

## Consultation Timing Matters:

# Safely Reducing Utilization of Computed Tomography Imaging for Pediatric Appendicitis via Earlier Surgical Consultation

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### Background

- Appendicitis is the most common pediatric surgical emergency yet there is significant variation in its diagnostic approach
- Computed Tomography (CT) imaging is associated with increased costs and a small increased risk of lifetime malignancy, particularly for children<sup>1</sup>
- Safe reduction of CT imaging is warranted

### Aim

We aimed to reduce CT utilization in the diagnostic evaluation of pediatric appendicitis from 32% to 15% by implementing earlier surgical consultation

### Methods

- Retrospective baseline data were obtained from 1/2021-8/2021
- Post-intervention data collected prospectively
- Multi-disciplinary team created a key driver diagram
- Clinical Practice Guideline (CPG) utilizing the Pediatric Appendicitis Score (PAS) and recommending surgical consultation prior to ordering CT imaging published in 12/2021 with corresponding order set
- **Primary outcome:** CT utilization in the diagnostic workup of pediatric appendicitis
- **Balancing measures:** Negative-pathology appendectomy (NPA) and ED return within 72 hours
- Data analyzed using process control charts and Nelson rules to detect special cause variation

### Results

- **Baseline** (n=624):
  - CT utilization rate 31.3%
  - Surgical consultation prior to CT: 69.4%
- **Post-intervention** (n=996):
  - CT utilization rate 11.8%
  - Surgical consultation prior to CT: 94.6%
- **Balancing measures:** no change in NPA, one ED return visit

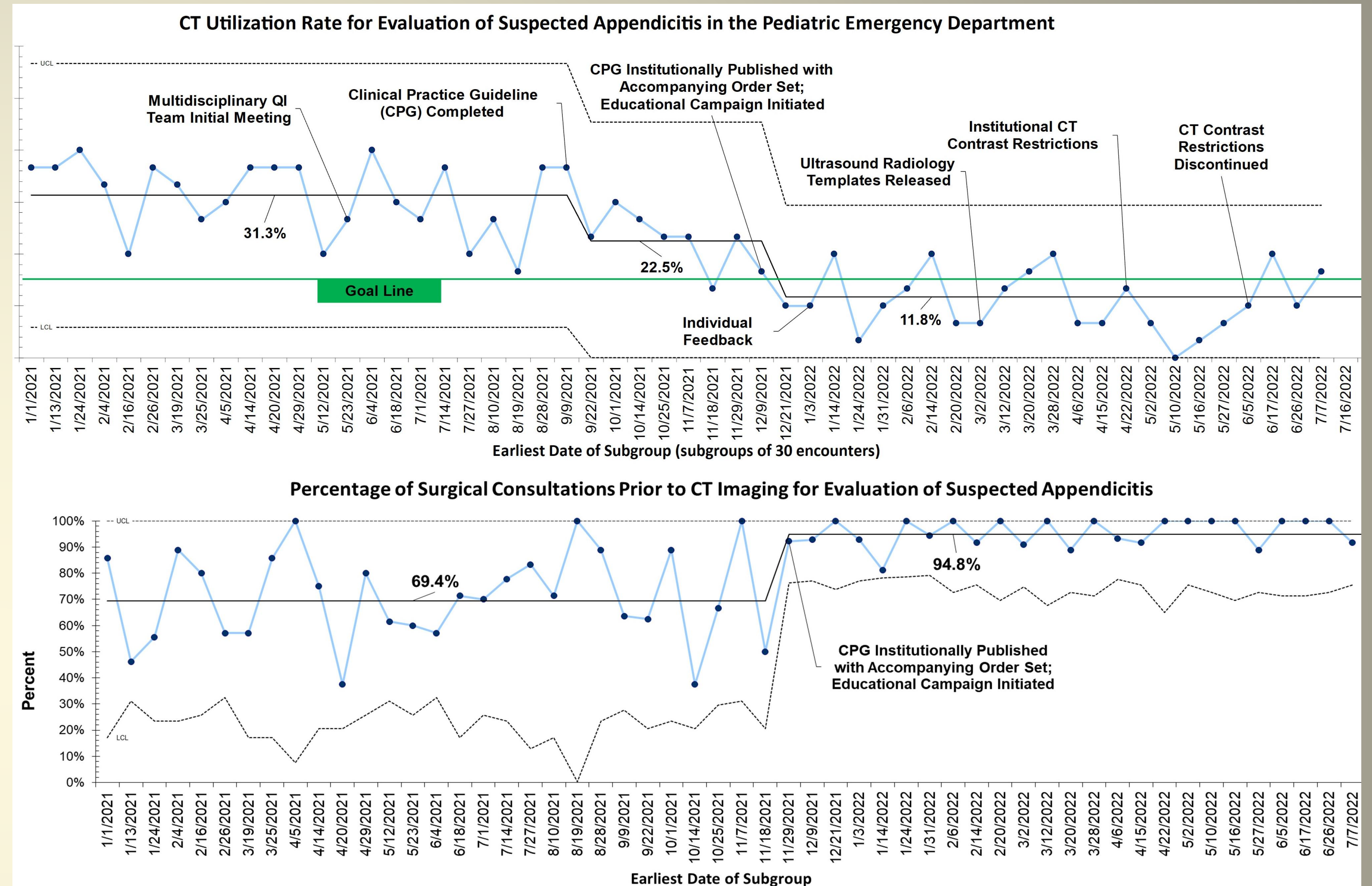


Figure 1: CT Utilization Rate and Surgical Consultation Timing

### Discussion & Conclusion

- **CT imaging can be safely minimized in the workup of pediatric appendicitis**
- Earlier involvement of the surgical team and utilization of a validated risk score as key elements of an institutional CPG facilitated improvement
- Ongoing efforts include standardization of surgical consultation and ultrasound reporting templates and continuous performance review

### References/Acknowledgements

<sup>1</sup> Lee KH, Lee S, Park JH, et al. Risk of Hematologic Malignant Neoplasms From Abdominopelvic Computed Tomographic Radiation in Patients Who Underwent Appendectomy. *JAMA Surg.* 2021;156(4):343-351.