FEVER AND PETECHIAL RASH ON HOME INTRAVENOUS THERAPY - PATIENT MANGEMENT

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- To be used in conjunction with Fever and Non-blanching Rash Management in the Emergency Department CHW guideline http://webapps.schn.health.nsw.gov.au/epolicy/policy/2093 and SCH Meningococcal Disease Management http://webapps.schn.health.nsw.gov.au/epolicy/policy/3651
- This guideline specifically covers clinically well children who have risk factors warranting IV antibiotics, who after a period of observation in the ED can be transferred to HITH pending results of their cultures
- As well as nursing staff administering regular intravenous antibiotics, there will also be regular medical review for these patients
- Any unwell child in whom there is a high risk or clinical concern for meningococcal disease (MCD) should be resuscitated, admitted and managed as an inpatient as per above policy guidelines

CHANGE SUMMARY

- Updated flowchart regarding the process for admission and review in HITH/ARC
- Change in recommended antibiotic from hospital guideline of cefotaxime 50mg/kg 6 hourly to use once daily ceftriaxone in the ambulatory setting
- This is a new SCHN Network document

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st May 2018	**Review Period**: 3 years
Team Leader:	Staff Specialist	**Area/Dept**: Medical

Date of Publishing: 6 June 2018 10:53 AM Date of Printing: 6 June 2018

READ ACKNOWLEDGEMENT

- Medical and Nursing Staff in Emergency Department and HiTH/Ambulatory Unit should read this document. General Medical Team Members should be aware of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

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Introduction

There are many causes of petechiae which are pin-point non-blanching spots. Purpura are larger non-blanching spots (>2mm).

Fever and petechiae is most commonly caused by viral infections including *enteroviruses*. The most important diagnosis to consider is septicaemia caused by *Neisseria meningitidis* (meningococcal) disease or other bacterial infections such as *Streptococcus pneumoniae* and *Haemophilus influenzae*. Non-infectious causes include Henoch-Schönlein Purpura (HSP), ITP (idiopathic thrombocytopaenic purpura) and leukaemia. Mechanical causes include coughing or vomiting leading to petechiae classically in the superior-vena cava distribution around the head and neck, and can also be caused by physical pressure such as being held tightly for procedures or a tourniquet.

The majority of children with fever and petechiae do not have an identified cause, and are thought to have viral infections. At least 90% of children with fever and petechiae will NOT have meningococcal disease (MCD), however children with MCD are at risk of rapid deterioration with high morbidity and mortality. It is paramount these patients are recognised and receive prompt resuscitation and treatment. Many children with meningococcaemia will not have meningitis; however it must be considered and excluded on clinical assessment prior to referral for the HITH pathway.

Combined with clinical assessment and laboratory investigations, these children can be risk stratified to determine who should be suspected with meningococcal disease. Sometimes the child will look well, and other than fever have no other concerning features. This guideline serves to identify **clinically well children**, with abnormal laboratory results, who have no other cause found, who would otherwise require admission for antibiotics. These patients can be admitted to HITH to receive IV antibiotics until formal PCR, and blood cultures are available to rule out MCD.

All children with fever and petechiae should be reviewed by a fellow, consultant or the most appropriate senior in the ED. Prior to a possible transfer to HITH, these patients must be seen by a senior such as ED consultant/fellow prior to transfer.

This guideline does not cover unwell children with fever and petechiae, as these patients should be admitted, resuscitated and treated according to local guidelines as below:

Fever and Non-Blanching Rash - Management in ED - CHW

Meningococcal Disease Management – SCH

Meningococcal Disease NETS

Investigations

All children with fever and petechiae who do not have a mechanical reason (coughing or vomiting with petechiae in the head/neck distribution) or local physical pressure such as a tight tourniquet or being held for a procedure, warrant blood tests as part of their management and risk stratification. Blood tests help exclude other diagnoses such as ITP and leukaemia as well as stratifying risk.

Investigations for fever and petechiae at CHW can be obtained as an order set in PowerChart under “fever and non-blanching rash” Order Set. An IVC should be inserted pending results. The tests include:

1. Blood culture*
2. Full blood count
3. C-reactive protein (CRP)
4. Procalcitonin (PCT)
5. N. *meningitidis* and S. *pneumoniae* EDTA blood PCR
6. Coagulation studies
7. Petechiae microscopy/gram stain
8. In addition, it can be useful to collect PCR for respiratory viruses as a differential

**Appropriate collection procedures should be applied to ensure an adequate sample and to prevent contamination*

Identifying patients suitable for HITH referral

Some patients can be discharged home following4-6 hours of observation in the ED if they have normal investigations.

Patients suitable for discharge home after observation in ED
Clinically well, observations BTF (between the flags)
WCC 4-15 x 10^9/L
CRP < 10
PCT <0.5

Clinically well patients, with stable observations after 4-6 hours of observation in the ED can be considered for HITH if they require antibiotics pending results of their cultures.

Home with admission to HITH (admitted to HITH)
Clinically well, observations BTF (between the flags)
WCC <4 or >15 x 10^9/L
CRP >10
PCT >0.5

Clinically unwell patients with fever and petechiae

Any patient with petechiae or purpura >2mm, unwell or who has abnormal vital signs including tachycardia, tachypnoea, desaturation in air, or who show signs of poor peripheral perfusion or altered conscious state must be admitted as an inpatient and treated for MCD as per current policy.

These children may require involvement of PICU early for supportive treatment in addition to their antibiotics.

Eligibility of Paediatric Patients with Fever and Petechiae Home IV Therapy

Currently the ARC clinic operates with a nurse and registrar:

- CHW - Monday to Friday 08:30am to 4:00pm, excluding public holidays
- SCH – Monday to Friday 11:00am to 18:00pm and Saturday/Sunday 09:00am to 13:00pm
- On weekends HITH nursing staff are able to review patients in ARC
- The patient requires a "HITH referral" through PowerChart and the HITH team will decide on the most appropriate location to review the child, either ARC or in the home.
- In summary, children with fever and petechiae may be suitable for intravenous antibiotics at home if the child is well and meets the following eligibility criteria:

Eligible Patients	Exclusion Criteria
• Age over 1 year • Observations all BTF (between the flags) allowing for fever • Would otherwise be admitted for IV antibiotics • Mechanical cause for petechiae (cough/vomit/tourniquet) excluded • Meets HITH criteria	• Age under 1 year • Abnormal signs: HR, RR, O2Saturations, or BP outside Between the flags on SPOC chart when afebrile • Immunosuppressed • Significant comorbidity/chronic disease (neurological, cardiac, respiratory) *discuss with ED or Gen Med consultant • Toxic or unwell requiring observation, or resuscitation

Antibiotics

For children with fever and petechiae suitable for discharge under HITH, whilst pending culture results the recommended antibiotic is once a day ceftriaxone.

	Home IV Therapy
Standard First Line	**Ceftriaxone** 100 mg/kg/dose once a day (max 4 g/dose)

**FOR PATIENTS WITH A SEVERE BETA LACTAM (PENICILLIN) ALLERGY, PLEASE DISCUSS WITH INFECTIOUS DISESASES CONSULTANT OR FELLOW ON CALL **

Guideline Overview

1. Consider

- Insert IV and collect blood culture, FBC, CRP, PCT, PCR, coagulation studies, petechiae MCS, throat swab
- Clinically well patients with fever and petechiae requiring antibiotics as per flowchart can receive IV antibiotics via HITH
- Discuss possible HITH referral with ED Consultant/Fellow

2. Refer

- Refer potential ambulatory patients to the Medical Registrar for early review
- The General Paediatrician AMO on call must be aware of the patient
- If deemed appropriate for home IV therapy refer to HITH and place a PowerChart Referral for HITH containing relevant clinical details

3. Consent

- Patient education, HITH factscheet and consent completed

4. Treat

- First dose IV antibiotics (ceftriaxone) given and 48 hour medication chart completed on EMR (CHW) or paper medication chart (SCH) and patient has been observed with normal observations for at least 4 hours in ED.
- Can go home ONLY after Fellow or Consultant review
- The patient should be admitted to a HITH bed under Gen Med AMO of the day after discussion with AMO

5. HiTH

- Acute Review Clinic (ARC) visit next day to review patient and consider continuing IV antibiotics While awaiting meningococcal PCR and 48h blood culture to rule out meningococcal disease.
- If patient deteriorates refer to Medical Team and discuss with AMO for possible admission

6. Review

- Patient to receive daily ceftriaxone via HITH either in the home or ARC clinic
- Check blood culture and PCR at 48 hours. **If meningococcal disease is suspected or confirmed, the Public Health Unit must be notified by telephone.**
- consider alternative diagnoses such as viral infection depending on clinical progress of child
- discharge back to GP if appropriate

***Review**

- If further IV antibiotics required due to a positive result, patient continues to attend ARC daily with daily medical review by ARC registrar for upto 72 hours
- If the patient develops complications or is not improving after 72 hours, will need further discussion and possible inpatient admisison under the AMO under whom they are admitted

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