



WORKING SMART: HOW THE MODERN RIS ENABLES EMERGENCY CT EFFICIENCY

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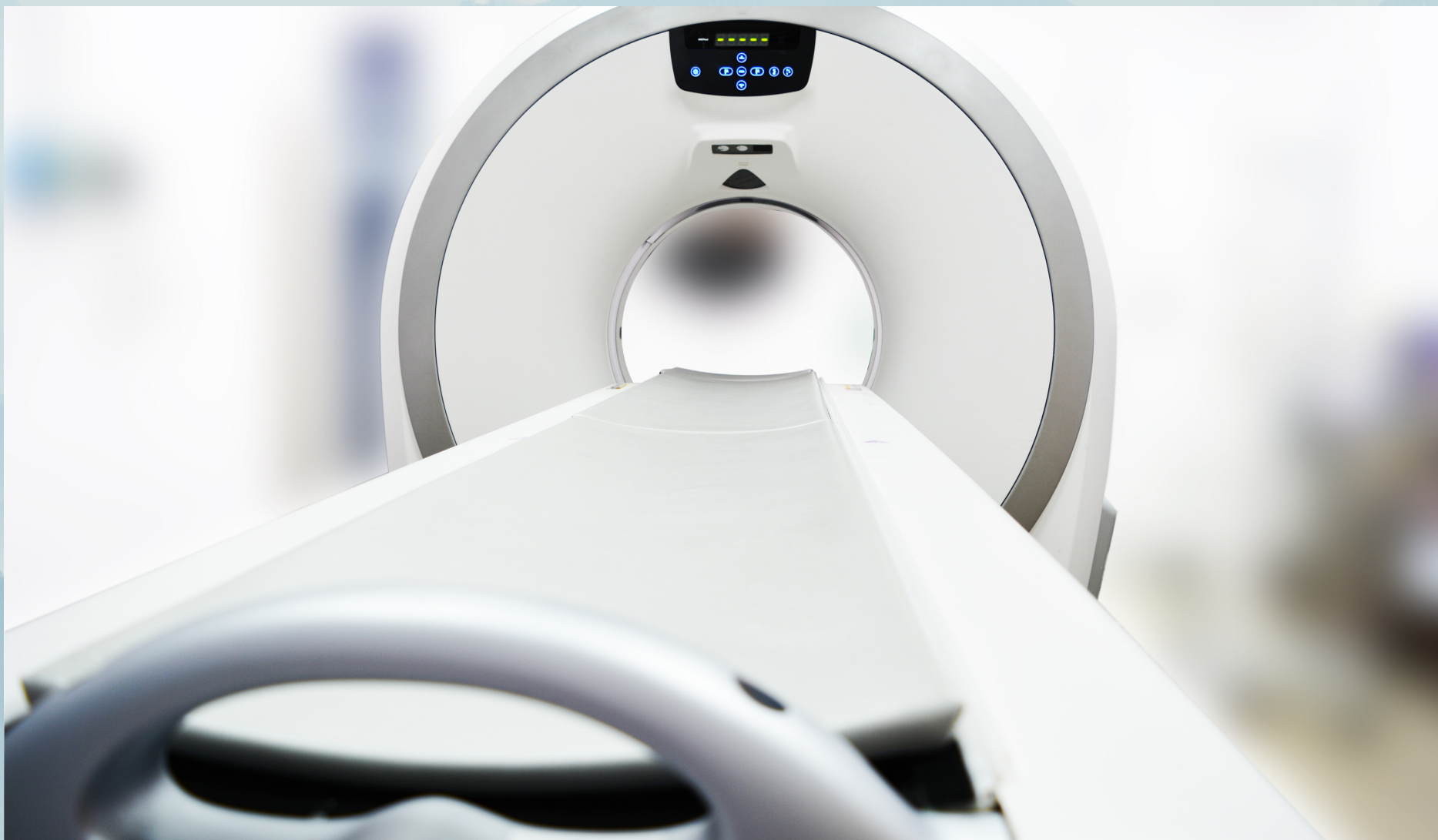
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The **first** comprehensive analysis of emergency CT workflow in a high-volume, limited-resource setting and the **first** to assess the direct impact of clinical workload on service delivery

INTRODUCTION

Public sector hospitals in South Africa experience mounting pressure in providing trauma and emergency department services with prolonged waiting times and overcrowding a feature of peak periods. The sequential digital timestamps provided by the radiology information system (RIS) afford ideal data for analysis of imaging efficiency. This study assesses the the impact of variations in CT workload on imaging efficiency to foster a better understanding of the imaging domain and facilitate appropriate interventions to enhance workflow.



METHODS

Retrospective cohort study

📍 1400 bed public sector tertiary level hospital
High volume trauma and emergency unit
Fully digital radiology department

RIS analysis defined two weekends in 2016 with the **lowest** and **highest** emergency CT workloads respectively (WE1 and WE2).

5 electronic timestamps were extracted to define 4 key workflow intervals which were subject to comparison.

"Waiting time" identified as a local imaging bottleneck.

Waiting time comprises 3 periods:
- 'holding time' in the emergency unit
- 'transfer time' to CT
- 'holding time' in the CT waiting area

Waiting time reflects the availability of key resources:
Nurses, radiographers and porters

The finding that a **36%** increase in workload more than **doubled** the waiting time suggests that some or all of the resources are operating close to capacity.

DISCUSSION

Results compare favourably with other centres globally.

All WE1 workflow intervals on par or faster than those recorded in international studies.

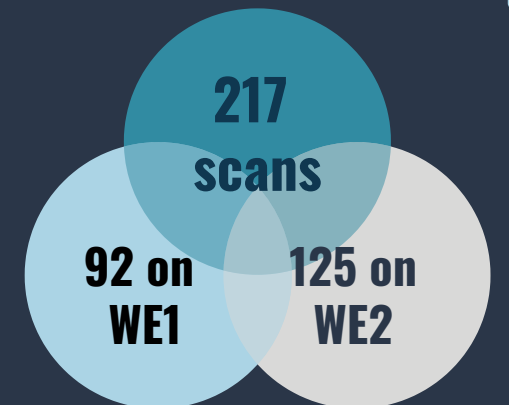
30min WE2 "reporting time" highlights exceptional local reporting efficiency.

CONCLUSION



The modern RIS has a pivotal role in enabling detailed analysis of the imaging workflow. By facilitating identification of bottlenecks, it informs intervention strategies. Careful attention should be given to the inclusion of RIS-based workflow metrics when acquiring digital imaging systems.

RESULTS



Approval time: Clinical request
-> radiologist approval

> 17 mins longer

Waiting time: Radiologist approval
-> start of scan

> 129 mins longer

Scan time:
Duration of scan

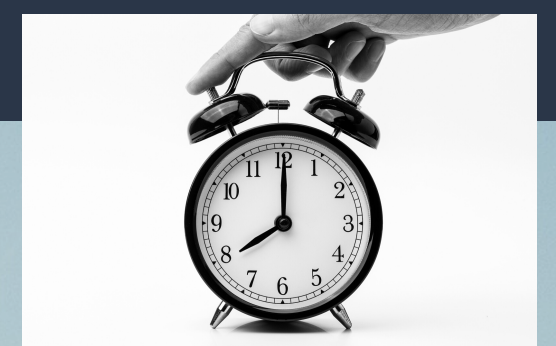
> 15 mins longer

Reporting time: Scan complete
-> registrar report

> 14 mins shorter

TOTAL TIME:

> 138 mins longer



REFERENCES

O'Hagan S, Lombard C, Pitcher R. **The Role of the Integrated Digital Radiology System in Assessing the Impact of Patient Load on Emergency Computed Tomography (CT) Efficiency.** Journal of Digital Imaging. Published 8 October 2018. <https://doi.org/10.1007/s10278-018-0129-0>

