MONITORING OF 1ST DOSE OF PROPRANOLOL FOR HIGH RISK INFANTS IN AMBULATORY CARE SETTING

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Propranolol is an evidence based treatment for infants with infantile haemangiomas that are life threatening, at risk of ulceration or causing significant functional impairment, psychological impact or physical deformity
- Early treatment with propranolol can significantly reduce the likelihood and severity of complications
- Low risk patients can be treated in the outpatient setting
- High risk patients should have propranolol initiated in a safe setting with relevant monitoring

CHANGE SUMMARY

- Document due for mandatory review
- Changed from CHW to SCHN document

READ ACKNOWLEDGEMENT

- Dermatologists
- General Paediatricians
- Ambulatory Care staff

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.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st October 2021	**Review Period**: 3 years
Team Leader:	Fellow	**Area/Dept**: Ambulatory

Introduction

Infantile haemangiomas are the most common tumours of infancy and are regularly encountered in dermatology and paediatric practice. Most haemangiomas do not require treatment and the natural history is of spontaneous involution. However depending on the site, and extent of the lesion, there is risk of compromise to vision, hearing, breathing or complications within the haemangioma such as ulceration or cosmetic disfigurement.

Propranolol has been identified as the treatment of choice when systemic therapy is required. This is usually under the guidance of the prescribing dermatologist, and the scope of this document is to cover administration of propranolol in the Ambulatory Care setting. Ambulatory care refers to treatment in the Medical Day Unit - either Turner Ward at CHW or C1North at SCH.

Indications for treatment

The treating clinicians will assess the child and will consider propranolol for the following indications:

1. Life or function threatening haemangiomas
2. Ulcerated haemangiomas with significant pain
3. Haemangiomas at significant risk of ulceration
4. Haemangiomas with significant risk of deformity and/or psychological impact

Special consideration for relative contraindications to propranolol

The prescribing clinician should ensure there are **no** absolute or relative contraindications.

Some examples of when specialist advice should be considered are listed below. Nursing staff can also use the list below as a brief guide for information about when specialist advice is required. Any concerns should be escalated to the prescribing clinician.

The relative contraindications include:

1. Infants prone to hypoglycaemia
    - **i.** Includes history of failure to thrive (weight below 3rd centile or failure to gain weight or crossing two lines on centile chart)
    - **ii.** Prior prednisolone therapy
    - **iii.** Poor feeding or gastroenteritis

2. Infants with a history of cardiovascular disease
    i. Includes but not limited to those with persistent resting bradycardia (<100/min if age <3 months and <90/min for infants 3-6 months age)
3. Bronchospasm
4. Intracranial arterial anomalies, cardiac, eye or endocrine abnormalities (PHACE Syndrome)
5. Other systemic disease
6. Ensure there are no relevant drug interactions

Propranolol Administration

Low risk infants who are thriving well can have their initial doses of propranolol commenced in the outpatient setting and do not require admission to a Medical Day Unit for treatment initiation.

Use of propranolol in the Medical Day Unit will be restricted to higher risk infants including:

- Age 0-4 weeks corrected
- Small for gestational age
- Less than 2.5 kg weight
- Any child who has a relative contraindication must have clear documentation that the risks have been assessed, discussed with the cardiologist (if applicable) and the family. These children will require additional monitoring. This monitoring may be longer than 1 single dose.

For high risk infants the **starting dose will be 0.5 – 1 mg/kg/DAY** split into 2-3 divided doses daily. Dosing to be confirmed by prescribing general paediatrician or dermatologist

The clinician will advise the family on gradual dose escalation in these infants

- A heart rate, blood pressure, respiratory rate and saturations should be recorded hourly on the electronic SPOC chart from initiation of treatment for a minimum of 3 hours.
- Medical review is warranted if the child falls outside of 'Between the Flags'.
- As well as observations, a blood glucose level should be measured 3 hours after the initial dose as propranolol can cause hypoglycaemia. If BSL is less than 3 mmol/L please refer to SCHN Hypoglycaemia Management in Emergency Department Practice Guideline.

The child may be required to attend the Medical Day Unit for subsequent dosage increases and the monitoring regime as above until therapeutic dosing is reached

Therapeutic dosing target is 2 mg/kg/DAY in 2-3 divided doses

Occasionally up to 3 mg/kg/DAY in two divided doses in instances where the infant has not had an adequate response at lower doses.

Please see Appendix 1 for **monitoring** a child for their first dose of propranolol.

References

1. Smithson SL et al. Consensus Statement for the treatment of infantile haemangiomas with propranolol. Australasian Journal of Dermatology. 2017. Doi: 10.1111/ajd.12600
2. Solman L, Glover M, Beattie PE, et al. Oral propranolol in the treatment of proliferating infantile haemangiomas: British Society for Paediatric Dermatology consensus guidelines. Br J Dermatol. 2018;179(3):582-589. doi:10.1111/bjd.16779, 10.1111/bjd.16779

Appendix 1

Referral
- Decision by clinican to treat infant with propranolol that requires monitoring in Medical Day Unit (ie. high risk infant not suitable for outpatient initiation)
- CHW - Contact Turner ward Administration 51121 to discuss a date for admission. eRFA submitted for Turner Admission.
- SCH - Contact C 1 North Administration 20223 to discuss a date for admission.

OPA Prescription/ Attendance
- Give family outpatient prescription for propranolol when booking patient for Medical Day Unit and send a copy to hospital pharmacy for preparation.
- Place future order for single dose of propanolol on eMM in PowerChart
- Child attends Medical Day Unit on booked date

Check medication
- Medical Day Unit nurse to review no contraindications to propranolol from checklist above
- If there are contraindications the team is to be contacted for review. Documentation required by team if to continue (eg after cardiology consult etc).
- Review medical record, check with prescribing clinician or ambulatory staff specialist if relative contraindication unclear
- Ensure propranolol has been prescribed in eMM

Check observations
- Full set of initial observations taken and recorded on electronic SPOC Chart
- Child to be reviewed by the prescribing team if observations outside "Between the Flags"
- Ensure infant does not have resting bradycardia (HR<100/min if <3 months or <90/min if 3-6 months of age)

Administration
- Once all observations are deemed normal and contraindications considered the propranolol can be given
- intial doses will be 0.5 - 1 mg/kg/DAY in 2-3 divided doses orally

Monitoring
- The infant should have hourly observations including HR, BP, RR and Saturations
- 3 hours after the dose a blood glucose level should be checked
- Potential side effects include hypoglycaemia, seizures, bradycardia, hypotension or bronchospasm
- Use normal CERS protocols for escalation (i.e. clinical review or rapid response as appropriate)

Discharge
- If the above criteria are met and the infant has tolerated the dose without evidence of side effects and with normal observations, they can be discharged 3-4 hours following initial dose
- Nursing staff to ensure parents are advised on propanalol administration once they have been discharged from the Medical Day Unit

Readmission
- The Team may readmit the child for each dose escalation until the therapeutic dosing range of 2 mg/kg/DAY is reached.
- For each dosage increase the same monitoring should apply as per Flowchart.