Portable Chest Radiography: Do Referring Providers Read our Reports in a Timely Enough Manner to Influence Clinical Care?

Hannah Grace Talbot[1], Michael Raymond[1], John Salvemini[1], Seth Lirette, PhD[2,3], David Gordy, PhD[3], Robert Morris, MD[3], and Richard Duszak, MD[3]
[1]UMMC School of Medicine, [2]UMMC Department of Data Science, [3]UMMC Department of Radiology

INTRODUCTION

- Radiology reports are the primary method of communication between radiologists, referring providers, and other healthcare team members. This is particularly true when reports are read in near real-time from their generation, by less experienced healthcare team members, and for non-straightforward imaging.
- Past studies have evaluated the ability of non-radiologist physicians to identify and diagnose imaging of clinical significance[1]. Radiologists predictably have better interpretation abilities of chest x-rays than non-radiologist physicians, but interpretations by non-radiologists may be timelier and/or better incorporate clinical information[2-3].
- In acute settings, however, do bedside physicians enjoy real benefits of awaiting a radiologist's report over their own clinical care reviews? Efficient medical decision making through point-of-care portable chest x-ray (PCXR) interpretation could outweigh the lag time from waiting for formal expert radiologist reporting.
- We report on when and by whom PCXR reports are generated and reviewed as an indicator of their real-time value to the healthcare team. If physicians infrequently access PCXR reports, perhaps radiologists' time might be better used interpreting more complex cross-sectional imaging for which demand is rapidly increasing[4-6].

METHODS

- A retrospective review was completed to analyze metadata on single-view PCXRs performed on adults (18 years or older) at our institution from July 2022 through June 2023.
- Data from satellite sites and the Children's Hospital was excluded, resulting in 14,196 eligible exams.
- Coordination with Epic, PACS, and data analytics teams allowed for the generation of timestamp data for each PCXR report, including times of report generation and access, roles in the healthcare team, and data field structured patient data including ICD-10 code clinical indication for the imaging, age, and diagnosis.

RESULTS

Of 14,196 eligible PCXR exams, there was significant variability in time from exam completion to interpretation and team access, particularly among different hospital settings.

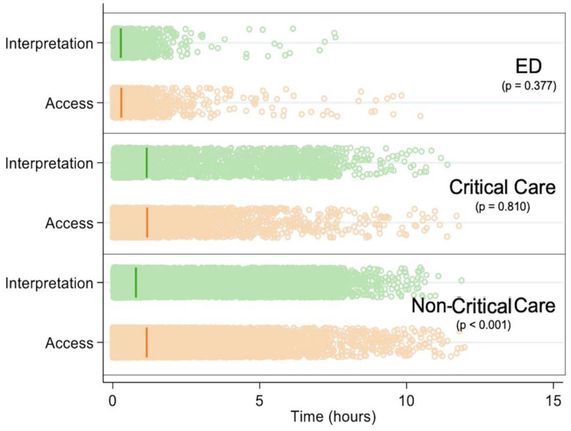


Figure 1. Time from PCXR exam completion to report generation and from report generation to clinical team access (exam-to-report, report-to-access; p-value).

- The median time from exam completion to radiologist report generation was 0.72 hours (0.0044-11.87)
- The median time from radiologist report generation to clinical team access was 1.02 hours (0.0156-11.98, p< 0.001)
- In non-critical care settings, the median time from exam completion to radiologist report generation (0.76 hours) was significantly quicker than the median time to clinical team access (1.16 hours, p< 0.001)
- Longest report review times were seen in critical care settings (1.17 hours)
- Fastest report review times were seen in the Emergency Department (0.26 hours)
- Overall, 56% of radiology reports were generated within 1 hour of exam completion
- Overall, 50% of radiology reports were accessed by a clinician within 1 hour of report generation

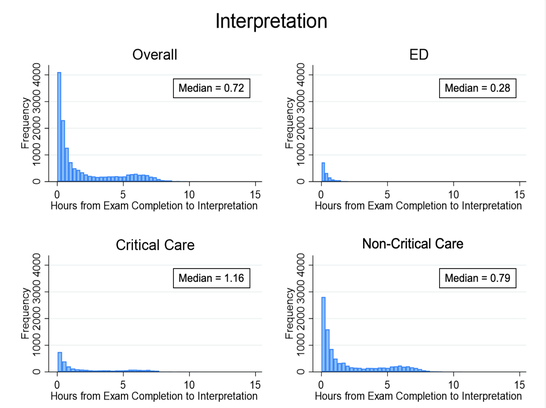


Figure 2. Time from PCXR completion to interpretation by attending radiologist.

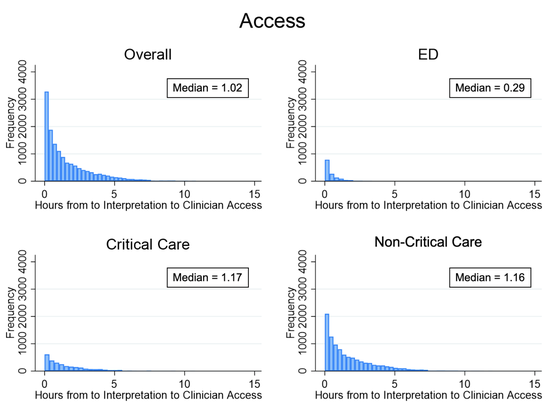


Figure 3. Time from PCXR interpretation to clinical team access.

CONCLUSION

- As demand for faster radiology report turnaround grows, radiologists may finalize PCXR interpretive reports more quickly than clinical teams read them.
- With the longest report review times in the critical care setting, intensivists may be making clinical care decisions without radiologist input.
- We are unable to determine the frequency with which PCXR images were opened and further cannot account for clinicians who interpret images on the PCXR machine at the bedside in real-time.
- Further work is necessary to better understand how radiologist interpretations of PCXRs influence real-time patient care.

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CONTACT

Hannah Grace Talbot
Medical Student
htalbot@umc.edu

Richard Duszak, MD
Chair of Radiology
rduszak@umc.edu