ABOVE ARE COMPLETE** | | |

PIER Paediatric Innovation, Education & Research Network

Thames Valley & Wessex PAEDIATRIC CRITICAL CARE Operational Delivery Network

# Paediatric Sepsis Screening Tool

| Date | Patient ID sticker |
|---|---|
| Time | |
| Location | |

## Recognise

| Could this child have an infection? Could it be sepsis? | | | | | | | Yes/No | Value |
|---|---|---|---|---|---|---|---|---|
| Temperature **<36** or **>38.5°C** *(NB >38°C for Oncology patients)* | | | | | | | Y/N | °C |
| Tachycardia (↑HR). Tachypnoea (↑RR) - use age appropriate PEWS chart | | | | | | | | |
| ***Age*** | ***<1yr*** | ***1-2yrs*** | ***3-5yrs*** | ***6-11yrs*** | ***12-16yr*** | ***16+*** | | |
| **HR** | **>160** | **>150** | **>140** | **>120** | **>100** | **>90** | Y/N | /min |
| **RR** | **>50** | **>50** | **>40** | **>25** | **>20** | **>20** | Y/N | /min |
| **Plus 1 of :** | | | | | | | **Yes / No** | |
| **Altered mental state:** Sleepy, floppy, lethargic, irritable | | | | | | | | |
| **Mottled skin OR prolonged capillary refill time OR 'flash' capillary refill time AND / OR limb pain** | | | | | | | | |
| **Clinical concern** regarding possible sepsis – seek review if significant concern even if trigger criteria not met. | | | | | | | | |

**Site/source:** **Confirmed / Suspected** (please circle)

**(BEWARE : The following are at particular RISK : Neonate / Immunocompromised / Recent Burn /**

**Are 2+1 criteria present?** **Yes / No** **If 'YES', THINK SEPSIS:** ***This is an emergency***

**Immediate Senior Clinician review (ST4+) and follow Sepsis 6 (see below)**

Date : Time : Sign :

***If senior decision not to proceed to sepsis 6 immediately,*** *Tick here* ***AND document overleaf***

## Respond

| Paediatric Sepsis 6: Achieve the following within 1 hr | | Time | Sign |
|---|---|---|---|
| **1** | **Give High Flow Oxygen** | | |
| **2** | Record Blood Pressure and start urine collection (fresh nappy) | | |
| **3** | Obtain iv/io access | | |
| **4** | Take blood cultures, blood gas (include glucose & lactate) | | |
| **5** | Give iv Ceftriaxone 80mg/kg * (see overleaf) **Think: If neutropaenic / immunocompromised / neonate, USE local guidance.** | | |
| **6** | Fluid Resuscitation if required: 20ml/kg 0.9% Saline, **reassess** and repeat as required. | | |

## Reassess

| Within 1 hour of treatment | | Yes/No |
|---|---|---|
| **1** | HR or RR still above age specific normal range or CRT >3 | |
| **2** | Venous (or arterial) Lactate >2 | |
| **3** | Signs of fluid overload ( hepatomegaly, desaturations, crepitation's) | |

**If "YES" to ANY of above, Escalate Care to Consultant +/- ITU +/- SORT: 02380 775502 If patient Stabilised – Admit to ward / HDU, review at least hourly with documented observations for the first 4 hours.**

***If clear source of infection, treat with condition specific antibiotic(s) (consult Microguide)**

**In 'red flag' sepsis of unknown source or septic shock, give 80mg/kg Ceftriaxone**
**<1month of age, give Cefotaxime iv and Amoxicillin iv**
**In SEVERE or LIFE THREATENING Penicillin allergic patients, give GENTAMICIN (5mg/kg if <1month of age or 7mg/kg if >1month of age, max dose 400mg) AND VANCOMYCIN (15mg/kg)**

**ALL inpatients** require a **review of ANY antibiotic therapy**, for ANY indication, documented in the medical notes or electronically (e.g. on Doctors Worklist), **48-72 hours (i.e. day 3) after antibiotic therapy was commenced**.

The review may document decision to de-escalate and/or switch IV to PO therapy, (e.g. in response to Microbiology results and/or improved clinical status and/or a change in diagnosis), or justify continuation of current antibiotic therapy, noting next review or stop date.

Document Clinical Decisions:

Call for senior help :

| | |
|---|---|
| **S** | Current presentation |
| **B** | Any "high risk" factors (eg neonate, immunocompromised, oncology, steroids, indwelling line, recent burn, recent chicken pox) |
| **A** | Infection: *Inflammatory response to micro-organisms, or invasion of normally sterile tissues.*<br>Sepsis: *Infection PLUS one or more organ dysfunction*<br>Septic shock: *Sepsis in which there are profound circulatory, cellular and metabolic abnormalities.*<br>Decompensation |
| **R** | Attend or advice sought? |