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Supporting Evidenced Based Practices

Pathway to Academic Success

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Objectives

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- Understand value of pursuing scholarly clinical pathway work
- Discuss types of scholarly achievement
- Learn steps and resources for scholarly success
- Review examples of clinical pathway related publications

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Why?

- Academic promotion
- Personal professional growth
- Publication = carrot for buy in from pathway developers
- MOC part 4 credit/CME part 2 (for work leading to publication)
- Garners institutional support for pathway program
- Networking opportunities

Types of Scholarly Achievement

- Local Forums
  - Grand Rounds
  - Resident/med school talks
  - Quality/Safety conference
- Regional Forums
  - Eastern Society for Pediatric Research (ESPR)
  - State hospital associations
  - Statewide medical forums
- National Conferences (talks, workshops, posters)
  - Specialty specific: NCE, PAS, PHM, ACEP
  - Quality/Safety specific: IHI, CHA
- Publications
  - Journal articles
  - Book chapters
  - National policies/guidelines

Other Types of Scholarship- Innovation

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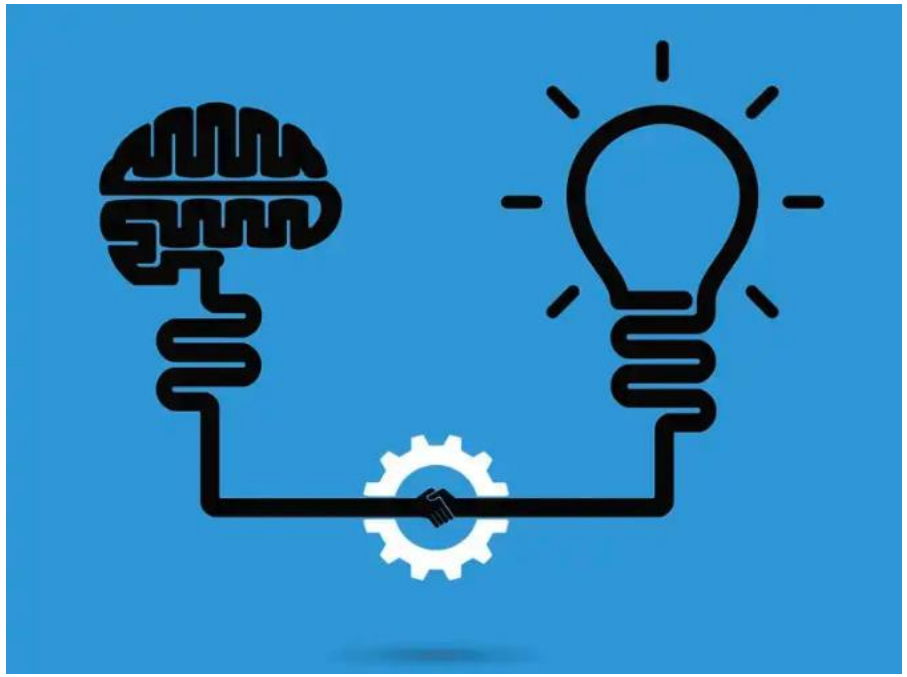
- Technology
  - Use of AI
  - Decision support
- Medical Education
  - Resident education
- Clinical Pathway program innovation
  - Program redesign
- Patient Engagement



Steps for QI Pathway Scholarly Success

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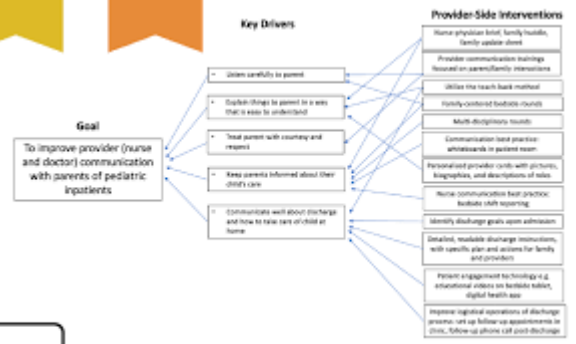
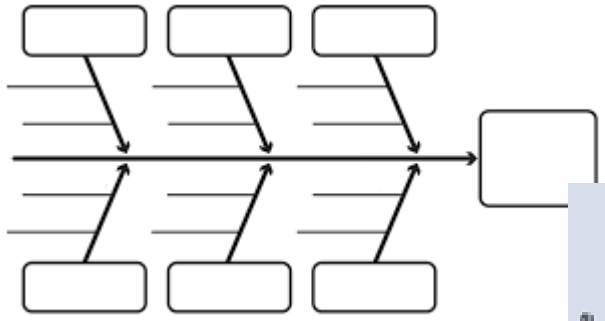
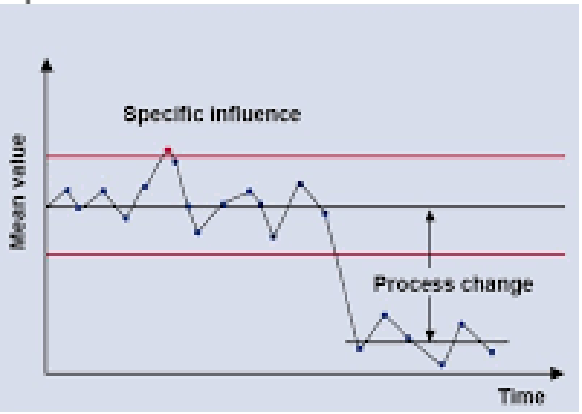
1. Determine type of scholarly work
2. Look at examples of similar work from desired journal
3. Literature search
   - Can begin to outline an introduction
4. Gather baseline data and establish a goal (SMART Aim)
5. Project planning
   - Pathway implementation, etc.
   - Use notable QI tools (e.g. KDD, Failure Modes & Effects Analysis (FMEA), Fishbone)
6. Keep list of dates of EVERY intervention
   - "Hindsight is 20/20"
7. Present data in run, control, or interrupted series charts
8. Obtain financial data if possible







Writing Tips:

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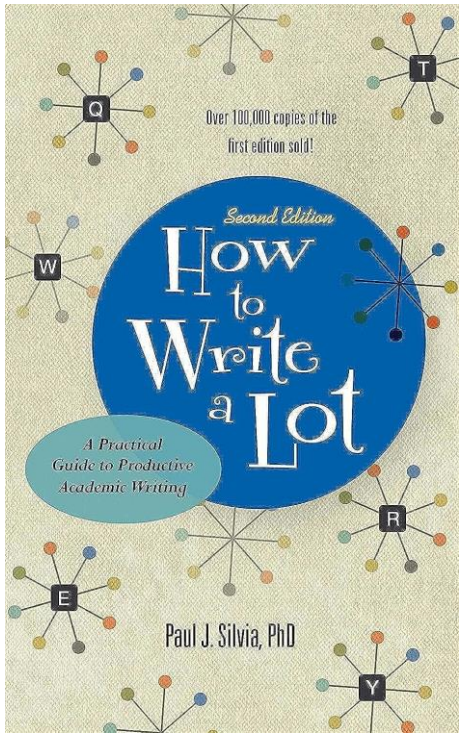
- Schedule time to write
  - Block off calendar for at least 2 hours if possible
- Turn off distractions (email, notifications)
- Create outline
  - Refer to SQUIRE Guidelines (if QI)
- Gather references
  - Medical librarian
  - Apps to keep track of references (Zotero, Research Rabbit, Mendeley, Endnote, etc)
- If used statistician, ask for them to write that piece of the methods section
- Consider sharing the writing with your team and even learners
- SET DEADLINES and use your research partners to hold you accountable
- Read *How to Write a Lot: A Practical Guide to Productive Academic Writing*



Resources

- SQUIRE guidelines
- Look to journals for examples (e.g. QI reports in Pediatrics)
- Hybrid and In-person courses
  - Institute for Healthcare Improvement (IHI) Open School
  - Quality and Safety Improvement Scholars Program (QSIS) – APA program
  - Cincinnati Children's Intermediate Improvement Science Series and Advanced Improvement Methods
  - Intermountain Health Advanced Training in Clinical Quality Improvement
- If you are at an academic institution, lean on other academic departments
- Institutional statistician
- Workshops or special programming at national academic conferences (PHM, NCE, PAS)

How do you decide which journal?

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- High impact?
- How do you reach the most relevant audience?

- Journals known to publish QI:
  - Pediatrics
  - Journal of Hospital Medicine
  - Hospital Pediatrics
  - Pediatric Quality and Safety
  - BMJ Quality and Safety
  - Pediatric Emergency Care
  - Joint Commission Journal of Quality and Patient Safety
  - Journal of Pediatric Surgery

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Publication Examples

Reducing Invasive Care for Low-risk Febrile Infants Through Implementation of a Clinical Pathway

Kathryn E. Kasmire, MD, MS,[a,b,c] Eric C. Hoppa, MD,[a,d] Pooja P. Patel, BS,[b] Kelsey N. Boch, MD,[b] Tina Sacco, RN, BS, CPHQ,[a] Ilana Y. Waynik, MD[a,d]

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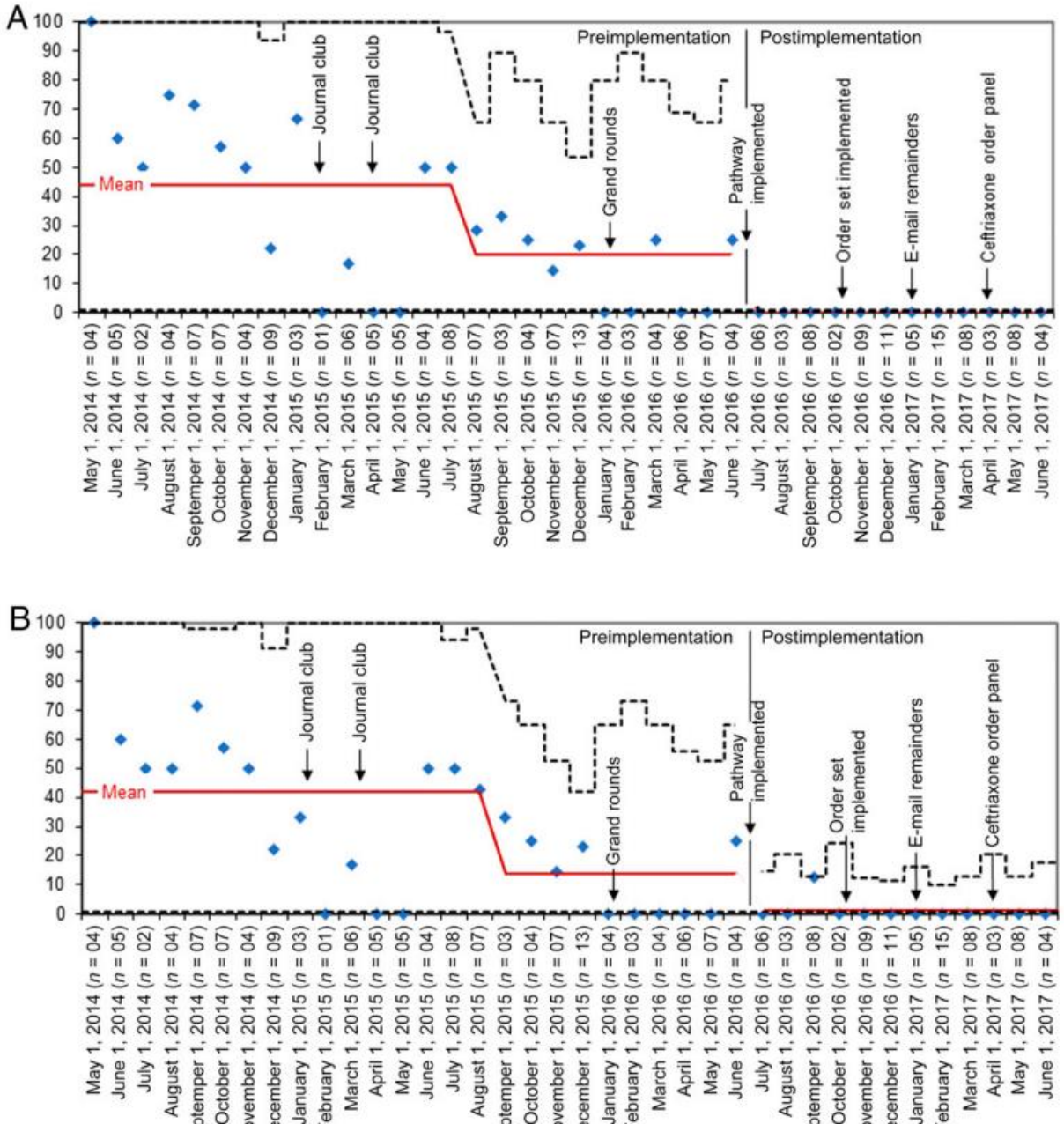
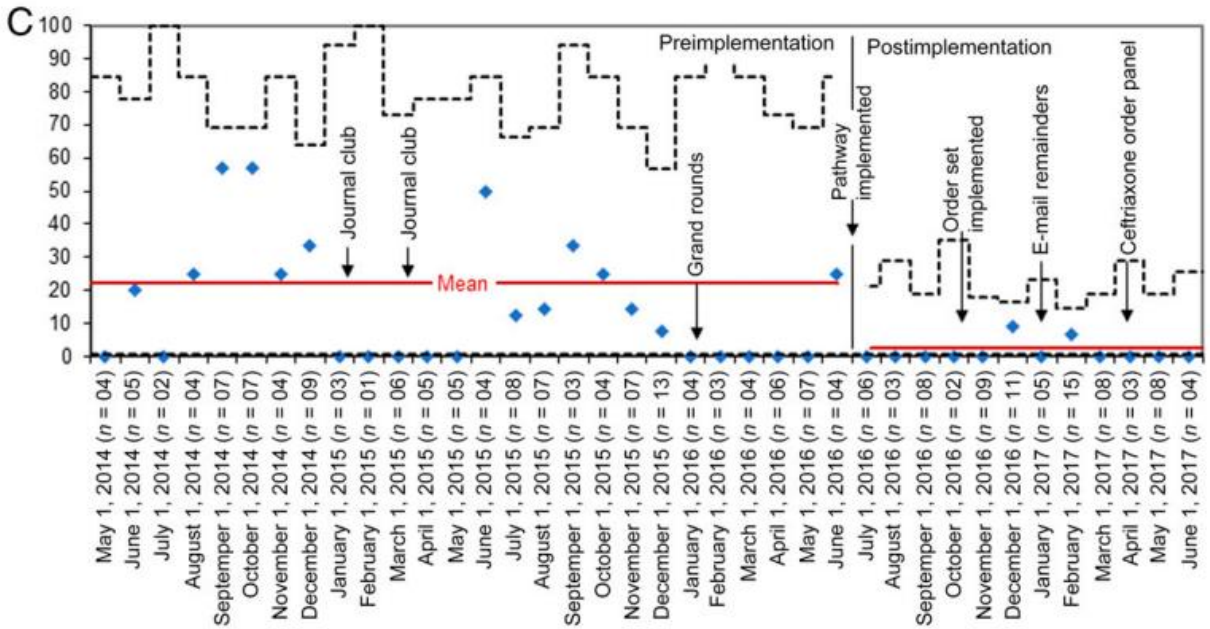
- ~ 500,000 ED visits annually for children ≤ 60 days of age with fever
- Rate of serious bacterial infection (SBI) is higher than in the general population
- Great variability in care provided to patients in this age group nationally, and likewise at our institution
- Past management of febrile infants ages 29-60 days guided by 3 common algorithms: Philadelphia, Rochester, and Boston Criteria
- More evidence now exists which supports the following changes in management:
  - Use of clinical pathways for workup and treatment of these infants
  - Decrease in rate of lumbar punctures (LPs) performed on well appearing infants
  - Shorter length of stay and earlier discontinuation of antibiotics if hospitalized

Kasmire KE, Hoppa EC, Patel PP, Boch KN, Sacco T, Waynik IY. Reducing Invasive Care for Low-risk Febrile Infants Through Implementation of a Clinical Pathway. Pediatrics. 2019 Mar;143(3):e20181610. doi: 10.1542/peds.2018-1610. Epub 2019 Feb 6. PMID: 30728272.





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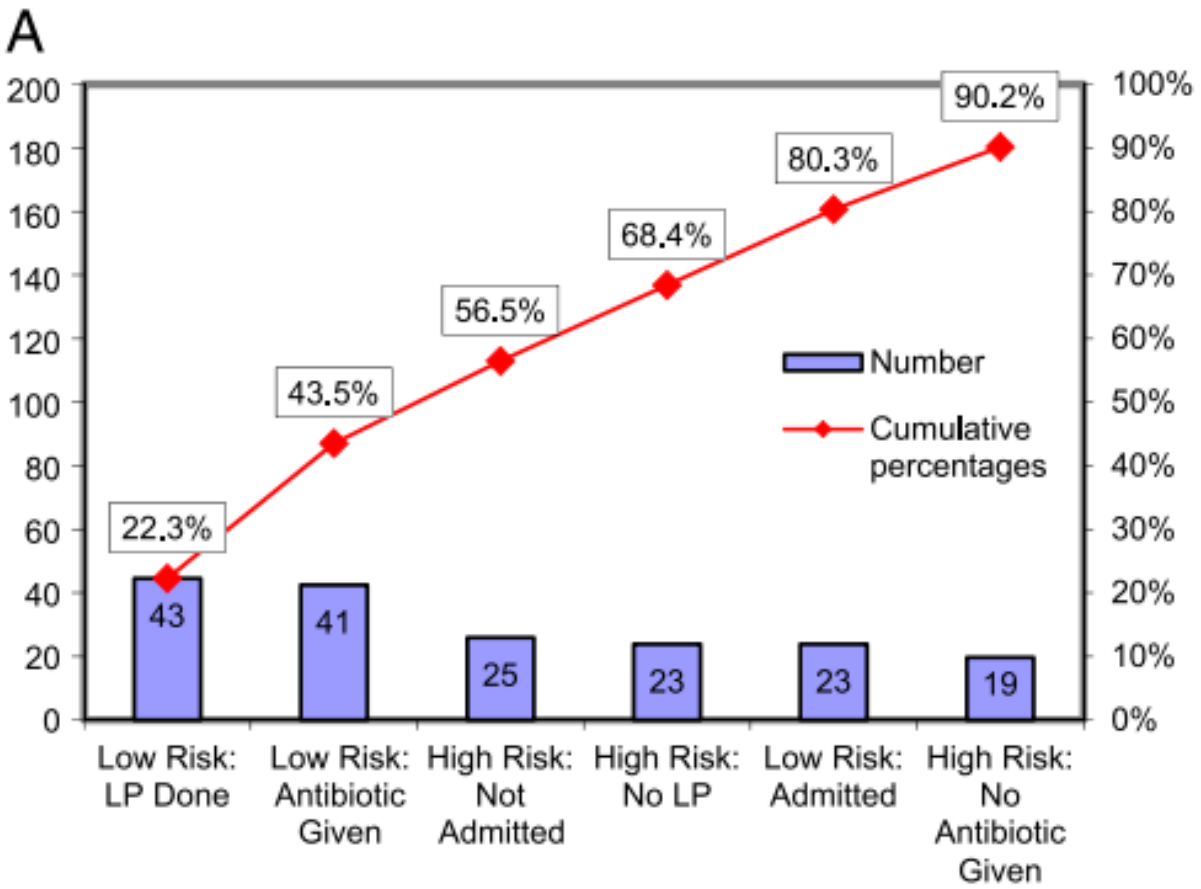
A. Percentage of low-risk infants who underwent LP
B. Percentage of low-risk infants who received an antibiotic
C. Percentage of infants who were admitted to the hospital.


A
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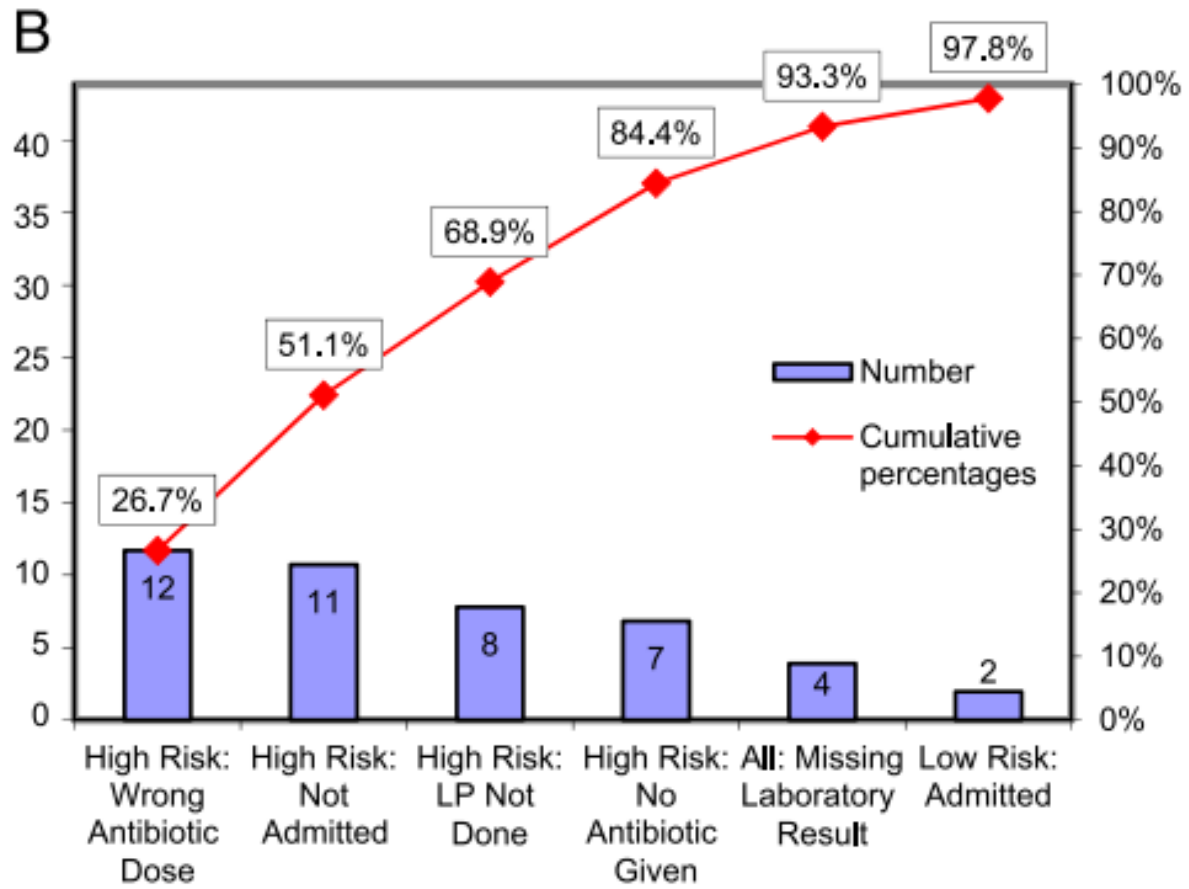
22.3%
43.5%
56.5%
68.4%
80.3%
90.2%
43
41
25
23
23
19
Number
Cumulative percentages
Low Risk: LP Done
Low Risk: Antibiotic Given
High Risk: Not Admitted
High Risk: No LP
Low Risk: Admitted
High Risk: No Antibiotic Given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0%
26.7%
51.1%
68.9%
84.4%
93.3%
97.8%
12
11
8
7
4
2
Number
Cumulative percentages
High Risk: Wrong Antibiotic Dose
High Risk: Not Admitted
High Risk: LP Not Done
High Risk: No Antibiotic Given
All: Missing Laboratory Result
Low Risk: Admitted

Utilizing a critical airway response team expedites esophageal button battery removal

Kylie Brandt [a], Katerina Dukleska [a, b, *], Morgan McKeown [a], John Brancato [c], Victoria Grossi [d], Scott Schoem [e], Tina Sacco [a], Jennifer D'Amato [a], Michael D. Bourque [a], Brendan T. Campbell [a, b]

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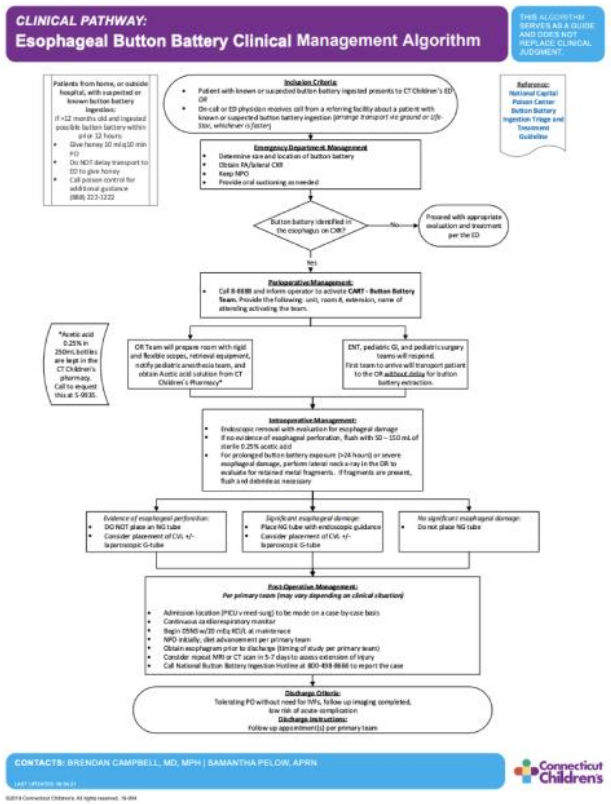
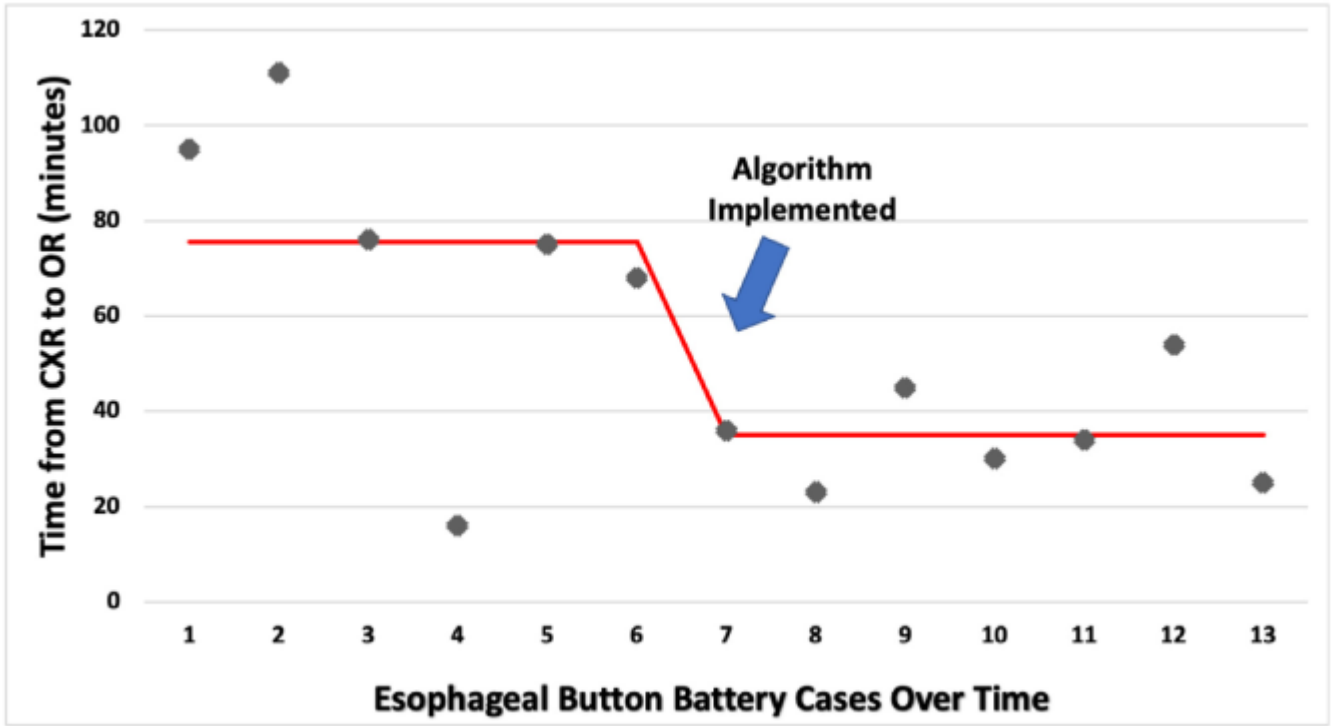


Fig. 1. Clinical management algorithm for CART activation for patients with EBBI.

button batteries to other emergency response processes that are already in place for trauma team activation, code blue, ECMO, and other time sensitive emergencies for which hospitals already have emergency processes in place. Future directions for this work include both assessing patient clinical outcomes, developing a more detailed understanding of patient-specific risk factors, and using a public health approach to lower the incidence of button battery ingestion by children.



Brandt K, Dukleska K, McKeown M, Brancato J, Grossi V, Schoem S, Sacco T, D'Amato J, Bourque MD, Campbell BT. Utilizing a critical airway response team expedites esophageal button battery removal. J Pediatr Surg. 2023 May;58(5):810-813. doi: 10.1016/j.jpedsurg.2023.01.037. Epub 2023 Jan 19. PMID: 36805142.

Qualitative Study to Understand Pediatric Hospitalists and Emergency Medicine Physicians' Perspectives of Clinical Pathways

Kimberly O'Hara, MD; Melisa Tanverdi, MD*; Jennifer Reich, PhD†; D. David Scudamore, MD*; Amy Tyler, MD, MSCS*; Leigh Anne Bakel, MD, MSc**

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- 15 Pediatric Hospital Medicine and 15 Pediatric Emergency Medicine physicians

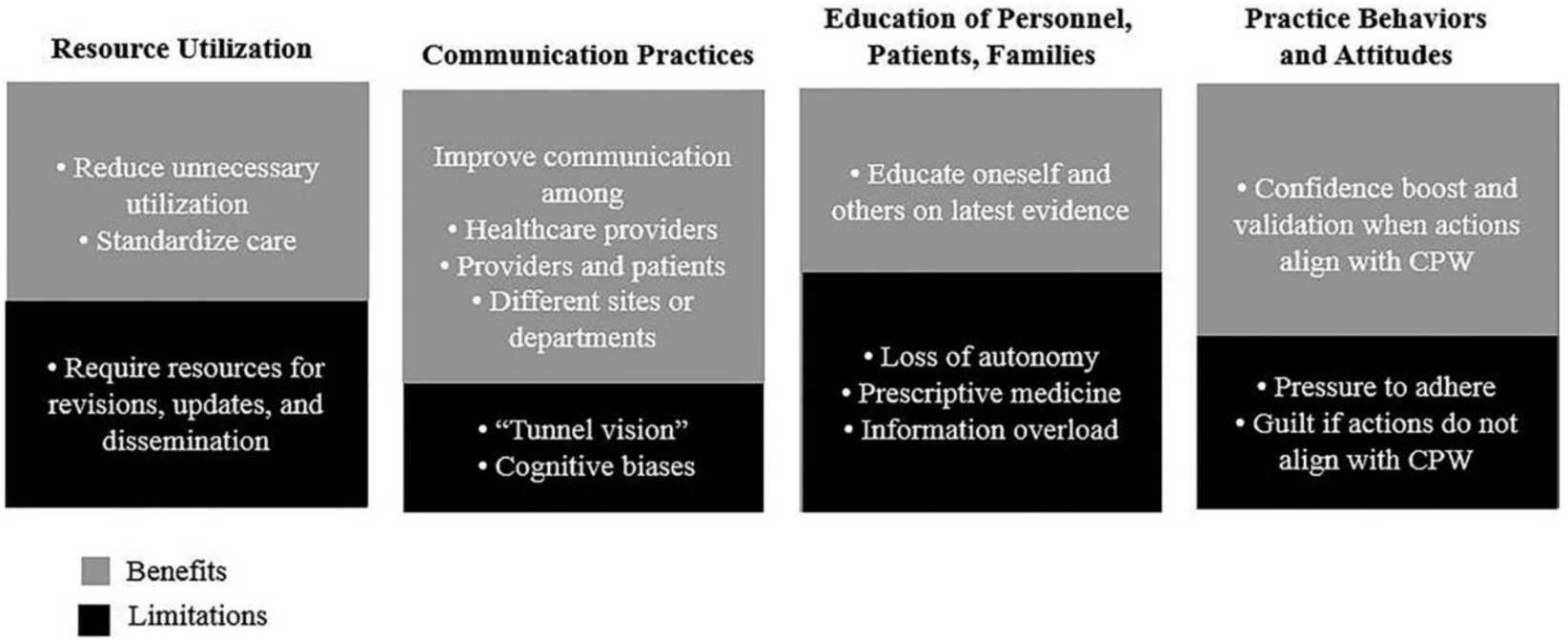

Fig. 1. Conceptual model of the benefits and limitations of Clinical Pathways that emerged from interviews with physicians.

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Table 1. Additional Illustrative Quotes from Physicians Regarding Clinical Pathway Benefits

Theme	Illustrative Quote
Resource utilization	"[CPW] help to minimize unnecessary things like testing or treatment."
Communication practices	"Iwould say the times that I most frequently refer to [CPW] will be when discussing a particular patient's case with the family, maybe the nursing staff who are present as well. I can refer or let them know that there are these nationally published guidelines that suggest doing blank, blank, blank, or actually discouraging doing something, and putting it in the context of a national publication. I think it can help sell those recommendations that we are making to family members and maybe other health care providers."
Education of personnel, patients, and families	"I think good advantages are [CPW] prevent a provider who is looking for some guidance, prevent them from having to go chasing down literature in the middle of a shift…"
Practice behaviors and attitudes	"It's a good back up if you're saying, 'I don't want to do this because it's not evidence based.' The [pathways] have become more supportive of that way of thinking."

Table 2. Additional Illustrative Quotes from Physicians Regarding Clinical Pathway Limitations

Theme	Illustrative Quote
Resource utilization	"You wonder about the resources needed to keep [CPW] updated as new data comes out."
Communication practices	"[CPW] might lead someone to tunnel vision when the diagnosis isn't clear… If it's not clear, [pathways could] lead you to tunnel vision and not consider other differentials…"
Education of personnel, patients, and families	"I think there is a risk of becoming too dependent on clinical pathways in that people stop thinking for themselves independently."
	"It feels like big brother sometimes, to have a computer telling you what to do."
	"When I came, there weren't that many [pathways] so everyone knew there was a [pathway] for pneumonia and musculoskeletal infection, and people looked for those. But now, there's a new [pathway] all the time, and I honestly have to look and see, 'Do we have it, acute scrotum [CPW]?' I can't remember..."
Practice behaviors and attitudes	"I think [CPW] make people almost scared to use their clinical judgment."

The Joint Commission Journal on Quality and Patient Safety 2023; 49:547–556

Clinical Pathway Adherence and Missed Diagnostic Opportunities Among Children with Musculoskeletal Infections

Joseph A. Grubenhoff, MD, MSCS; Leigh Anne Bakel, MD*; Fidelity Dominguez, RN; Jan Leonard, MSPH; Kaitlin Widmer, MD; Julia S. Sanders, MD; Sandra P. Spencer, MD; Jill M. Stein, MD; Justin B. Searns, MD*

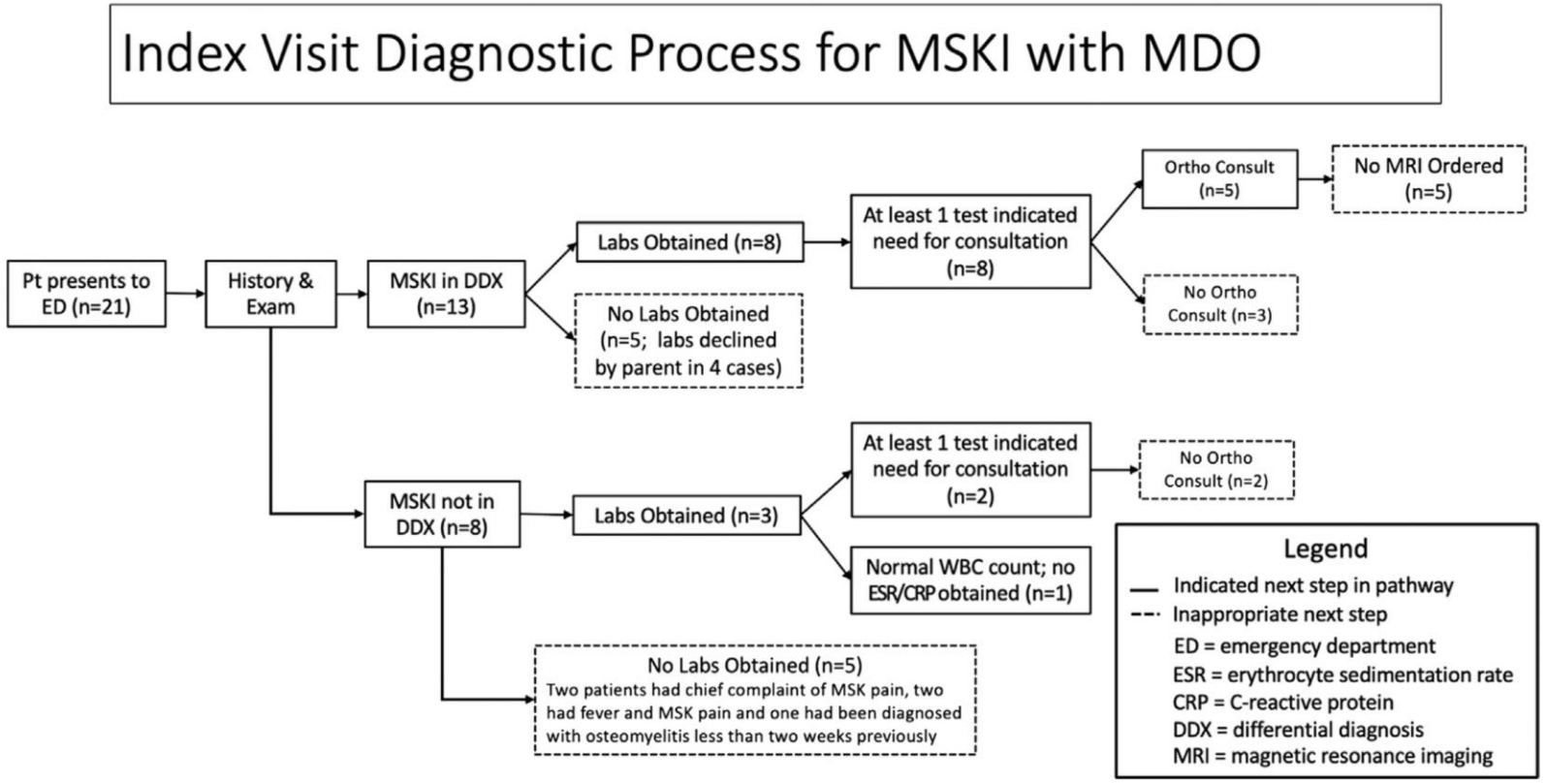

Figure 2: This flow diagram shows the index visit diagnostic process for musculoskeletal infection (MSKI) with missed diagnostic opportunity (MDO); WBC, white blood cell.

Studies of Pathway Program Impact

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Standardized Clinical Pathways for Hospitalized Children and Outcomes

K. Casey Lion, MD, MPH,[a,b] Davene R. Wright, PhD,[a,b] Suzanne Spencer, MBA, MHA,[c] Chuan Zhou, PhD,[a,b] Mark Del Beccaro, MD,[a,d] Rita Mangione-Smith, MD, MPH[a,b]

WHAT'S KNOWN ON THIS SUBJECT: Standardized clinical pathways have been shown to improve some aspects of care delivery for particular conditions. It is unknown whether standardized pathway use across multiple conditions can improve the value of care provided.

WHAT THIS STUDY ADDS: Implementation of 15 standardized pathways across multiple general pediatric conditions was associated with increased value of care, through decreased length of stay and a halt in rising costs without negatively affecting patient physical functioning improvement or readmissions.

Pediatrics. 2016;137(4):e20151202

National Survey of Pathway Programs

- 2021 survey of Pediatric Research in the Inpatient Setting (PRIS) hospitals
- 73% response rate
  - Greater than half of respondents confirmed existence of a clinical pathway program
  - Freestanding, academic teaching hospitals accounted for the most responses
  - Nearly half of surveyed programs were unfunded
  - Many are unable to measure their pathway outcomes or demonstrate improvement in care
  - Survey respondents were enthusiastic about participating in a national collaborative on pediatric clinical pathways

Clinical Pathways Programs in Children's Hospitals

Leigh Anne Bakel, MD, MSc,[a,b] Ilana Y. Waynik, MD,[c] Amy J. Starmer, MD, MPH,[d] Adam K. Berkwitt, MD,[e] Sonja I. Ziniel, PhD, MA[a]

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BACKGROUND AND OBJECTIVE: Clinical pathways translate best evidence into the local context of a care setting through structured, multidisciplinary care plans. Little is known about clinical pathway programs in pediatric settings. The purpose of this study was to determine the prevalence of clinical pathway programs and describe similarities and differences.

METHODS: We performed a cross-sectional web survey to assess the existence of a clinical pathway program, number, type, and creation or revision of clinical pathways, and its characteristics in the 111 hospitals of the Pediatric Research in Inpatient Settings network.

RESULTS: Eighty-one hospitals responded to the survey (73% response rate). Most hospitals had a clinical pathway program (63%, $n = 50$ of 80) that was hospital-wide (70%, $n = 35$ of 50). Freestanding children's (48%, $n = 39$ of 81), academic (60%, $n = 43$ of 72), teaching hospitals (96%, $n = 78$ of 81) made up the largest proportion of survey respondents. There was no funding for nearly half of the programs ($n = 21$ of 46, 46%). Over a quarter of survey respondents reported no data collected to assess pathway utilization and/or care outcomes ($n = 19$ of 71, 27%).

CONCLUSIONS: Greater than half of respondents confirmed existence of a program. Freestanding, academic teaching hospitals accounted for the most responses. However, nearly half of surveyed programs were unfunded, and many are unable to measure their pathway outcomes or demonstrate improvement in care. Survey respondents were enthusiastic about participating in a national collaborative on pediatric clinical pathways.

Idea Sharing and Questions

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Clinical Pathway Publications

- Bakel LA, Richardson T, De Souza HG, Kaiser SV, Mahant S, Treasure JD, Waynik IY, Winer JC, Bajaj L. Hospital's observed specific standard practice: A novel measure of variation in care for common inpatient pediatric conditions. J Hosp Med. 2022 Jun;17(6):417-426. doi: 10.1002/jhm.12811. Epub 2022 Mar 27. PMID: 35535935.
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Clinical Pathway Publications

- Kasmire KE, Hoppa EC, Patel PP, Boch KN, Sacco T, Waynik IY. Reducing Invasive Care for Low-risk Febrile Infants Through Implementation of a Clinical Pathway. Pediatrics. 2019 Mar;143(3):e20181610. doi: 10.1542/peds.2018-1610. Epub 2019 Feb 6. PMID: 30728272.
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Clinical Pathway Publications

- Romero HM, Ringer C, Leu MG, Beardsley E, Kelly K, Fesinmeyer MD, Haaland WL, Johnson JB, Migita D. Neonatal Jaundice: Improved Quality and Cost Savings After Implementation of a Standard Pathway. Pediatrics. 2018 Mar;141(3):e20161472. doi: 10.1542/peds.2016-1472. Epub 2018 Feb 21. PMID: 29467276.
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Appendix: Research Rabbit and Zotero

PATHWAYS4KIDS

Supporting Evidenced Based Practices

- Zotero Tutorials:
  - https://twitter.com/MushtaqBilalPhD/status/1611821066019827713?s=20

- Integrating Zotero and Research Rabbit:
  - https://twitter.com/MushtaqBilalPhD/status/1620729596231712768?s=20
  - https://twitter.com/MushtaqBilalPhD/status/1621022344109068288?s=20
  - https://twitter.com/MushtaqBilalPhD/status/1622953401280565249?s=20