Clinical Pathways: From Idea to Impact

Operationalizing & Sustaining High-Impact Pathways in Pediatric Health Systems

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On behalf of the Boston Children's Hospital Clinical Pathways Team

Disclosures

- The presenters have no relevant financial relationships or conflicts of interest to disclose.

Learning Objectives

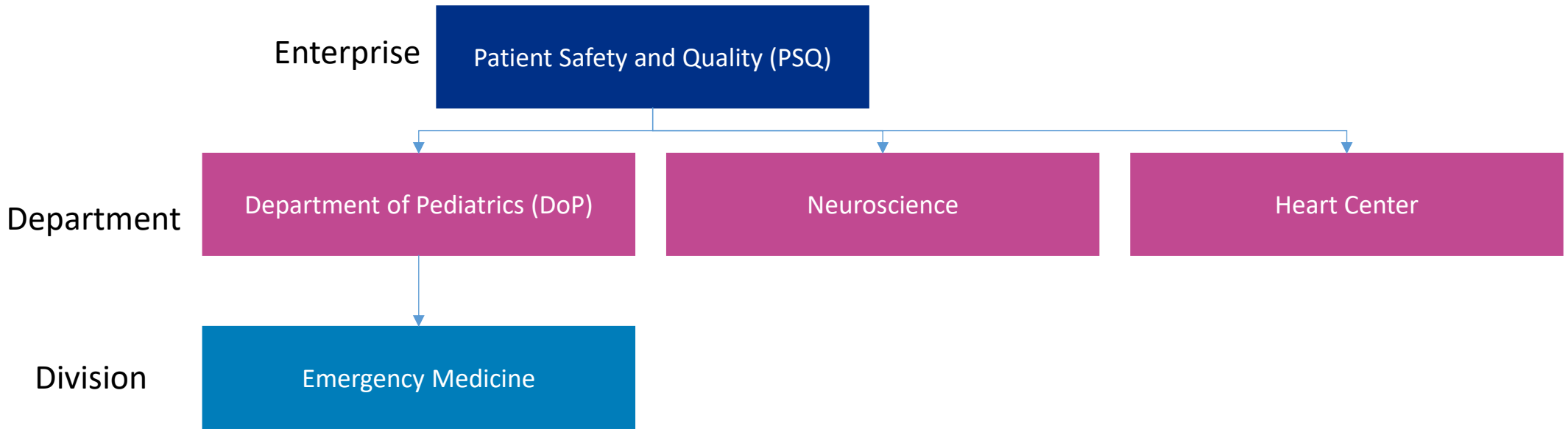
1. Describe a structured approach to clinical pathway management, from project intake through pathway retirement
2. Develop a roadmap for designing, implementing, and measuring a clinical pathway using standardized governance, multidisciplinary engagement, and implementation science principles
3. Translate lessons learned from successful clinical pathway case studies into their own organizations to improve standardization, sustainability, and patient outcomes

Agenda

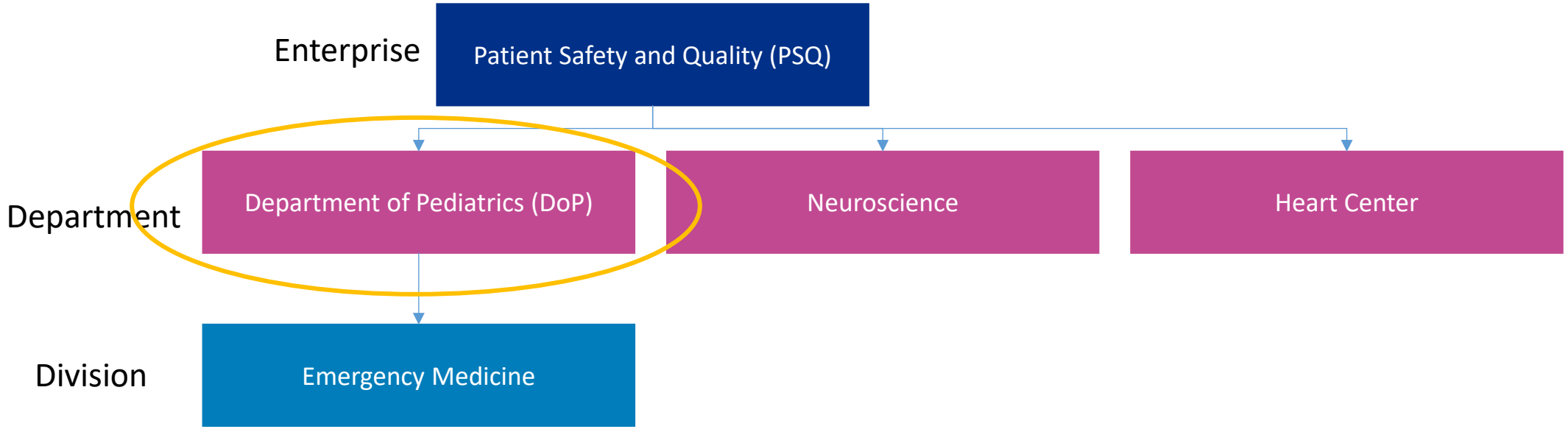
1. Programmatic Structure
2. A Scalable Model for Impact
3. Impact Examples
4. Application & Future Direction

Programmatic Structure

BCH Clinical Pathway Programs

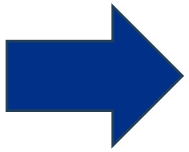


BCH Clinical Pathway Programs

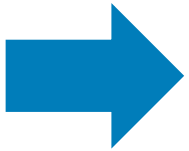


- 105 pathways across 17 clinical divisions
- Supports pathway development, measurement, implementation and ongoing review

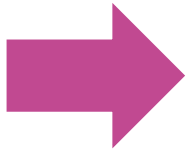
Barriers to Success



Rapid program expansion and evolving priorities



Development teams frequently deferred or overlooked measurement planning during project inception



Limited ability to determine if pathways were improving patient-centered outcomes

Reframing the Opportunity

STANDARDIZE EVIDENCE-BASED CARE

ENABLE REAL-TIME CLINICAL DECISION-MAKING

REDUCE VARIATION & IMPROVE OUTCOMES

Successful when supported by **a scalable model for impact**

A Scalable Model for Impact

01 Governance & accountability structure

02 Standardized development processes

03 Embedded measurement strategy

04 Implementation infrastructure

05 Lifecycle management & sustainability

01

Governance & Operating Model

Overview

Establishing Effective Governance	Standardizing Intake and Prioritization	Champions as Drivers of Success
Defining Roles & Accountability	*Structured application process*	*Clinical champion accountability*
• Central oversight structure • Designated clinical champions • Integrated QI & analytics support • Multidisciplinary collaboration	• Clinical need & evidence base • Defined scope & targeted population • Proposed measures & outcomes • Stakeholder identification • Transparent review & decision framework	• Content development & evidence synthesis • Measurement strategy design • Implementation leadership • Ongoing pathway maintenance

02

Standardized Development Processes

Generate Idea

02

Standardized development processes

- Intervention for QI project
- Ensure idea aligns with local strategic plan

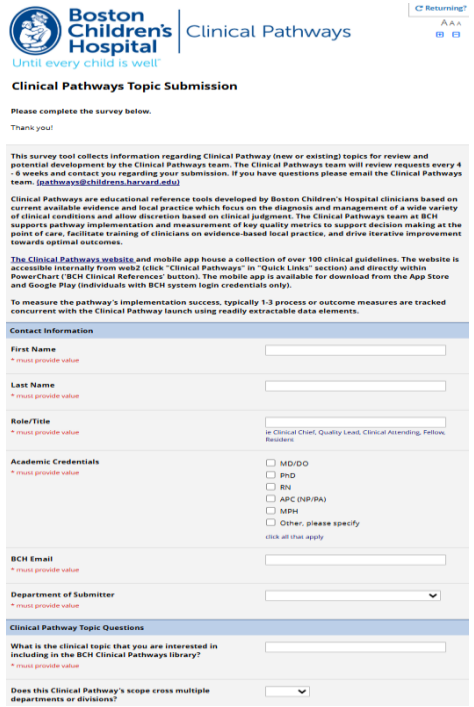
Submit Application

02

Standardized development processes

Complete standardized REDCap application including:

- Background & rationale
- Sharing evidence-base for condition
- Potential challenges
- Candidate measures (3-5 metrics)
- Existing stakeholders



Boston Children's Hospital | Clinical Pathways

Until every child is well

Clinical Pathways Topic Submission

Please complete the survey below.

Thank you!

This survey tool collects information regarding Clinical Pathway (new or existing) topics for review and potential development by the Clinical Pathways team. The Clinical Pathways team will review requests every 4 - 6 weeks and contact you regarding your submission. If you have questions please email the Clinical Pathways team. (pathways@childrens.harvard.edu)

Clinical Pathways are educational reference tools developed by Boston Children's Hospital clinicians based on current available evidence and local practice which focus on the diagnosis and management of a wide variety of clinical conditions and allow discretion based on clinical judgment. The Clinical Pathways team at BCH supports pathway implementation and measurement of key quality metrics to support decision making at the point of care, facilitate training of clinicians on evidence-based local practice, and drive iterative improvement towards optimal outcomes.

The Clinical Pathways website and mobile app house a collection of over 100 clinical guidelines. The website is accessible internally from web2 (click "Clinical Pathways" in "Quick Links" section) and directly within PowerChart ("BCH Clinical References" button). The mobile app is available for download from the App Store and Google Play (individuals with BCH system login credentials only).

To measure the pathway's implementation success, typically 1-3 process or outcome measures are tracked concurrent with the Clinical Pathway launch using readily extractable data elements.

Contact Information

First Name
* must provide value

Last Name
* must provide value

Role/Title
* must provide value
ie Clinical Chief, Quality Lead, Clinical Attending, Fellow, Resident

Academic Credentials
* must provide value
MD/DO
PhD
RN
APC (NP/PA)
MPH
Other, please specify
click all that apply

BCH Email
* must provide value

Department of Submitter
* must provide value

Clinical Pathway Topic Questions

What is the clinical topic that you are interested in including in the BCH Clinical Pathways library?
* must provide value

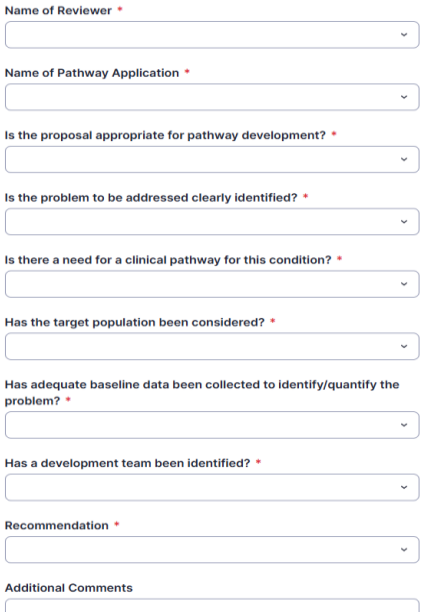
Does this Clinical Pathway's scope cross multiple departments or divisions?

Application Review & Approval Process

02

Standardized development processes

- Standardized review and approval process



DoP Pathways Team Determination / Next Steps

APPROVED → Share feedback w/ submitter and align on next steps and development timeline.

NEED MORE INFO → Request additional details needed to make a final determination.

DEFFERED → Communicate decision and offer recommendations for alternative strategies.

Author Checklist

02

Standardized development processes

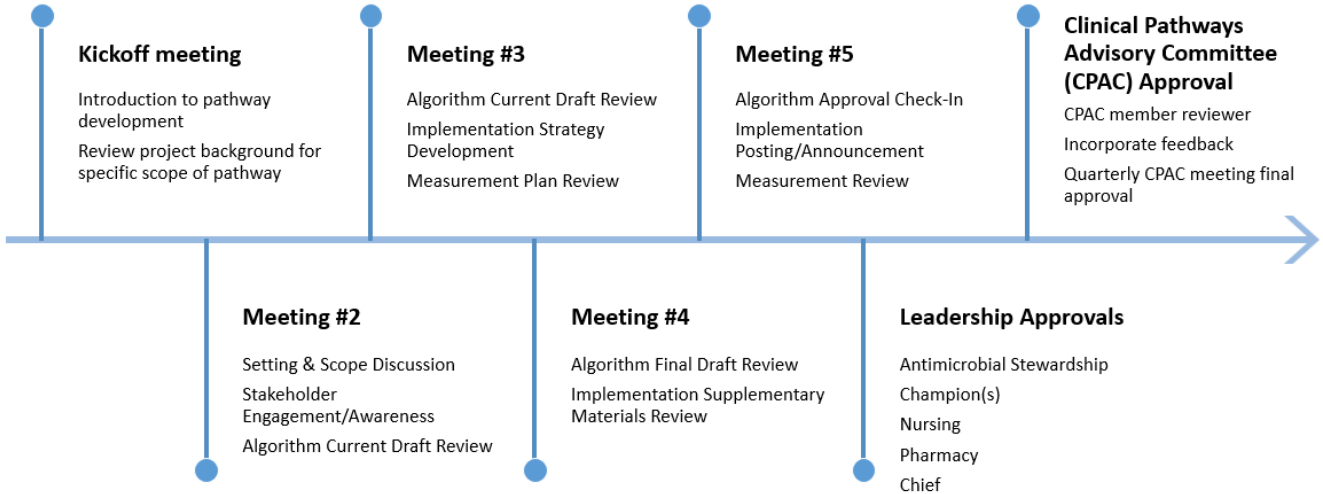
Phase	✓	Task
Preparing the Foundation	☐	Team identification
	☐	Review of literature/existing BCH and national guidelines
	☐	Question definition with desired outcome
	☐	Baseline data
Algorithm Design	☐	Setting and scope
	☐	Algorithm draft(s)
	☐	Feedback
	☐	Stakeholder engagement/awareness
	☐	Algorithm final draft
Measure Development	☐	Measurement plans
	☐	Baseline and exploratory data pull (as applicable)
	☐	Data review with feedback
	☐	Set targets/benchmarks
Implementation	☐	Strategy development
	☐	Order set content (if applicable)
	☐	Supplementary materials (if applicable)
	☐	Posting/announcement
Approval	☐	Clinical signoffs
	☐	CPAC feedback response (Submit for June CPAC by **mid-May**)

- Guidance for champions
- Ongoing support from DoP Pathways Team

Sample Development Timeline

02

Standardized development processes



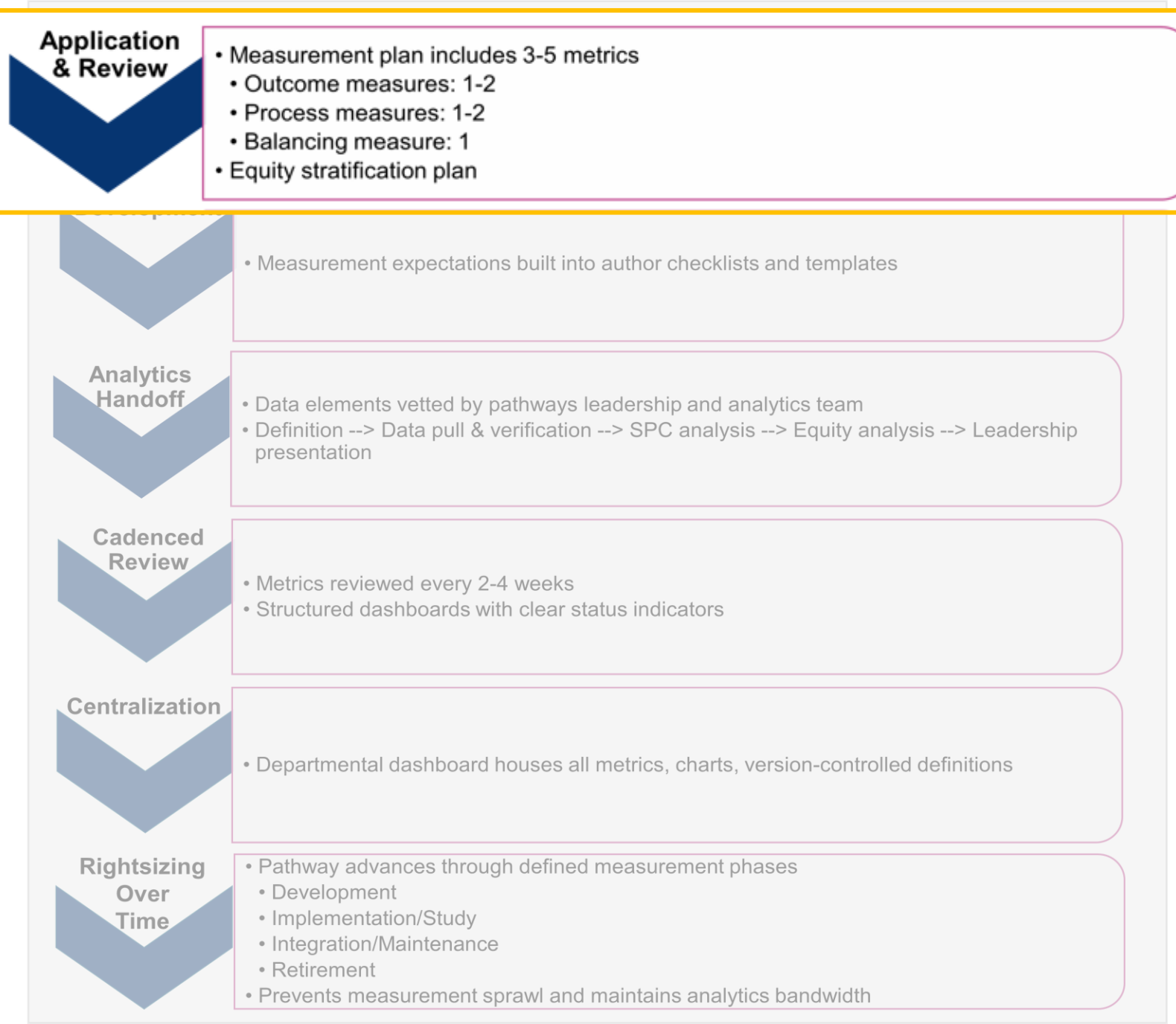
Embedded Measurement Strategy

Measurement Framework

Overview

Measurement Framework

Application & Review



03

Embedded measurement strategy

Measurement Framework

Development

Measurement Framework

Analytics Handoff

Measurement Framework

Cadenced Review

Measurement Framework

Centralization

Measurement Framework

Rightsizing Over Time

Data Analysis & Sharing

03

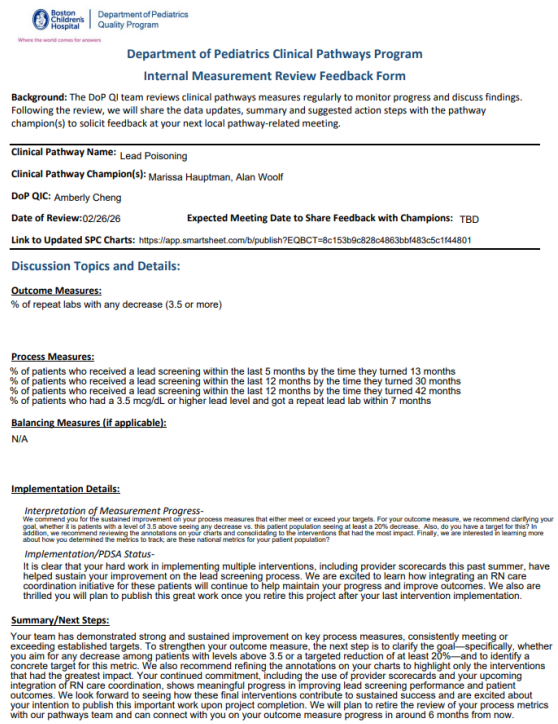
Embedded measurement strategy

- Pathway metrics are added to the DoP internal review schedule once development begins

Internal Measurement Review Feedback Form

DoP Review Schedule

Monthly	Every 3 Months	Every 6 Months
1. Pathway in development or launched <6 months 2. Measures in development	1. Pathway launched >6 months ago 2. Measures in development 3. Related active improvement	1. Pathway launched >6 months ago 2. Measures established 3. Related active improvement



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Internal Measurement Review Feedback Form

Background: The DoP QI team reviews clinical pathways measures regularly to monitor progress and discuss findings. Following the review, we will share the data updates, summary and suggested action steps with the pathway champion(s) to solicit feedback at your next local pathway-related meeting.

Clinical Pathway Name: Lead Poisoning

Clinical Pathway Champion(s): Marissa Hauptman, Alan Woolf

DoP QIC: Amberly Cheng

Date of Review: 02/26/26 **Expected Meeting Date to Share Feedback with Champions:** TBD

Link to Updated SPC Charts: https://app.smartsheet.com/b/publish?EQBCT=8c153b9c828c4863bbf483c5c1f44801

Discussion Topics and Details:

Outcome Measures:
% of repeat labs with any decrease (3.5 or more)

Process Measures:
% of patients who received a lead screening within the last 5 months by the time they turned 13 months
% of patients who received a lead screening within the last 12 months by the time they turned 30 months
% of patients who received a lead screening within the last 12 months by the time they turned 42 months
% of patients who had a 3.5 mcg/dL or higher lead level and got a repeat lead lab within 7 months

Balancing Measures (if applicable):
N/A

Implementation Details:

Interpretation of Measurement Progress-
We commend you for the sustained improvement on your process measures that either meet or exceed your targets. For your outcome measure, we recommend clarifying your goal, whether it is patients with a level of 3.5 above seeing any decrease vs. this patient population seeing at least a 20% decrease. Also, do you have a target for this? In addition, we recommend reviewing the annotations on your charts and consolidating to the interventions that had the most impact. Finally, we are interested in learning more about how you determined the metrics to track; are these national metrics for your patient population?

Implementation/PDSA Status-
It is clear that your hard work in implementing multiple interventions, including provider scorecards this past summer, have helped sustain your improvement on the lead screening process. We are excited to learn how integrating an RN care coordination initiative for these patients will continue to help maintain your progress and improve outcomes. We also are thrilled you will plan to publish this great work once you retire this project after your last intervention implementation.

Summary/Next Steps:
Your team has demonstrated strong and sustained improvement on key process measures, consistently meeting or exceeding established targets. To strengthen your outcome measure, the next step is to clarify the goal—specifically, whether you aim for any decrease among patients with levels above 3.5 or a targeted reduction of at least 20%—and to identify a concrete target for this metric. We also recommend refining the annotations on your charts to highlight only the interventions that had the greatest impact. Your continued commitment, including the use of provider scorecards and your upcoming integration of RN care coordination, shows meaningful progress in improving lead screening performance and patient outcomes. We look forward to seeing how these final interventions contribute to sustained success and are excited about your intention to publish this important work upon project completion. We will plan to retire the review of your process metrics with our pathways team and can connect with you on your outcome measure progress in around 6 months from now.

Once the pathway is embedded into practice, we recommend retiring measurement.

Safety & Quality Dashboard (SQuID)

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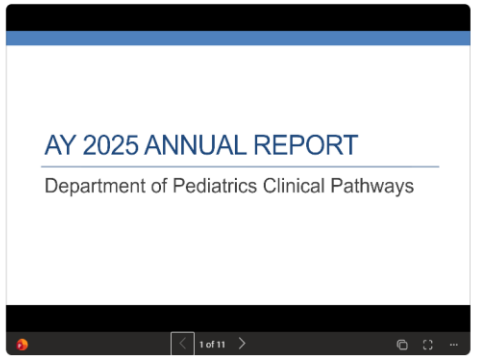
DEPARTMENT OF PEDIATRICS SAFETY & QUALITY PROGRAM CLINICAL PATHWAYS OVERVIEW

Click here to access the BCH Clinical Pathways Library

Return to DoP Safety & Quality Program Overview Page

Annual Report AY25



Clinical Pathway Related Improvement Projects

Developmental Medicine
- Improving outcomes for patients with a diagnosis of ADHD

Gastroenterology, Hepatology & Nutrition
- Improving care of patients with Acute Severe Ulcerative Colitis

General Pediatrics Ambulatory
- Depression Screening Clinical Pathway

Genetics & Genomics
- Improving Care for Patients with Hyperammonemia

Hematology/Oncology
- Decreasing Antibiotic Duration for Hospitalized Patients with Fever & Neutropenia

Hospital Medicine
- Implementing enteral hydration and nutrition via NGT in children hospitalized with bronchiolitis

Infectious Diseases
- Improving diagnostic stewardship for Clostridiodes difficile testing

Development and Implementation Resources

- Author Checklist
- Implementation Process Map
- Measurement Phases
- Sample Timeline for Developing a Pathway

Measurement

Dashboard*

*Click here to access DoP QI measurement phase definitions

Department/ Division	Associated Clinical Pathw	Measure	Phase	Basel	FY23 Q1	FY23 Q2	FY23 Q3	FY23 Q
Infectious Diseases	Clostridioides difficile Infection Diagnosis and Management	Percentage of of C. difficile tests sent on patients who are receiving laxatives	Active	17%	11%	15%	13%	15%
PHM & iCC IP	Aspiration Pneumonia	Percent of patients with aspiration pneumonia on PHM or CCS with appropriate antibiotic usage within 24 hours of admission	In development	N/A	New Initiative	New Initiative	In Development	In Develop
PHM & iCC IP	Aspiration Pneumonia	Percent of patients with aspiration pneumonia on PHM or CCS with Powerplan used	In development	N/A	New Initiative	New Initiative	In Development	In Develop
PHM & iCC IP	Bronchiolitis, Inpatient	Bronchiolitis Patients Transferred to ICU →	Active	-	Chart Review	N/A	N/A	N/A
PHM & iCC IP	Bronchiolitis, Inpatient	Eligible Patients with NGT Placed for Feeding/Hydration ↑	Active	-	2.5	N/A	N/A	N/A
PHM & iCC IP	Orbital Cellulitis Management	Length of stay in days for patients with orbital cellulitis (lower is better)	On hold	3.44	N/A	N/A	N/A	N/A
PHM & iCC IP	Orbital Cellulitis Management	Percent of patients with orbital cellulitis on vancomycin (lower is better)	On hold	71%	N/A	N/A	N/A	N/A
PHM & iCC IP	Psychosis, New Onset	Percent of patients with new onset psychosis with a neurology consult (higher is better)	In development	71%	See Comments	In Development	In Development	In Develop
PHM & iCC IP	Psychosis, New Onset	Percent of patients with new onset psychosis with appropriate pathway use (higher is better)	In development	21%	See Comments	In Development	In Development	In Develop
PHM & iCC IP	Psychosis, New Onset	Percent of patients with new onset psychosis with initial screening labs complete (higher is better)	In development	25%	See Comments	In Development	In Development	In Develop

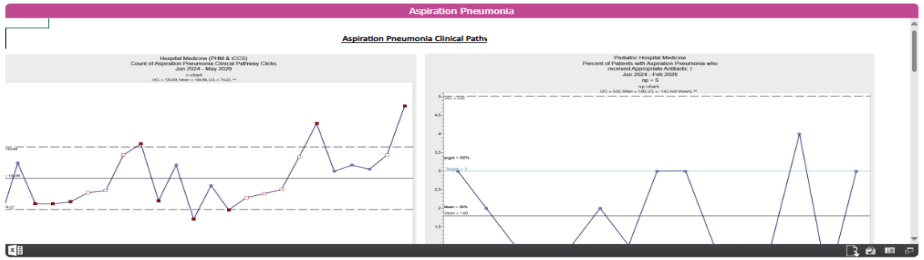
Dashboard | Clinical Pathways Dashboard | Addiction Medicine | Primary Care | Adolescent Medicine | Dev Med | Endocrine | GI | Ge

Internal Measurement Reviews

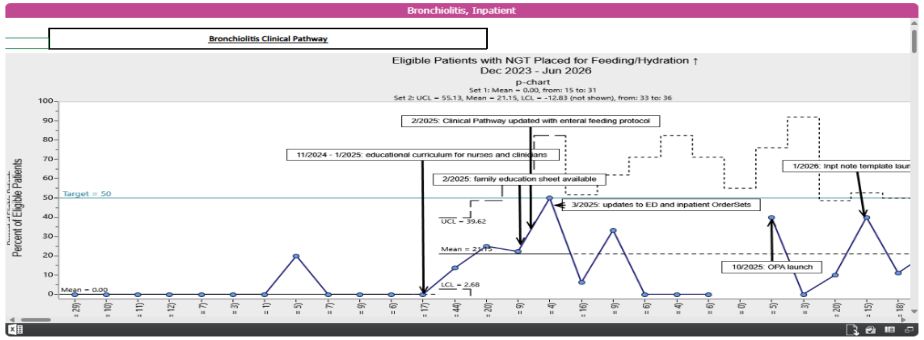
- Aspiration Pneumonia 5/5/25
- Bronchiolitis, Inpatient 5/5/25
- Kawasaki Disease (KD) Management, Inpatient 5/5/25
- Bronchiolitis, Inpatient 9/17/25
- Fever, Stem Cell Transplant 9/17/25
- Ulcerative Colitis, Severe Acute 10/30/25
- Lead Poisoning 2/26/26
- Aspiration Pneumonia 2/26/26
- Bronchiolitis, Inpatient 3/30/26
- Fever, Stem Cell Transplant 3/30/26

Data Analysis

Aspiration Pneumonia



Bronchiolitis, Inpatient



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04

Implementation Infrastructure

Implementation Strategies*

04

Implementation infrastructure

Awareness

- Nursing Policy Pearls / Prescriber distribution lists
- Clinic posters
- Situation Background Assessment Recommendation Report (SBAR)
- Cornerstone Modules / Q-stream Surveys
- Sharing Baseline Data

Agreement

- Faculty and Staff Provider Meetings
- Committee Meetings
- Senior Clinical Leader Approval
- Practice Quality and Outcomes Committee

Adoption

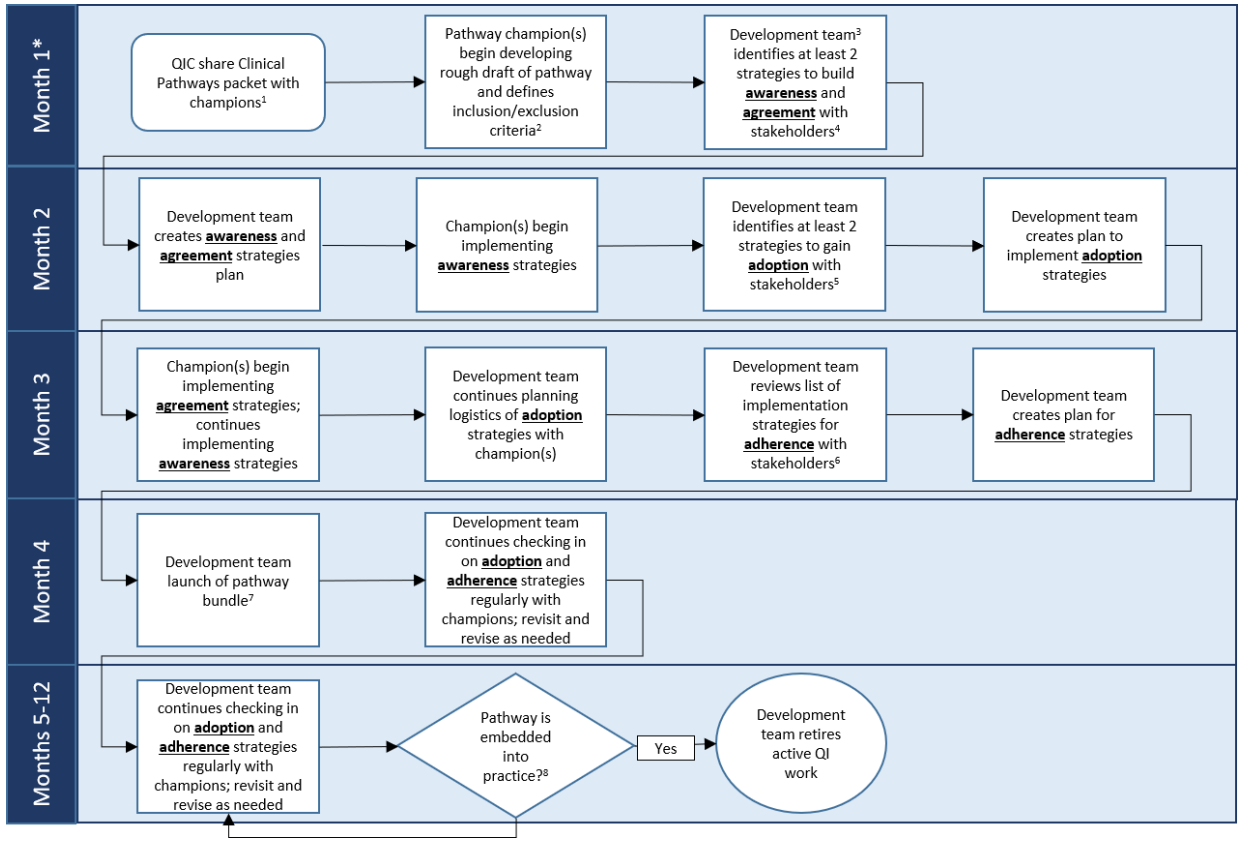
- Patient Education Handouts
- EMR Ordersets / Panels
- Decision support / pop-up alerts
- EMR Autotext (dot-phrases) and SmartForms/SmartText with SmartElements to facilitate documentation and data entry

Adherence

- Aggregated data / monitoring outcomes over time
- Individualized feedback of data
- Pathway Utilization Dashboard
- Biannual Review / Pathway Maintenance

*Reference: BCH PPSQ Clinical Pathway Lifecycle

Implementation Process



* Prior to start of process, plan at least 4 meetings (1 per month)

Implementation Outcomes

04

Implementation infrastructure

Outcome	Intervention
Acceptability	Stakeholder engagement, pathway review
Adoption	Provider uptake, Epic ordersets
Appropriateness	Evidence review, champion development
Feasibility	Workflow design, interdisciplinary review
Fidelity	Adherence monitoring, dashboards
Penetration	Pathway utilization – click rates, orderset use
Sustainability	Biannual review, maintenance, retirement

05

Lifecycle Management & Sustainability

Pathway Content Updates

05

Lifecycle management & sustainability

Publishing Work

05

Lifecycle management & sustainability

› Pediatrics. 2026 Jan 7:e2025071049. doi: 10.1542/peds.2025-071049. Online ahead of print.

Improving Pediatric Concussion Management in the Primary Care Setting

Corinna J Rea [1 2], Rachel Sklar [1], Eli Sprecher [1 2], Grace Chi [1 2], Alison C Shea [1], Michael A Beasley [2 3 4], Karameh Kuemmerle [2 5], Maria Pearl [1 2], Michaela E Nolan [6], Rebecca Hirsch [1 7], Barbara Hernandez [1], Anthony Dekermanji [1], Shannon Regan [1], Alexandra Epee-Bounya [1 2], Amy Starmer [1 2 8]

Affiliations + expand

PMID: 41494633 DOI: 10.1542/peds.2025-071049

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February 2022

QUALITY REPORTS | JANUARY 20 2022

Safely Reducing Hospitalizations for Anaphylaxis in Children Through an Evidence-Based Guideline

Lukas K. Gaffney, MD, MPH; John Porter, MBA; Megan Gerling, MPH; Lynda C. Schneider, MD; Anne M. Stack, MD; Dhara Shah, PharmD, BCPS; Kenneth A. Michelson, MD, MPH

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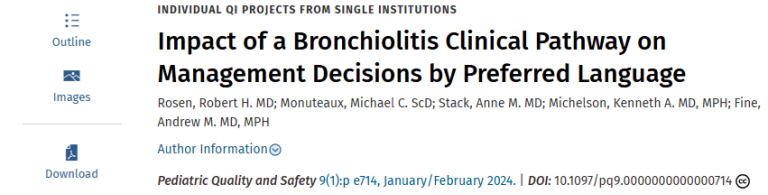
ORIGINAL ARTICLES

A Quality Improvement Initiative to Reduce Abdominal X-ray use in Pediatric Patients Presenting with Constipation

Maireade E. McSweeney, MD, MPH[1], Jenny Chan Yuen, MSPH[2], Patricia Meleedy-Rey, MPH, MBA[3], Katherine Day, MPA[4], and Samuel Nurko, MD, MPH[1]



Outline

Images

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INDIVIDUAL QI PROJECTS FROM SINGLE INSTITUTIONS

Impact of a Bronchiolitis Clinical Pathway on Management Decisions by Preferred Language

Rosen, Robert H. MD; Monuteaux, Michael C. ScD; Stack, Anne M. MD; Michelson, Kenneth A. MD, MPH; Fine, Andrew M. MD, MPH

Author Information

Pediatric Quality and Safety 9(1):p e714, January/February 2024. | DOI: 10.1097/pq9.0000000000000714

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Volume 151, Issue 1
January 2023

QUALITY REPORTS | DECEMBER 29 2022

Quality Improvement Initiative to Improve Timing of Enteral Feeds in Pediatric Acute Pancreatitis FREE

Kate Templeton, MD; Jenny Chan Yuen, MSPH; Caitlin Lenz, CPHQ; Alison R. Mann, BA; Haley S. Friedler, MPH; Ramy Yim, MBA; Maria Alfieri, MPH; Amy J. Starmer, MD, MPH; Amit S. Grover, MB BCh, BAO

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Pediatrics (2023) 151 (1): e2022056700.

The Journal of Rheumatology

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Research Article | Pediatric Rheumatology

An Evidence-Based Guideline Improves Outcomes for Patients With Hemophagocytic Lymphohistiocytosis and Macrophage Activation Syndrome

Maria L. Taylor, Kacie J. Hoyt, Joseph Han, Leslie Benson, Siobhan Case, Mia T. Chandler, Margaret H. Chang, Craig Platt, Ezra M. Cohen, Megan Day-Lewis, Fatma Dedeoglu, Mark Gorman, Jonathan S. Hausmann, Erin Janssen, Pui Y. Lee, Jeffrey Lo, Gregory P. Priebe, Mindy S. Lo, Esra Meidan, Peter A. Nigrovic, Jordan E. Roberts, Mary Beth F. Son, Robert P. Sundel, Maria Alfieri, Jenny Chan Yeun, Damilola M. Shobiye, Barbara Degar, Joyce C. Chang, Olha Halyabar, Melissa M. Hazen and Lauren A. Henderson

The Journal of Rheumatology September 2022, 49 (9) 1042-1051; DOI: https://doi.org/10.3899/jrheum.211219

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Volume 145, Issue 2
February 2020

QUALITY REPORTS | FEBRUARY 01 2020

A Quality Improvement Initiative to Reduce Gastrostomy Tube Placement in Aspirating Patients

Maireade E. McSweeney, MD, MPH; Patricia Meleedy-Rey, MPH, MBA; Jessica Kerr, MPH; Jenny Chan Yuen, MSPH; Gregory Fournier, MPH; Kerri Norris, BS; Kara Larson, MS, CCC-SLP; Rachel Rosen, MD, MPH

Address correspondence to Maireade E. McSweeney, MD, MPH, Aerodigestive Center, Division of Gastroenterology, Hepatology and Nutrition, Boston Children's Hospital, 300 Longwood Ave, Boston, MA 02115. E-mail: maireade.mcsweeney@childrens.harvard.edu

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QUESTIONS/DISCUSSION