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Cayden Rex

Kathleen E. Kane MD

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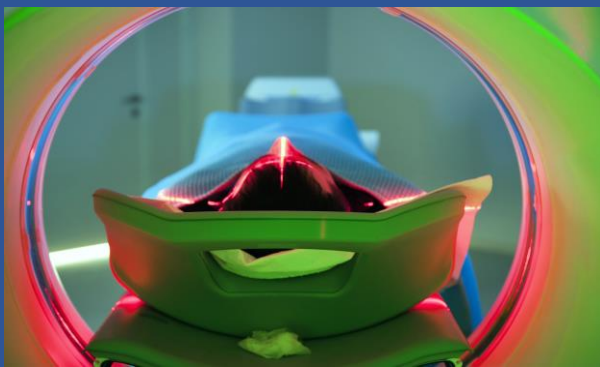
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Assessing Emergency Computed Tomography Throughput

Cayden Rex and Kathleen Kane, MD
Lehigh Valley Health Network, Allentown, PA



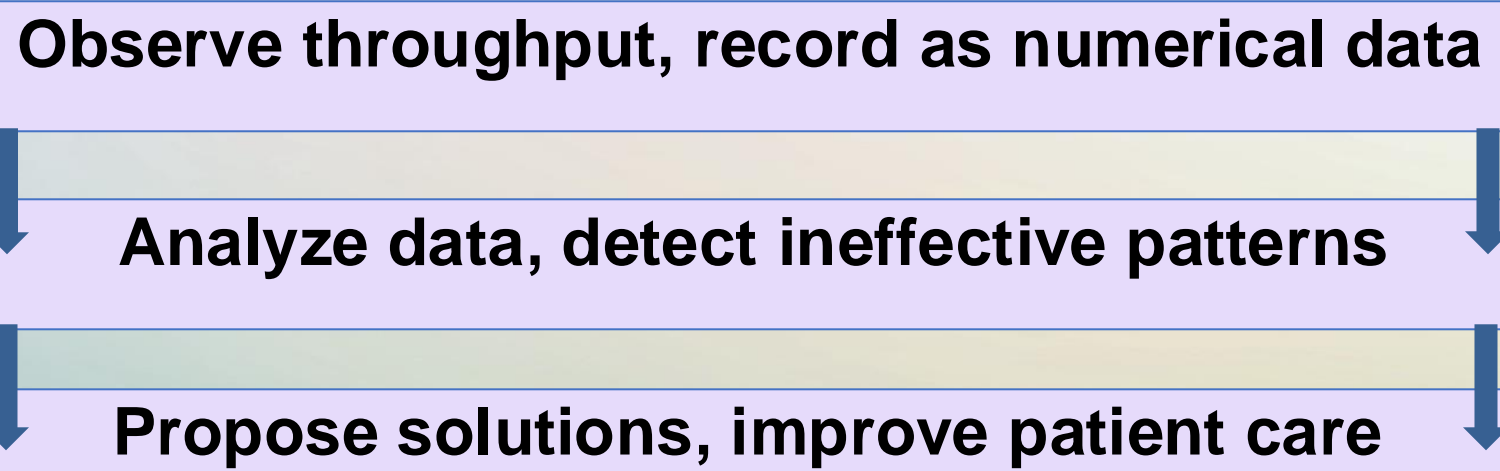
Introduction

- **Imaging** studies are at the crux of **emergency diagnostics**, **preceding lifesaving treatments**, surgeries and interventions
- **Computer Tomography (CT)** scans are used to visualize **bone, soft tissue, and blood vessels** in **greater detail** than x-ray
- **Time** and **efficiency** are vital to the optimization of emergency treatment of critical patients

Objectives

This study aims to identify and **propose solutions to inefficiencies in the transport and execution of CT scans** for Emergency Department patients.

Methods



Results

Most Common Causes of CT Delay:

- High CT Volume
- Transport back-ups
- Holding bed for Trauma/Stroke Alert
- IV complications/lack of documentation

Table 1. Elapsed times throughout the process of ordering, executing and reading CT scans.

	Average (min)	Median (min)
Order to Labs	18.3	0.0
Labs to CT start*	33.4	33.0
CT Complete to Interpretation	22.7	19.5
Total Time (Trauma/Stroke Alert)	43.7	42.0
Total Time (No Alert)	82.7	75.0

*Normalized to account for pre-arrival complications

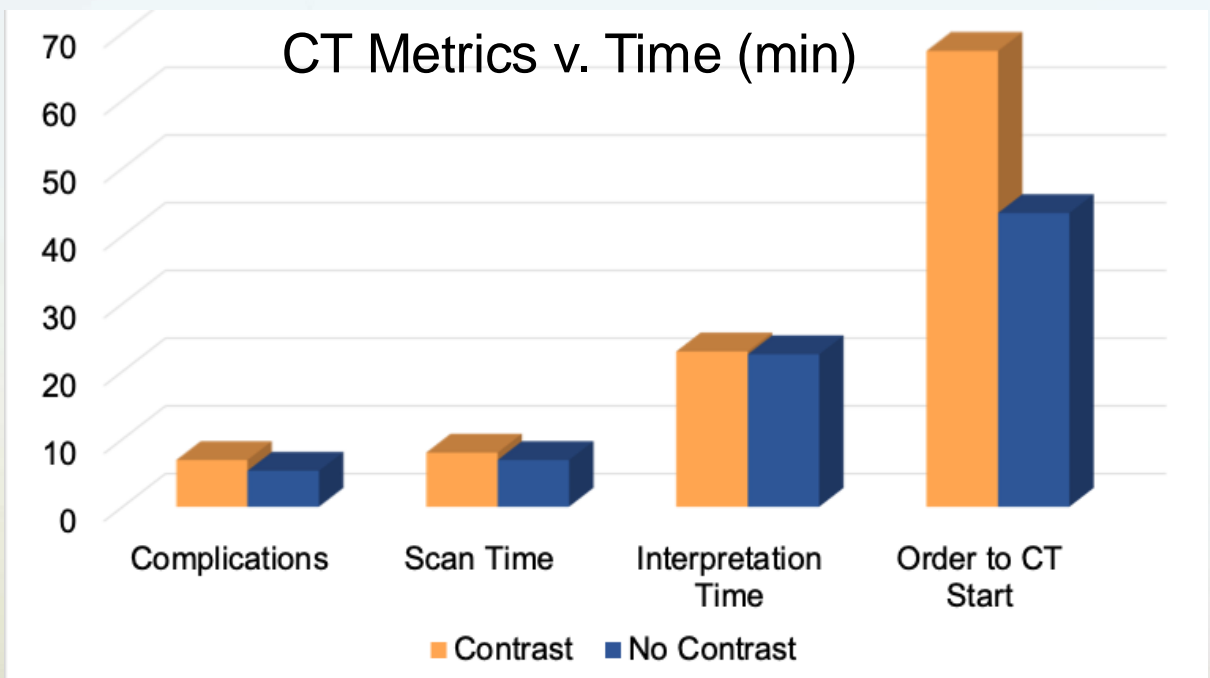


Figure 1. Comparison of CT processing with and without contrast.

Conclusion

Recommendations:

- Facilitate productive **communication** between radiology and the emergency department
- Continue imaging **preparation education** and **document** necessary pre-CT interventions
- **Train** and **designate transporters** specifically for radiology
- **Enforce utilization** of the mobile CT scanner for all vertical patients
- **Continuously update** CT scanning protocols in accordance with **data-driven best practices**

Future Directions

- **Implement the recommended changes**, repeat data analysis
- **Investigate** over-eagerness to utilize radiologic imaging, **abate unnecessary imaging** orders
- Retrospectively analyze patient data to determine the effects of contrast not preceded by lab authorization longitudinally

REFERENCES

ABIM Foundation. *Unnecessary tests and procedures in the health care system: what physicians say about the problem, the causes, and the solutions*, 19 July 2024.
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