
Leveraging process redesign techniques to improve workflow, patient care and reimbursement of second opinions in Radiology

Zarine K Shah, Clayton R Taylor, Luciano M. Prevedello, Hillary Kummer, Daria Blanton, Robin Wepler, Pari V. Pandharipande

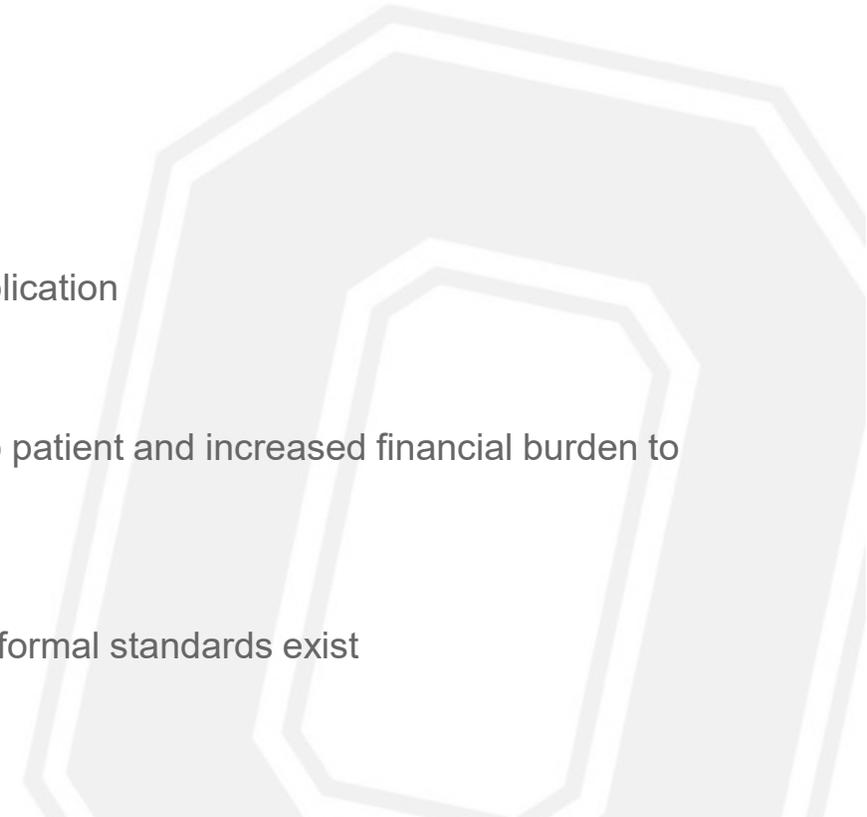


Need for Change

- Second opinion reporting in Radiology is not widely available and the process is not standardized
- Indications for second opinion reporting are to provide an expert interpretation, address discrepancy in findings and provide comparisons to prior examinations etc.
- Curbside consults, phone conversations, reading room huddles etc. are some methods we used prior to the formalized second opinion process and similar processes exist/existed in other institutions as well
- There is a demand for these services, especially at large academic medical centers

However, several **pitfalls** exist in the informal second opinion process:

- Inadequate documentation / no documentation in EMR
- Miscommunication of findings with direct impact on patient care and potentially legal implication
- Inefficient workflow with increased workload for the clinical service and radiology
- Impact on patient care with potential for repeat imaging, potential increase in radiation to patient and increased financial burden to patient
- No system in place to account for radiologist's time and effort
- Successful workflows have been utilized in similar situations at other institutions, but no formal standards exist



Our Experience...

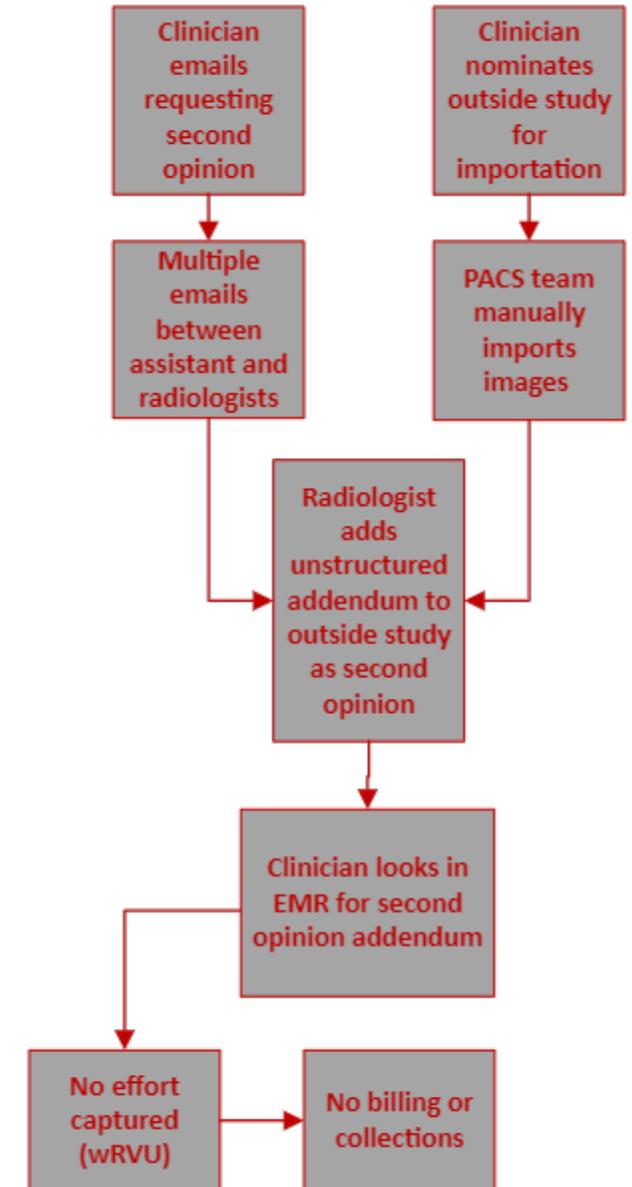
Historical Second Opinion Process

- Infrequently providers requested a formal written second opinion
- To address this our radiologists provided focused unstructured reads (as addenda) which became part of the medical record
- This process was poorly defined, entirely manual, time consuming, inefficient and inconsistently applied, but despite being time and resource intensive for the radiologists (and department) this significantly enhanced the value of the second opinion service.
- *Note: A separate workflow exists at our institution for breast imaging second opinions which is not discussed here*

Formalized process

- Workflow changes implemented in August 2021
- Initial phase – studies done within 1 month prior to second opinion order in EPIC were eligible for full report
- Studies should have outside report available and uploaded with images
- Limited roll-out: allowing for modifications in workflow if needed
- Initial success and adoption of process by radiologists and ordering providers lead to extension of eligibility timeline from 1 month to 3 months in April 2022

Historical Second Opinion Process



New Optimized Workflow

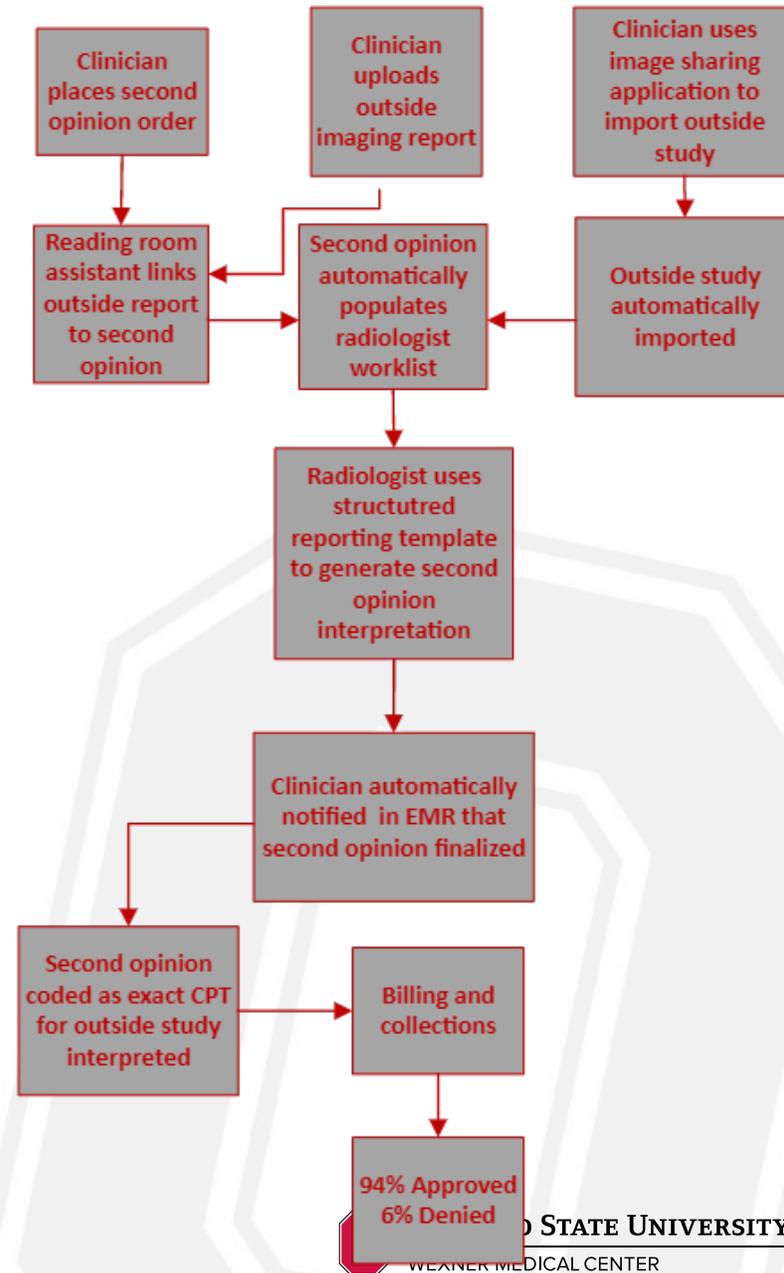
Clinician Perspective

- Tip sheet for training to guide ordering process in EPIC like all imaging orders
- Clinician easily uploads and automatically imports outside images linking specific outside images for review directly to the second opinion request.
- Order requires clinician to validate that outside imaging report is available in EPIC and provide appropriate indication of medical necessity
- Clinician receives results in typical fashion in EPIC in basket.

PACS / Support Perspective

- Reading Room Assistant (RRA) converts outside image report into DICOM file linking to second opinion order in PACS. Clinician upload of outside images automatically triggers import into PACS and creation of outside image order
- Second opinion studies populate radiologist worklists – using existing subspecialty specific reading worklists, alongside all other imaging studies

New Second Opinion Process



New Optimized Workflow

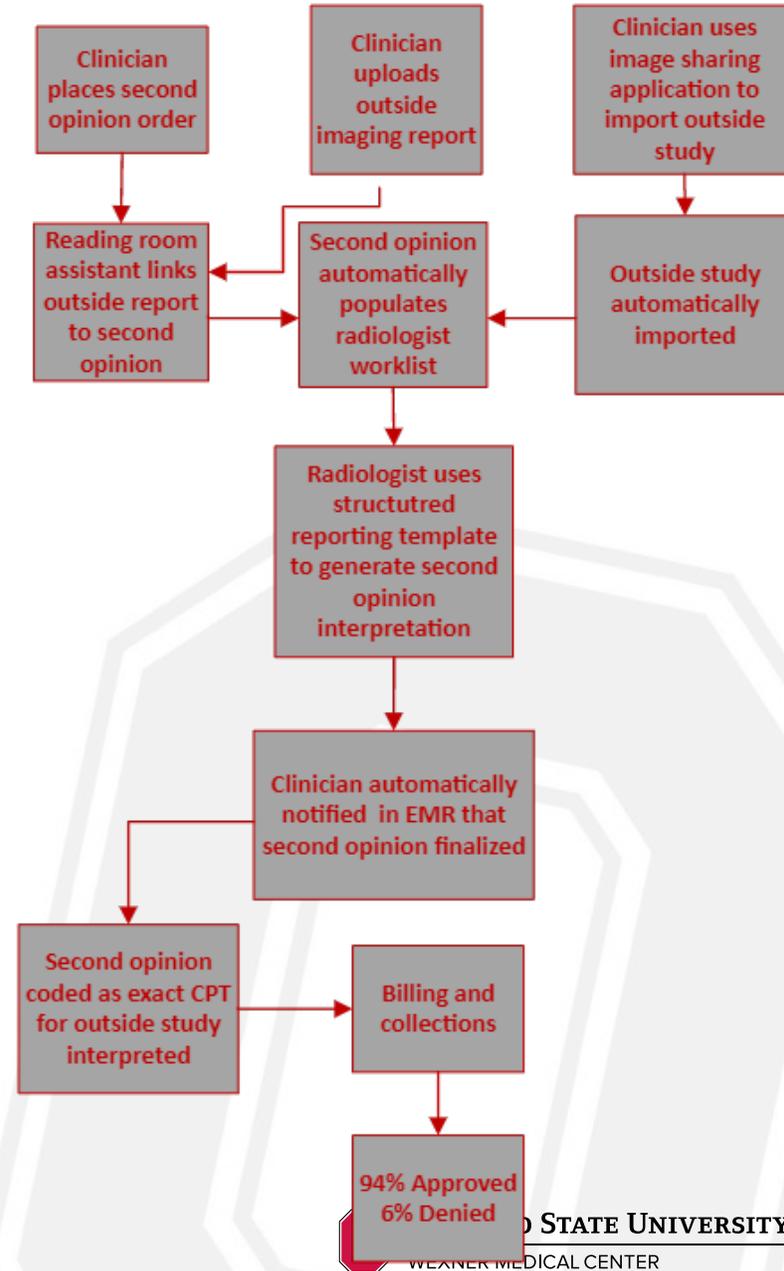
Radiologist Perspective

- Radiologists see second opinion order on typical reading worklists
- PACS opens the patient's images - initially automatically displaying the uploaded outside imaging report
- Integrated reporting application opens structured report template with picklists allowing the radiologist to easily structure the report findings exactly like any other internal imaging study report

Institutional Perspective

- Clinicians enter orders and receive results within EPIC in the same way as for any other study
- Automation of manual steps increases efficiency and decreases turnaround time
- Use of structured second opinion reports improves clinical quality and utility of reads
- Uniform structured reporting allows for reliable coding, billing and successful reimbursement – creating a sustainable service

New Second Opinion Process



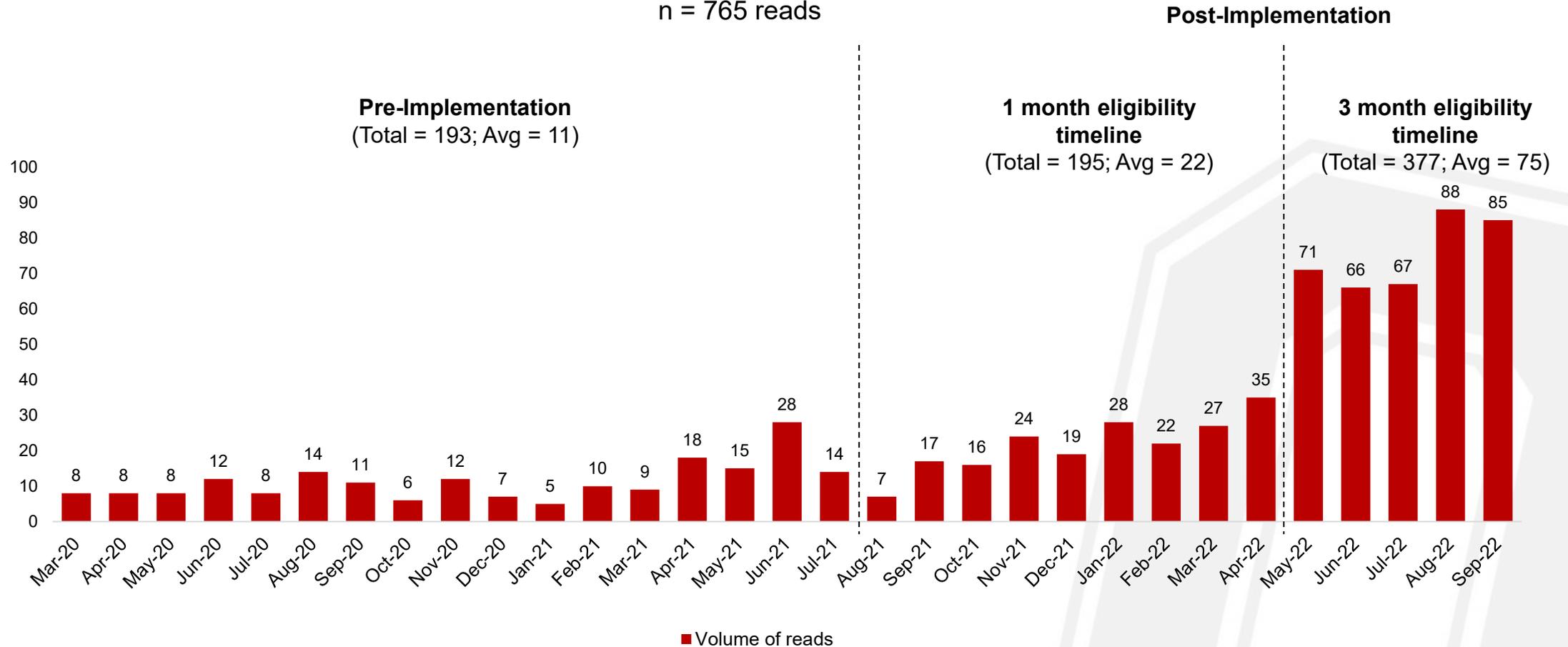
Volume of Reads by Month

Implementation of formal request process: August 2021

Volume of Outside Reads by Month

March 2020 - September 2022

n = 765 reads



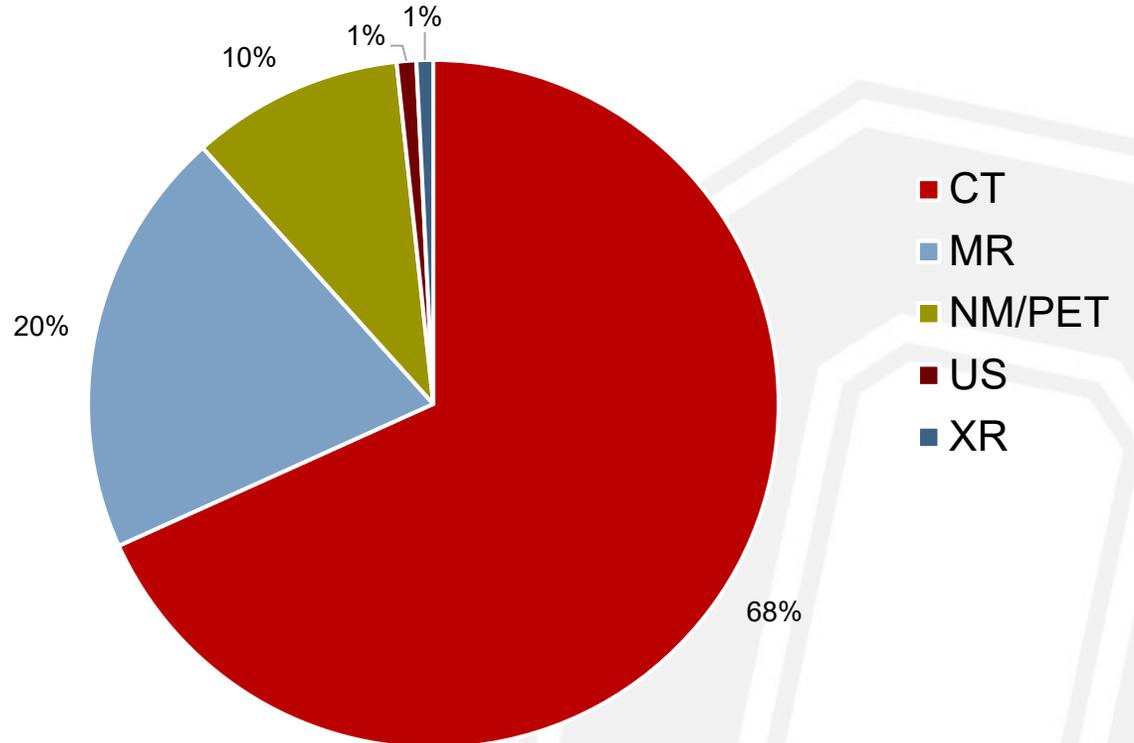
Volume of Reads by Modality

Modality	Count	Percent of Total
CT	522	68%
MR	154	20%
NM/PET	76	10%
US	7	1%
XR	6	1%
Total	765	100%

Modality Volumes - Percent of Total Outside Reads

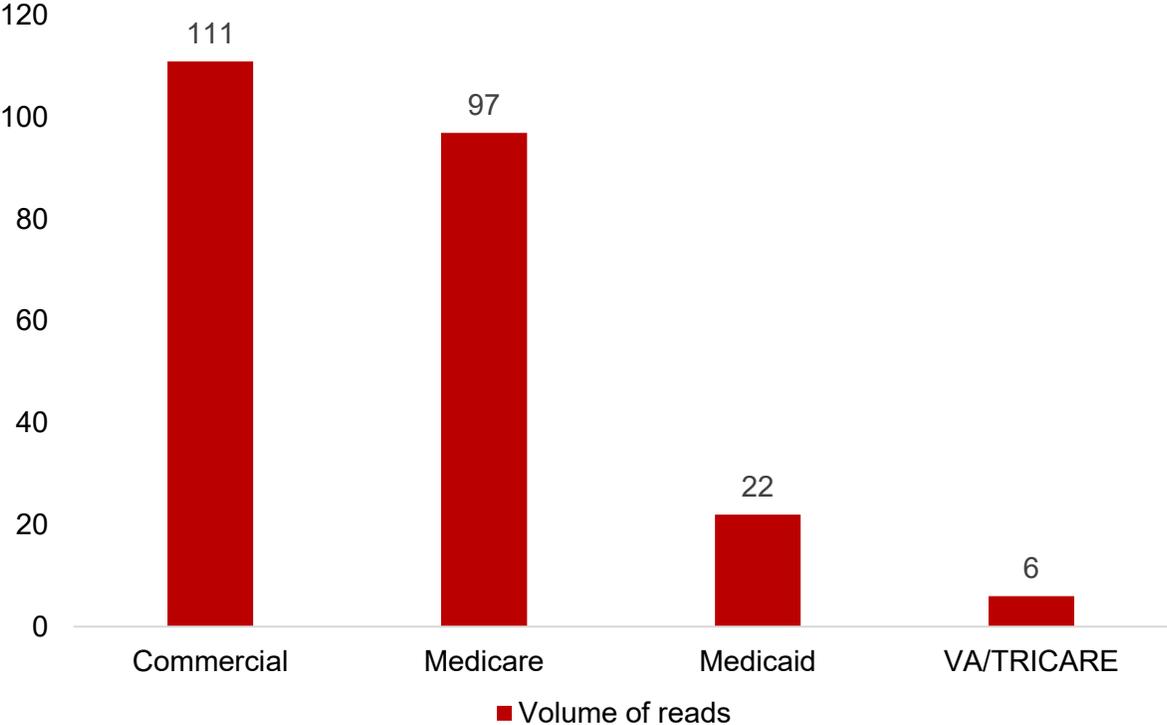
March 2020 - September 2022

n = 765 reads

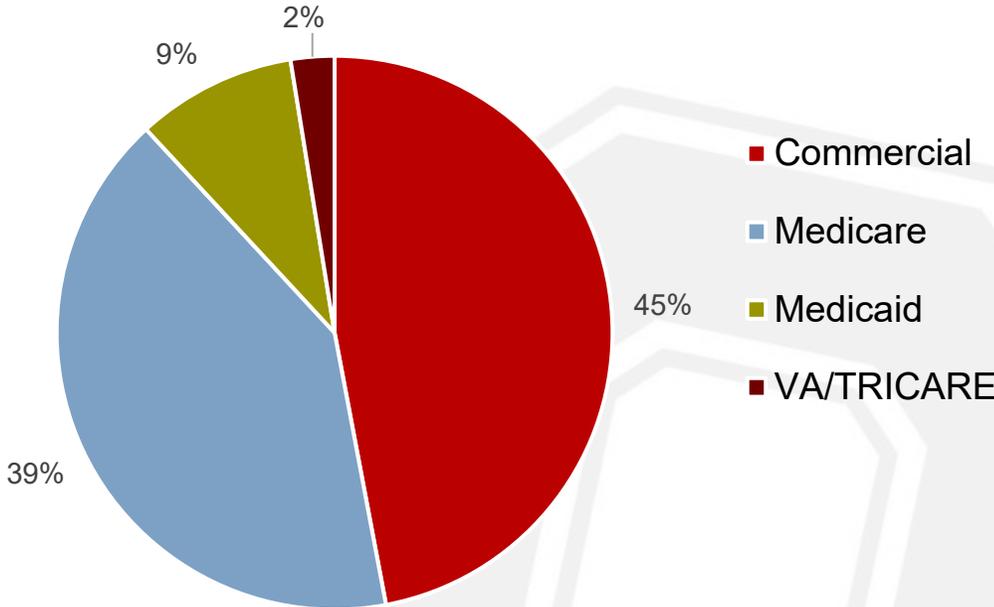


Reimbursement Data: Post-implementation Payor Detail – Volume of Claims (Sept 21- may 22)

Volume of Outside Reads by Payor Type
September 2021 - May 2022
n = 236 claims



Percent of Volume by Payor Type
September 2021 - May 2022
n = 236 claims



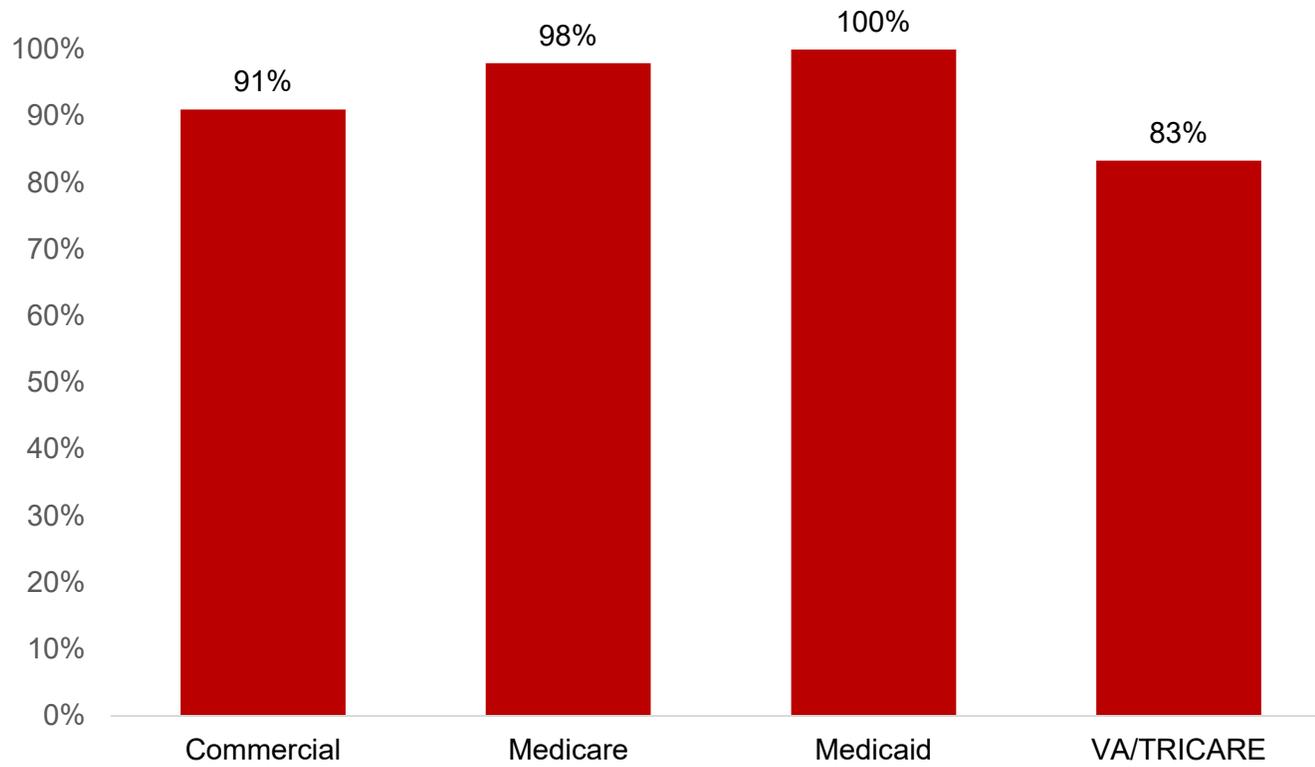
Note: Payor detail availability post-implementation

Payor Detail – Billing Success Rate

Billing Success Rate by Payor

September 2021 - May 2022

n = 236 claims



Overall Billing Success Rate = 94%
Denial Rate = 6%

Payor	Count of Claims	Count of Paid	Count of Denied	Billing Success Rate
Commercial	111	101	10	91%
Medicare	97	95	2	98%
Medicaid	22	22	0	100%
VA/TRICARE	6	5	1	83%
Total	236	223	13	94%

Note: Billing Success Rate = Count of claims paid / count of claims submitted

Conclusion

Results:

Implementation and Process Improvement:

- Out of 674 total orders placed, 572 studies had second opinions fulfilled (85%)
- Common reasons for unfulfilled second opinions:
 - Images or reports not available
 - Studies older than the allowed eligibility criterion
 - Other factors – curbside done due to urgent need, change in clinical condition, clinician cancelled request, repeat imaging performed etc.

Reimbursement:

- CPT code that matched the type of study was used to bill for the professional (radiologist read) component
- Claims were submitted to several different payor groups
- Documentation of medical necessity was a requirement for processing these claims
- There was a 6% denial rate for these second opinion scans which was very similar to denials for imaging studies done at our institution

Benefits:

- Patient care:
 - Improved care continuity with reports available on the EMR along with images.
 - Decreased repeat imaging
 - Clear communication of findings
- Easier follow up on subsequent scans
- Decreased workload due to improved efficiency of the workflow
- Improved ordering provider satisfaction
- Enhanced radiologist experience – accountability for time and effort
- Financial gain – 0% reimbursement to 94%