American Academy of Pediatrics’ (AAP) Infantile Hemangioma (IH) Clinical Practice Guideline (CPG) Implementation Driver Diagrams

- These driver diagrams should not be interpreted as complete or static tools.
  - Rather, they represent initial considerations of the integration of critical concepts, actions/interventions and/or tools which are likely important in driving practice change consistent with the AAP’s IH CPG.
  - A dynamic and iterative process involving all key stakeholders is required to fine tune these drivers and optimize their utility.

- The “Infantile Hemangioma Clinical Practice Guideline Implementation Driver Diagram” is intended to conceptualize and facilitate overall uptake/utilization of the new IH CPG.
  - Among many potential concepts, actions and/or tools which may drive CPG uptake, systematic quality improvement (QI) with measurement is only one key driver of overall implementation, and QI may not be the most important or widely utilized driver.

- The remaining driver diagrams are meant to integrate with and facilitate specific QI measures if/when systematic QI with measurement is chosen by clinicians as a CPG implementation strategy.
  - Importantly, these diagrams and specifically the “Key Drivers” and “Potential Actions/Interventions” are meant to be templates and/or starting points which will require customization to specific clinicians and their care environments.
  - Customization to the unique goals, strengths and opportunities in specific environments will assure that the drivers and actions/interventions are relevant to clinicians involved in the QI effort, and therefore, most likely to promote desired outcomes consistent with the AAP IH CPG.
Infantile Hemangioma (IH) CPG Aim: Primary care providers will confidently evaluate, triage, and manage IH employing an evidence-based approach.

**Aim Key Drivers**

- Clinicians are aware of and motivated to utilize CPG recommendations
- Clinicians have access to resources/tools which compliment key CPG recommendations for evaluation, risk stratification, and management
- Caregivers of patients are educated about and empowered to participate in assessment and management of IH
- Clinicians have access to appropriate tools if systematic quality improvement with measurement is a desired implementation strategy

**Tools and Resources**

- Webinar(s) (Initial presentation(s) available online, i.e. Pediatric Care Online)
- Quick reference table for identifying risk stratifying features
  - Supplemental Table 22
- Quick reference visual tools to describe/classify IH
  - Supplemental Figs 5-10 (IH Types)
- IH Initial Clinical Assessment Tool
- Quick Reference Visual Tools to identify/teach high-risk IH
  - Figures 2-4
- Risk Triage Flow Diagram
  - Supplemental Figure 11
- Standardized education tools for clinicians to share with patient parents/caregivers:
  - IH Education (What Are Hemangiomas?)
  - Medication Education (Propranolol for Hemangiomas; Medication Information: Propranolol Treatment of IHs)
- Healthy Children parent/caregiver content
  - Infantile Hemangiomas: About Strawberry Baby Birthmarks
- New ICD-10 codes to facilitate consistent nomenclature/case identification
  - In Process
- IH CPG QI Metrics
- IH QI Data Collection Tool
- IH CPG Measure Specific Implementation Driver Diagrams
AIM: 100% of IH patients receive a standardized assessment for new IH consistent with the AAP IH CPG

Measure 1: Standard Assessment for Risk Stratification of Infantile Hemangioma (IH)

Key Drivers

- Clinical team accepts accountability for early screening and identification of high-risk IH at the initial assessment
- Clinical team understands the rationale for and value of early, standardized assessment of IH identifying high-risk features
- Clinical team has access to a standardized assessment and documentation tool which integrates effectively into the local clinical environment and medical record processes
- Clinical team workflow provides a prompt to the provider evaluating the patient when the chief complaint and/or diagnosis of IH is known in order to facilitate standardized assessment

Potential Actions/Interventions

- Team meeting establishing shared baseline for value of and expectations for first IH visit standardized screening for high-risk, including full review of IH CPG
- Clinical team receives relevant reminders and updates of performance on this aim
- Team adopts and/or creates a checklist assessment tool for paper documentation or EHR
- Clinical team is exposed to effective reminders/summaries of information about high-risk IH (i.e. posters in common area)
- Clinical team integrates a paper or electronic prompt for standard assessment to the evaluating provider when chief complaint and/or diagnosis is IH

Associated Tools

Clinician Education Tools:

- Infantile Hemangioma CPG, particularly:
  - Quick reference visual tools to describe/classify IH
  - Supplemental Figs 5-10 (IH Types)
- Quick reference table for identifying risk stratifying features Supplemental Table 22
- Clinical Risk Triage Flow Diagram Supplemental Figure 11
- Quick reference visual tools to identify/teach high-risk IH Figures 2-4

Webinar(s) (Initial presentation(s) available online, i.e. Pediatric Care Online)

IH Initial Clinical Assessment Tool
Measures 2: Hemangioma Specialist Consultation for Highest/High-Risk IH

AIM: 100% of all IH cases categorized as “highest” or “high-risk” result in consultation\(^1\) with hemangioma specialist\(^2\)

1. Consultation means reciprocal communication with an IH expert and may include patient visits, telephone communication with sharing of patient images and/or telehealth supported patient interactions.
2. Hemangioma specialist is defined in the AAP IH CPG pp 2-3.

Key Drivers
- Clinical team embraces accountability for facilitating consultation with a hemangioma specialist for all patients with “highest” or “high-risk” IH
- Clinical team implements a reliable process for effective, early identification of high-risk IH
  - *See Infantile Hemangioma Clinical Practice Guideline Driver Diagram for Measure 1*
- Clinical team has an up-to-date list of names and contact information for local, regional, and/or national hemangioma specialists who are prepared to provide consultation within 1-2 weeks of notice
- Clinical team has established a reliable process for patient consent and transfer of PHI including photographs

Potential Actions/Interventions
- Team meeting(s) establishing shared baseline for value of and expectations for achieving consultation with a hemangioma specialist for all patients with “highest” or “high-risk” IH
- Clinical team is exposed to effective reminders/summaries of information about value of consultation (i.e. posters in common area)
- Clinical team receives relevant reminders and updates of performance on this aim
- Using IH CPG definitions of “hemangioma specialist” and “consultation”, clinical team contacts local, regional, and/or national experts to establish a network of potential consultants
- Clinical team develops a process for biannual update of consultant network list

Associated Tools
- *Infantile Hemangioma CPG*
- Webinar(s) (Initial presentation(s) available online, i.e. *Pediatric Care Online*)
AIM: 100% of IH cases categorized as “highest-risk” receive consultation with a hemangioma specialist within 1 week of initial assessment.

1. Consultation means reciprocal communication with an IH expert and may include patient visits, telephone communication with sharing of patient images and/or telehealth supported patient interactions.
2. Hemangioma specialist is defined in the AAP IH CPG pp 2-3.
AIM: 100% of IH cases categorized as “high” risk receive consultation\(^1\) with a hemangioma specialist\(^2\) within 2 weeks of initial assessment.

**Measure 4:**
Timing of Consultation for “High-Risk” IH: Within 2 weeks

Clinical team embraces accountability for consultation with a hemangioma specialist within 2 weeks for high-risk IH

Clinical team implements a reliable process for effective, early identification of high-risk IH

See Infantile Hemangioma Clinical Practice Guideline Driver Diagram for Measure 1

Clinical team has and up-to-date list of names and contact information for local, regional and/or national hemangioma specialists who are prepared to provide consultation within 2 weeks of notice

Clinical team has established a reliable process for patient consent and transfer of PHI including photographs

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1. Consultation means reciprocal communication with an IH expert and may include patient visits, telephone communication with sharing of patient images and/or telehealth supported patient interactions.

2. Hemangioma specialist is defined in the AAP IH CPG pp 2-3.
**Measure 5: Parental Education After Diagnosis**

**AIM:** At the time of initial visit¹ for IH, 100% of IH patients’ present caregivers will receive standardized education² which includes patient’s IH risk category, potential complications of high-risk IH, and natural history of low-risk IH consistent with the AAP IH CPG

**Key Drivers**

1. **Clinical team embraces accountability for assuring that all caregivers of patients with newly diagnosed IH receive standardized education**

2. **Clinical team has access to a standardized educational tool, appropriate for parents, describing high-risk birth marks and incorporating high-risk IH features**

3. **Clinical team has a reliable process to share the educational tool(s) with parents of all newborns during the newborn hospitalization or initial newborn visit**

**Potential Actions/Interventions**

1. **Team meeting(s) establishing shared baseline for value of and expectations for providing standardized education to all caregivers of patients with newly diagnosed IH**

2. **Clinical team is exposed to effective reminders/summaries of information about value of assuring caregivers of patients are knowledgeable about IH**

3. **Clinical team adopts or creates an IH educational tool, appropriate for parents, consistent with the AAP IH CPG**

4. **Clinical team incorporates IH educational tool into all standard parent education media used by clinical environment (i.e. paper handouts/packets, website, etc.)**

5. **Clinical team receives relevant reminders and updates of performance on this aim**

**Associated Tools**

- **Infantile Hemangioma CPG, particularly:**
  - Parent/caregiver IH information
    - *What Are Hemangiomas?*

- **Healthy Children content:**
  - CPG education & promotion targeting parent/caregiver audience
    - Infantile Hemangiomas: About Strawberry Baby Birthmarks

- **Webinar(s) (Initial presentation(s) available online, i.e. Pediatric Care Online)**
Measure 6: Parental Education for Oral Propranolol Therapy

For all visits\(^1\) when patients with IH are being treated with oral propranolol\(^2\), 100% IH patients’ present caregivers will receive standardized education on common risks and ADEs associated with propranolol, including sleep disturbance, difficulty breathing, slow heart rate, low blood pressure, and the importance of giving propranolol with food.

1. “All visits” refers to every individual visit involving management of IH AND initiation and/or continuation of oral propranolol.
2. Consistent with the AAP IH CPG, primary clinicians are encouraged to assure oral propranolol education is provided even when the medication is initiated/managed by a hemangioma specialist.

Key Drivers

- Clinical team embraces accountability for assuring that all caregivers of patients with IH treated with oral propranolol receive standardized education about propranolol therapy at each visit involving oral propranolol management.
- Clinical team has access to standardized educational tool(s), appropriate for caregivers, describing high risk birth marks and incorporating high risk IH features.
- Clinical team has a reliable process to share the educational tool(s) with caregivers of all patients with IH treated with oral propranolol at each visit involving oral propranolol management.

Potential Actions/Interventions

- Team meeting(s) establishing shared baseline for value of and expectations for providing standardized education to all caregivers of patients IH treated with oral propranolol
- Clinical team is exposed to effective reminders/summaries of information about value of assuring caregivers of patients treated with oral propranolol are knowledgeable about the medication
- Clinical team adopts or creates an oral propranolol educational tool, appropriate for parents, consistent with the AAP IH CPG
- Clinical team incorporates oral propranolol educational tool into all standard parent education media used by clinical environment (i.e. paper handouts/packets, website, etc.)
- Clinical team receives relevant reminders and updates of performance on this aim

Associated Tools

- Infantile Hemangioma CPG, particularly:
  - Propranolol for Hemangiomas
  - Medication Information: Propranolol Treatment of IHs

- Webinar(s) (Initial presentation(s) available online, i.e. Pediatric Care Online)