Pediatric Surgery Quality Collaborative

May 23, 2023
Meeting Agenda

• Welcome- Fisher
• Project Background- Lally
• Methods- Fisher
• Findings- Levene
• Product Review- Fisher
• Next Steps- Levene
• Q&A
Project Background

Kevin Lally, MD, MS, FACS
PSQC Executive Director
Surgeon-in-Chief, Children’s Memorial Hermann Hospital
Houston, TX
PSQC Second Project
The following graph displays the raw rates of negative appendectomy cases against preoperative CTs for acute appendectomy cases within collaborative hospitals.
Measure: Overuse of Imaging for Headache and Seizure, Policy for ALARA Specific to Imaging Children


As a Center of Excellence for the Agency for Healthcare Research and Quality-Center for Medicare & Medicaid Services Pediatric Quality Measures Program (PQMIP), Q-METRIC developed a measure to assess the performance of imaging studies with radiation doses “as low as reasonably achievable” (ALARA) for children under the age of 18 years.

The measure assesses the percentage of facilities with a policy for ALARA dosing of radiation specific to the imaging of children. A higher percentage of facilities with an ALARA policy specific to children indicates better performance, as reflected by use of minimal radiation when imaging.

Measure Importance

- Ionizing radiation is used with greater frequency to diagnose and characterize a variety of diseases.
- However, the technology involves an increased risk for secondary cancer following exposure to radiation.
- Children are particularly vulnerable to ionizing radiation because their developing cellular structures and tissues are significantly more radiosensitive than those of adults. Within this context, it is important to be consistent and judicious with radiation dose and to weigh the benefits of information obtained from imaging in light of the increased risk of latent malignancy.
Radiation Exposure From Pediatric CT Scans and Subsequent Cancer Risk in the Netherlands

Johanna M Meulepas, Cécile M Ronckers, Anne M J B Smets, Rutger A J Nievelstein, Patrycja Gradowska, Choonsik Lee, Andreas Jahnne, Marcel van Straten, Marie-Claire Y de Wit, Bernard Zonnenberg ... Show more

*JNCI: Journal of the National Cancer Institute*, Volume 111, Issue 3, March 2019, Pages 256–263, [https://doi.org/10.1093/jnci/djy104](https://doi.org/10.1093/jnci/djy104)

**Published:** 18 July 2018  **Article history ▼**
Original Investigation

January 20, 2021

Risk of Hematologic Malignant Neoplasms From Abdominopelvic Computed Tomographic Radiation in Patients Who Underwent Appendectomy

Kyung Hee Lee, MD, PhD1,2; Seungjae Lee, MS2; Ji Hoon Park, MD, PhD1,2,3; et al

Author Affiliations

PSQC Overview

Complicated Appendicitis

PSQC Aggregate Post-Op CT Rate (14.11%)

PSQC Aggregate OS/SSI (7.85%)
qualitative research
Methods

Terry Fisher, MPH, PMP
Sr. Program Manager
Pediatric Surgery Quality Collaborative
UT McGovern Medical School
Methods

- 12 hospitals interviewed
  - 12 surgeons
  - 12 Interventional Radiologists
  - 11 SCRs
Interview Guide

- Demographics
- Imaging Practices
- Resources
- Barriers
Approach

- Theoretical Domains Framework-steps*
  - Select target behavior
  - Be specific
  - Select methodology
  - Sampling strategy
  - Develop interview guide
  - Data collection method
  - Data analysis plan

*Khan M. How to use the Theoretical Domains Framework.
Approach

- Practice gems
- Replicable
- Feasible
Methods

Tamar Levene, MD, MS
Pediatric General Surgery
Joe DiMaggio Children’s Hospital
4 key themes impacting CT usage

① Imaging resources
② Protocol implementation and adherence
③ Presence of a champion
④ QI resources and experience
Key Driver Diagram

Aim

Decrease post-op utilization of CT from 14.4% to 5% by December 31, 2015

Primary Drivers

- SSI rate
- Discharge criteria

Secondary Drivers

- Variation in selection/training of antibiotics
- Timing of imaging
- Readmissions
- Fear of missed diagnosis
- Fear of perforating bowel

Change Concepts

- Image no sooner than 7 days post-op (+)
- Standardized discharge guidelines
- Imaging protocol post-op for suspected SSI
- Post-op appendicitis guidelines
- Standardized antibiotic guidelines
- Drain imaging guidelines
Factors supporting CT reduction

Factors driving success

- Sonographers’ skill
- Antibiotic use reduction
- Delay imaging
- Culture of collaboration
- Discharge guidelines

"what we did was change our algorithm really cut our length of stay cut our antibiotic usage..

But what we do is if they’re still running a fever or not doing well, we try to hold off on any imaging til day 6 or 7.

If you ordered a CT, you got a call from the Chief of Radiology asking why

For every single belly, I mean, they practice finding the appendix not even if it’s not a rule out appy

we don’t look for an abscess until day 7, or after"
Barriers to CT reduction

- Financial
- Past circumstances
- Beliefs on efficacy of CT vs US
- IR comfort with US

They will do (drain placement) under CT scan because it bills more it goes higher, which is, which may sound ridiculous, but it’s the truth.

The whole reason why we are going with CT post op is because we’ve been burned

We have brand new CT scanners and the dose of those is dramatically better than what it was 5 to 10 years ago.

there’s a lot of places that fluid collections can hide on Ultrasound and so we usually want sort of a more global assessment, and we tend to like CT
Strengths

• Administration/C Suite Viewpoints
• Radiology Viewpoints
• Surgeon Viewpoints
• SCR Viewpoints
Limitations

- Data is limited in its generalizability as only dedicated children’s hospitals are interviewed.

- Potential for bias as interviewees are aware of the purpose for our interviews.
Terry Fisher, MPH, PMP
Sr. Program Manager
Pediatric Surgery Quality Collaborative
UT McGovern Medical School
Reduction of CT utilization for Post-Op Imaging in Pediatric Complicated Appendicitis

Implementation Guide
Guide Contents

1) Introduction to project
2) How to
3) Aim statement
4) Quality Measures
5) Intervention strategies
6) Appendices
7) Tools
Aim Statement

By December 31, 2025, the aggregate post-op CT utilization rate for patients with complicated appendicitis managed by the Collaborative will be reduced from 14% to 10%.

Balancing Measure

30-day readmissions/revisits for patients with complicated appendicitis will remain at or below 12%.
Quality Measures

- 3 Structural Measures
- 4 Process Measures
- 2 Outcome Measures
- 1 Balancing Measure
Intervention Strategies

- 4 key strategies
  - Image no sooner than post-op day 7
  - Use complicated appendicitis care guideline
  - Use a standardized discharge guideline
  - Drain placement guideline
Next Steps

Tamar Levene, MD, MS
Pediatric General Surgery
Joe DiMaggio Children’s Hospital
Next Steps

- Roster of Peer Coaches
- Tiered structure of support
- Real time data from NSQIP registry from your SCR
Tiered Support - Individual Hospital

Tier 3: One-on-one support

Tier 2: Peer coaches

Tier 1: Implementation Guide
Tiered Support-Entire Collaborative

Session 4: Case Studies
Session 3: MRI
Session 2: Ultrasound
Session 1: Implementation Guide
Questions

Terry Cell: 832-441-6314
Thank you
Resources

- American Pediatric Surgical Association (APSA) Quality and Safety Toolkit.


Resources


