

Peer learning implementation within an integrated healthcare system

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Agenda

- What is an integrated health system? KP?
- Our peer review assessment
- How we implemented peer learning in an integrated model
- Results from peer learning implementation

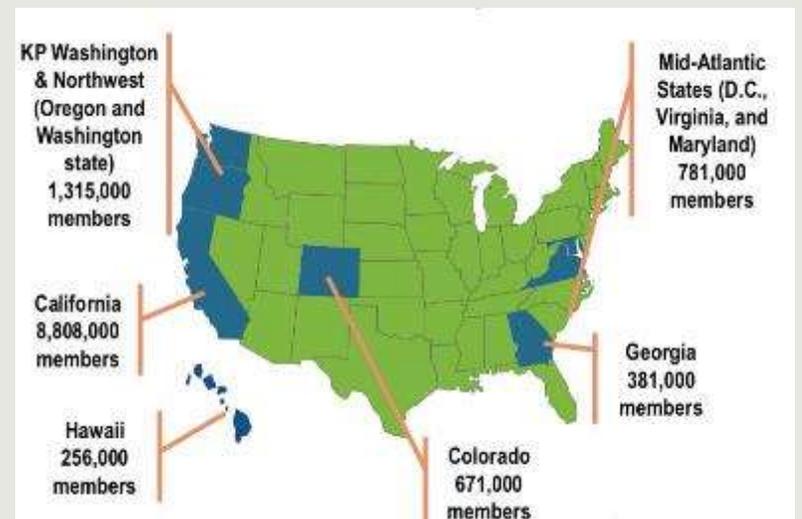
What is an integrated care delivery system?

- Kaiser Permanente has an integrated structure that aims to help the health plan, the hospital, physicians, etc, work together in a coordinated fashion, for the benefit of the patient.
- Physicians, PA/NPs, nurses, technologists, schedulers, financial service assistants, insurance plan team members, marketing team, data analysts, and others all work for the same firm.



What is Kaiser Permanente?

- Nation's largest nonprofit health plan
- Integrated health care delivery system
- Serve 9 states and DC
- 32 hospitals and large medical centers
- 701 medical offices
- Provide care for 12.5 million members
- Employ 23,000 physicians and 200,000 employees
- \$80 billion annual revenues



The structure of an integrated healthcare system aligns stakeholders to a common mission to collaborate and improve care.

- Integration is the source of competitive advantage.
- Fully coordinated and integrated care is expected across departments.
- All stakeholders strive to create a smooth valuable coordinated high quality and low hassle experience for every patient.



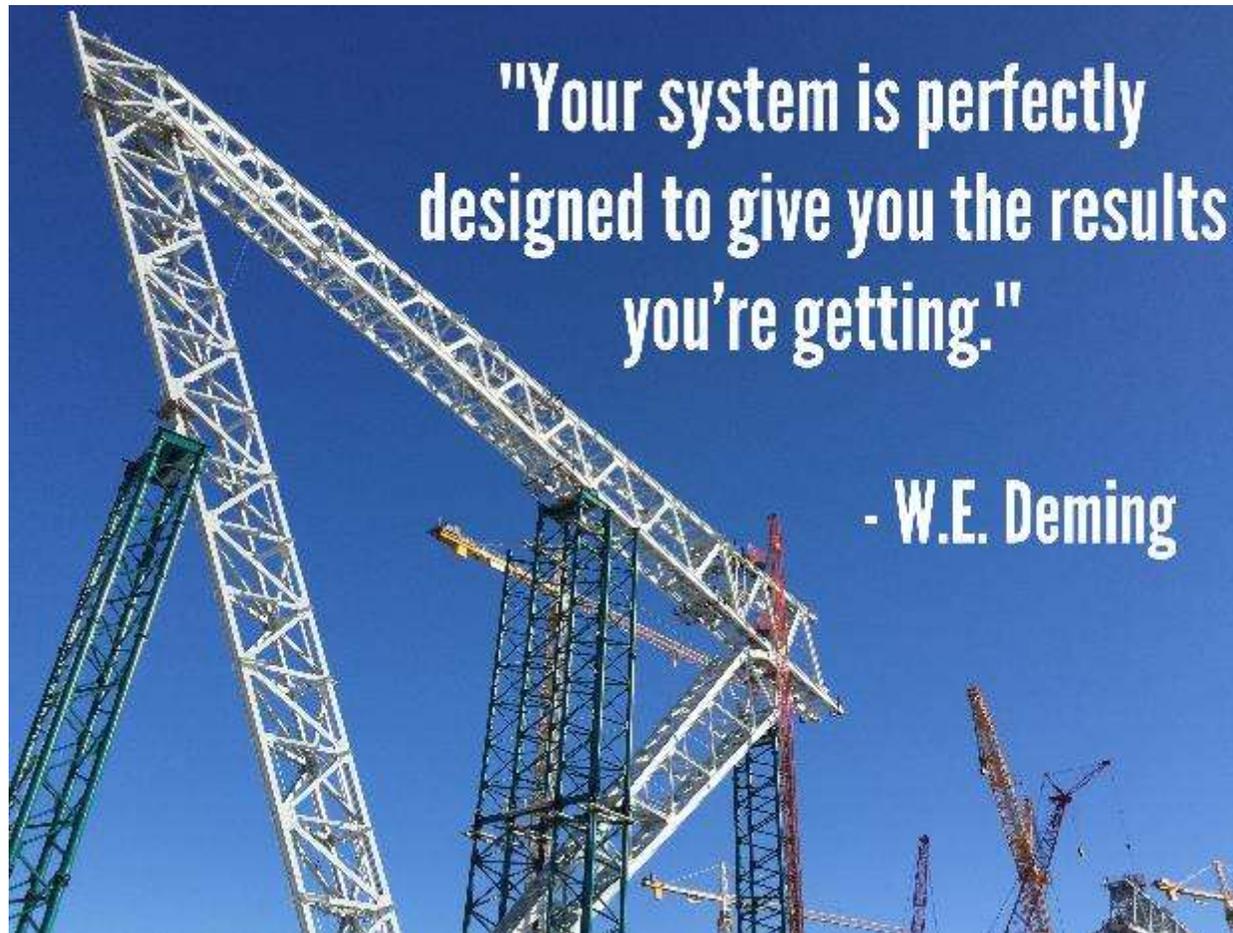
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As a result, most persons joining the group share similar values:

1. Improve the health of our population.
2. Surface improvement opportunities.
3. Seek and welcome external feedback.
4. Focus on improving systems.
5. Collaborate, build consensus and implement sustained improvements.



Especially true with integrated systems



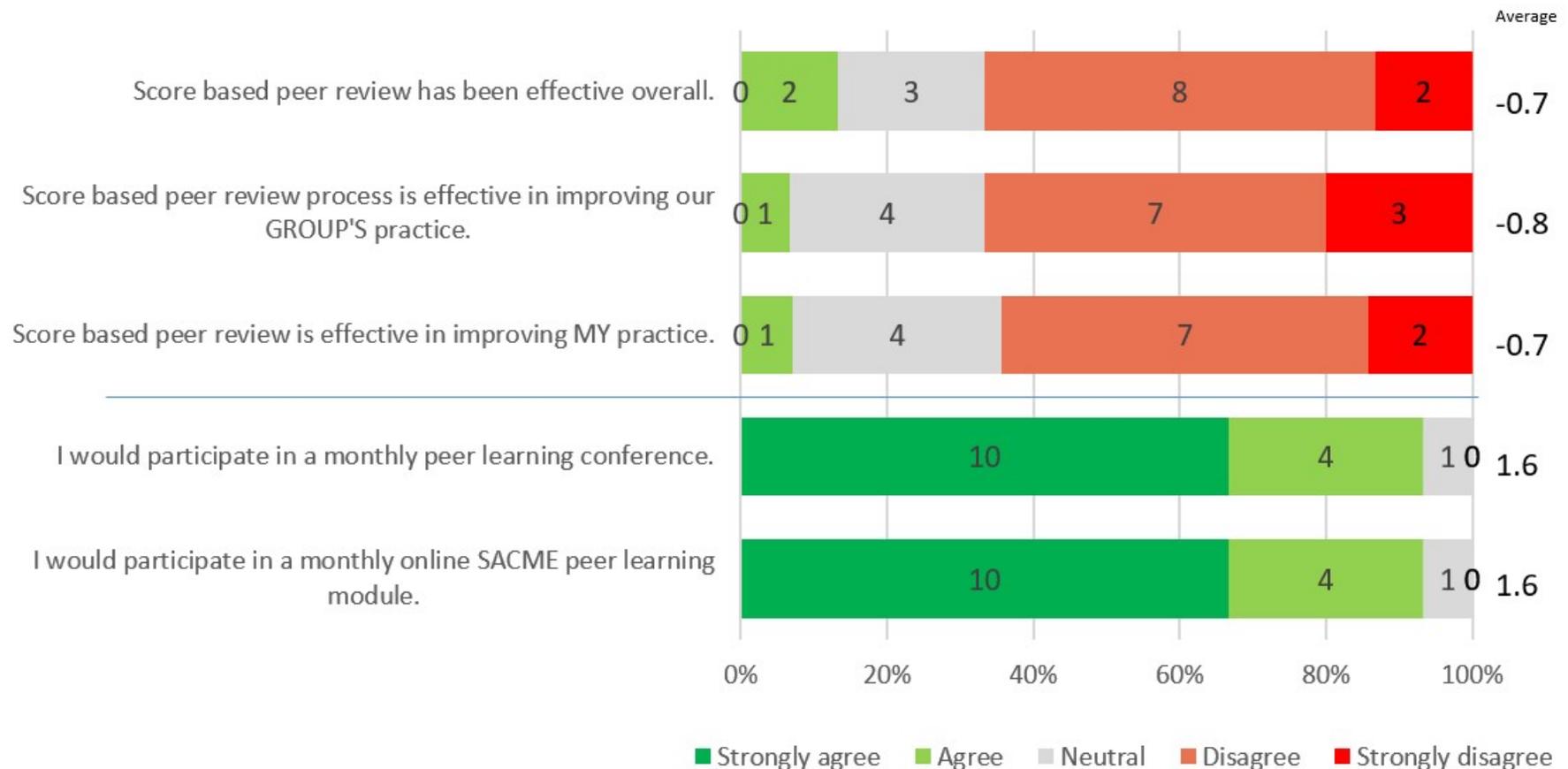
Starting point: Our prior score based peer review process

1. RadPeer based
2. Closed door
3. Limited participation
4. Discussion ensued
5. No evidence/literature presented
6. Patient / radiologist identifiers visible
7. Outcome often discussed before voting
8. Voting by show of hands
9. Results discussed with the involved radiologist
10. Learning opportunity not distributed to team members



What was our team's perspective on the value of score based peer review?

1. Preintervention survey determined peer review had not been effective overall, or in improving group's or individual's practices.
2. The team was highly interested in peer learning.



Our next steps: Educate team about just culture and the IOM Goals for improving diagnosis, so they can be prepared for and embrace peer learning.

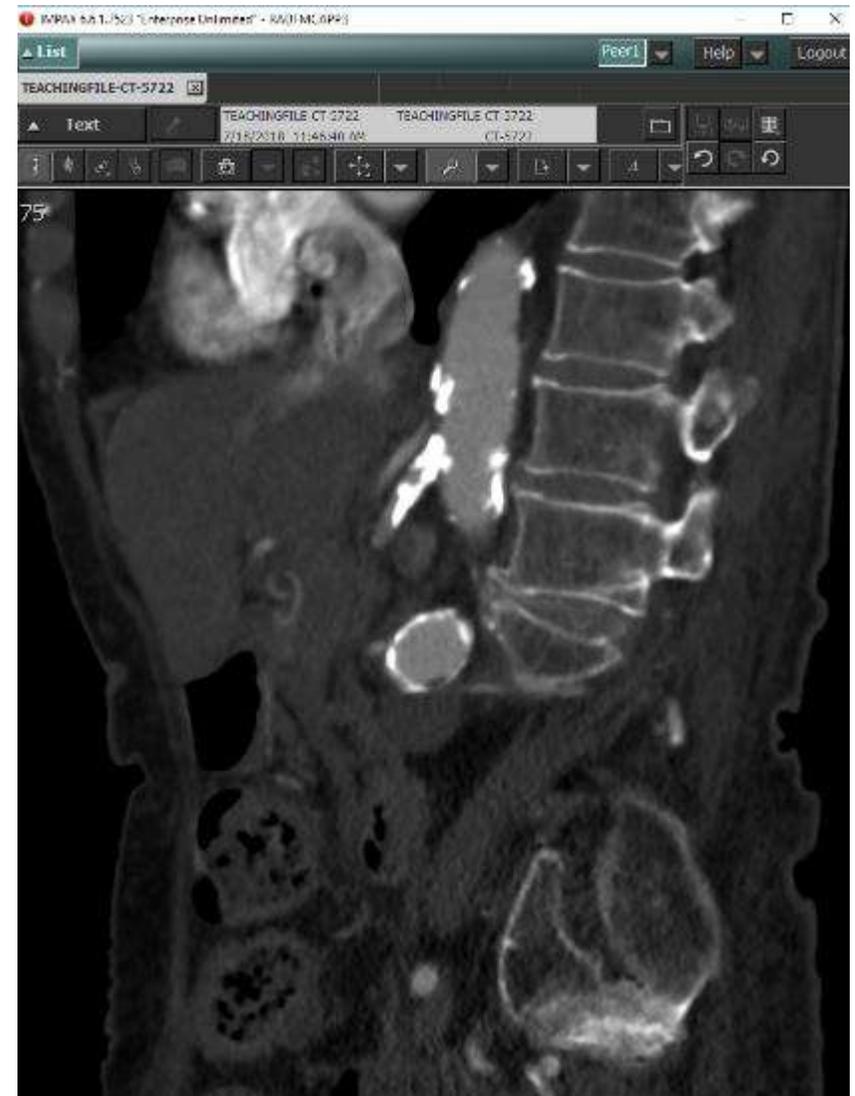
- Transparency
- Teamwork
- Engagement
- Education, training
- Culture of growth and collaboration
- Learn from errors
- Evidence
- IT engineering
- Care delivery integration



- Balogh EP, M. B., Ball JR, Eds. Board on Health Care Services, Institute of Medicine. Improving diagnosis in health care. Washington, DC: The National Academy of Sciences, The National Academies Press, 2015.
- Larson, D. B., Donnelly, L. F., Podberesky, D. J., Merrow, A. C., Sharpe, R. E., Jr., & Kruskal, J. B. (2017). Peer Feedback, Learning, and Improvement: Answering the Call of the Institute of Medicine Report on Diagnostic Error. *Radiology*, 283(1), 231-241. doi:10.1148/radiol.2016161254

Peer Learning Implementation: What formats do we use in our integrated system?

- **Monthly Peer learning conferences**
 - All radiologists invited, most attend
 - Case content sourced from team's submissions
 - Education focused discussions
 - Process improvement projects identified and completed
 - CME accredited
- **Monthly Peer learning online SA-CME module**
 - 100 slide powerpoint file created showing 10 "unknown" cases submitted by team
 - Images and reports are annotated with learning points emphasized
 - SA-CME accredited



Peer Learning SA-CME Online Module

Case 4

- History: 57 year old male presents with shortness of breath.
- Exam requested: Chest radiograph



Chest radiographs interpreted as negative.

Symptoms progressed and two years later the patient underwent CT.

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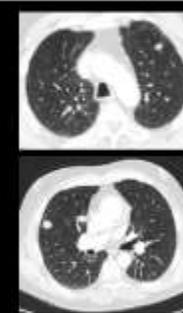
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Initial Impression



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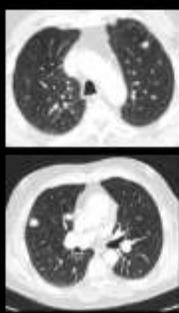
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Initial Impression

Bilateral pulmonary nodules, some with irregular margins, concerning for malignancy.



Differential diagnosis: Multiple pulmonary nodules

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| <ul style="list-style-type: none"> Metastatic Lung <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Central necrosis in nodules • Variable morphology (nodule, mass) • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Lymphoma, Non-Hodgkin <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Hemosiderosis <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Cystic Degeneration <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) | <ul style="list-style-type: none"> Brachyotoloides Cell Carcinoma <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Benign Metastatic Lesions <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Hemosiderosis <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Cystic Degeneration <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) | <ul style="list-style-type: none"> Granuloma, Multiple <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Malignant Granuloma <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Hemosiderosis <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) Idiopathic Pulmonary Cystic Degeneration <ul style="list-style-type: none"> • Multiple, well-circumscribed nodules • Variable morphology (nodule, mass) • Central necrosis in nodules • Hemorrhage, soap-bubble appearance • Peripheral CT enhancement (halo sign) • Pleural-based nodules (leptomeningeal metastasis) |
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The patient underwent CT guided lung biopsy. Pathological diagnosis: lymphomatoid granulomatosis.



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Question 3

Which of the following is included in the differential diagnosis for multiple bilateral pulmonary nodules?

- A. Lymphoma
- B. PMLD
- C. Spastic emboli
- D. AVMs
- E. All of the above

• Correct Answer: E
 • Rationale: All of the diagnoses can present as multiple pulmonary nodules.



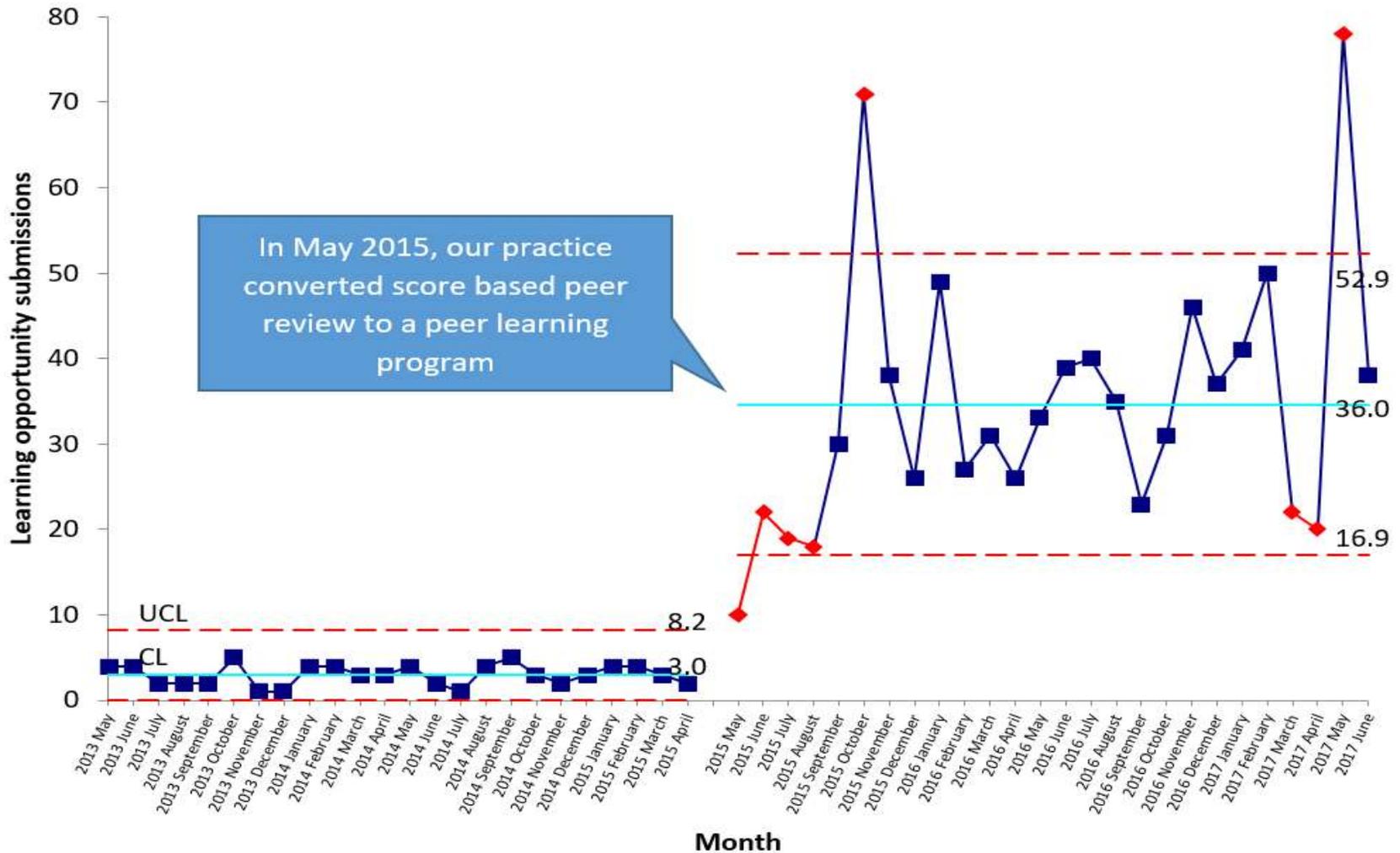
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17 key changes we made to transition to peer learning

A peer learning program should:

1. Acknowledge that discrepancies will occur
2. Be education and coaching oriented
3. Be nonpunitive, and distinct from the focused professional practice evaluation
4. Employ principles of just culture, that problems are generally the fault of systems rather than individuals
5. Be inclusive of all team members
6. Focus on improving patient care and practice improvement
7. Be a meaningful use of the team's limited free time
8. Engage radiologists in quality improvement
9. Facilitate real time multisite participation
10. Discuss anonymized examinations submitted by all team members
11. Rely on evidence evidence-based medicine
12. Distribute learning points to the entire team
13. Be documented with minutes
14. Be subject to federal and state peer review protections
15. CME and SA-CME accreditation
16. Satisfy the American Board of Radiology Part 2: Lifelong Learning and Self-Assessment requirements
17. Satisfy the American Board of Radiology Part 4: Improvement in Medical Practice requirements.

Peer Learning Results: After implementation of peer learning, there was a 12X increase in the average number of learning opportunities submitted per month.

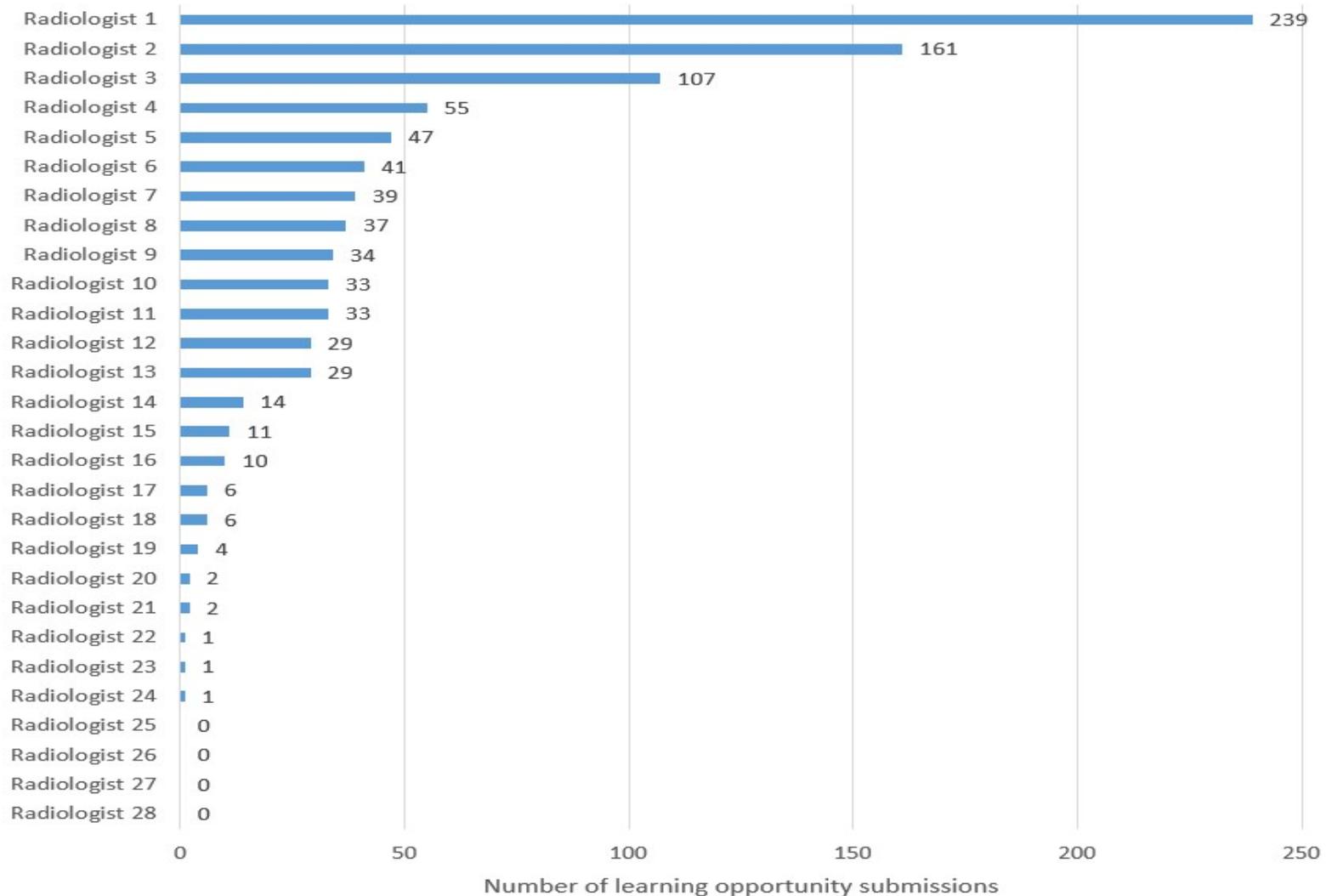


Peer Learning Results:

Results

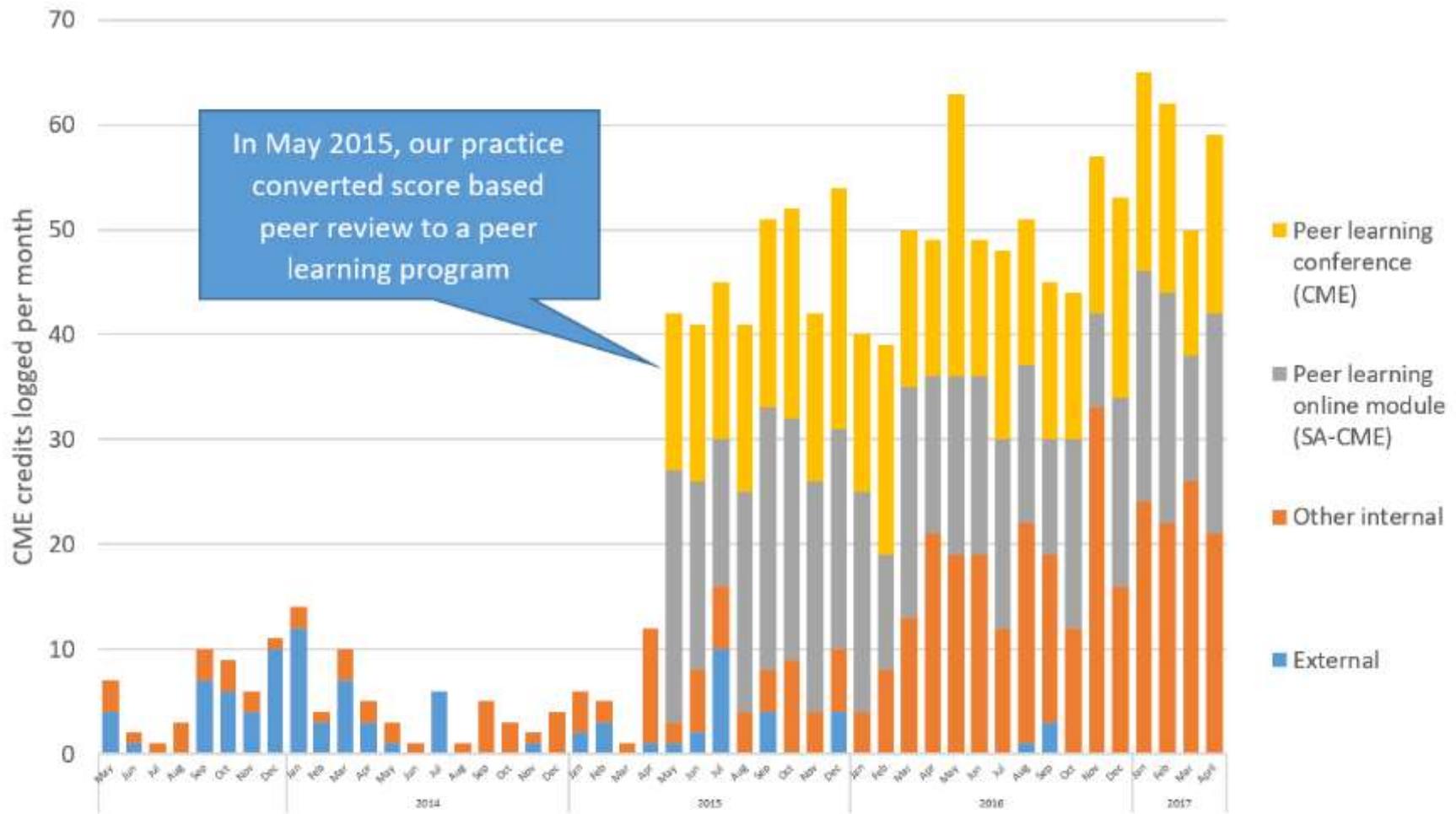
24 of 28 (86%) radiologists submitted ≥ 1 learning opportunities.

13 of 28 (46%) radiologists submitted an average of more than one learning opportunity per month.



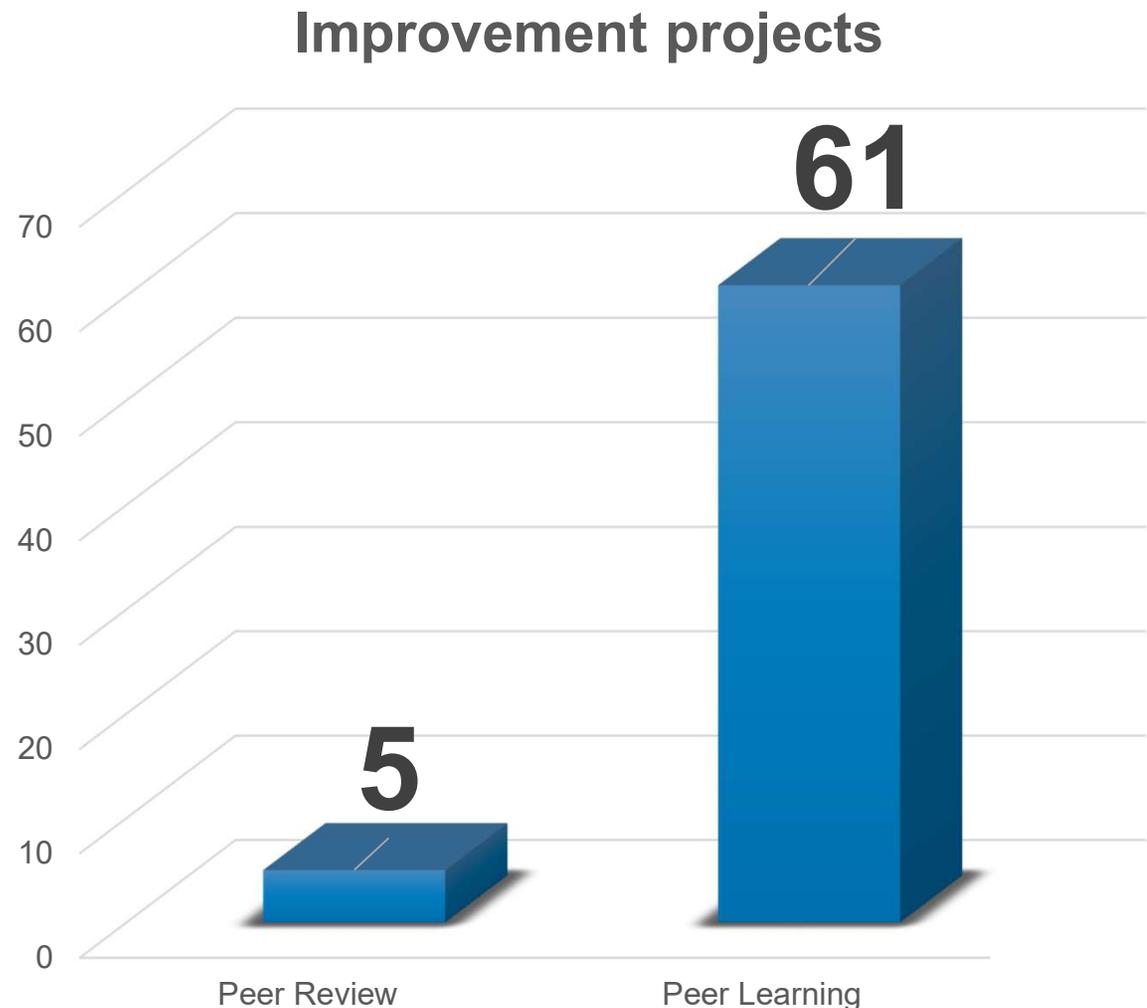
Peer Learning Results:

Radiologists earned significantly more CME credits after implementation of peer learning.



Peer Learning Results: Peer learning resulted in significantly more improvement projects than did peer review.

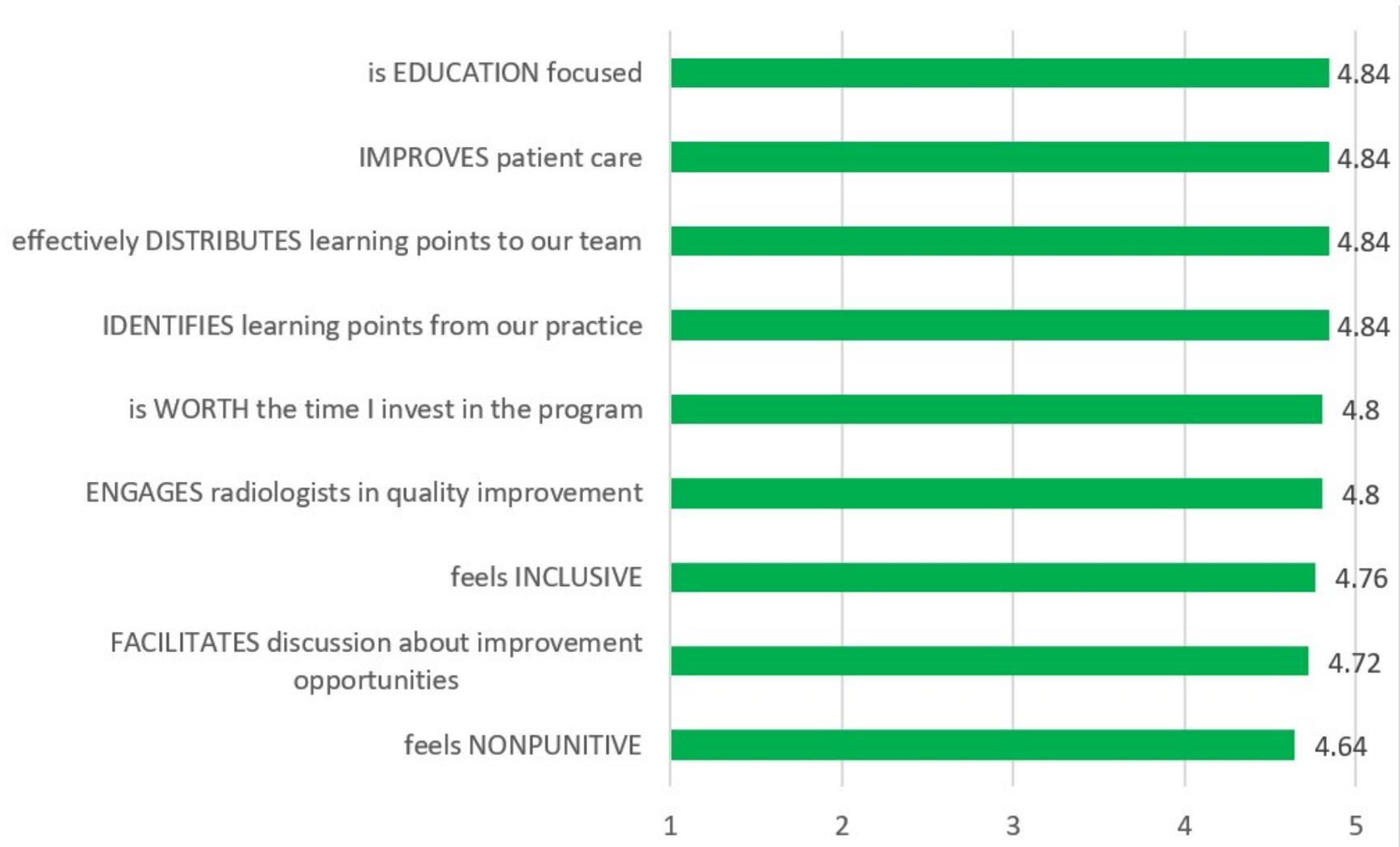
The score-based peer review program resulted in five departmental improvement projects during the designated preimplementation time, and 61 after the creation of a peer learning program (+56, $p < 0.01$).



Examples of improvement projects resulting from peer learning

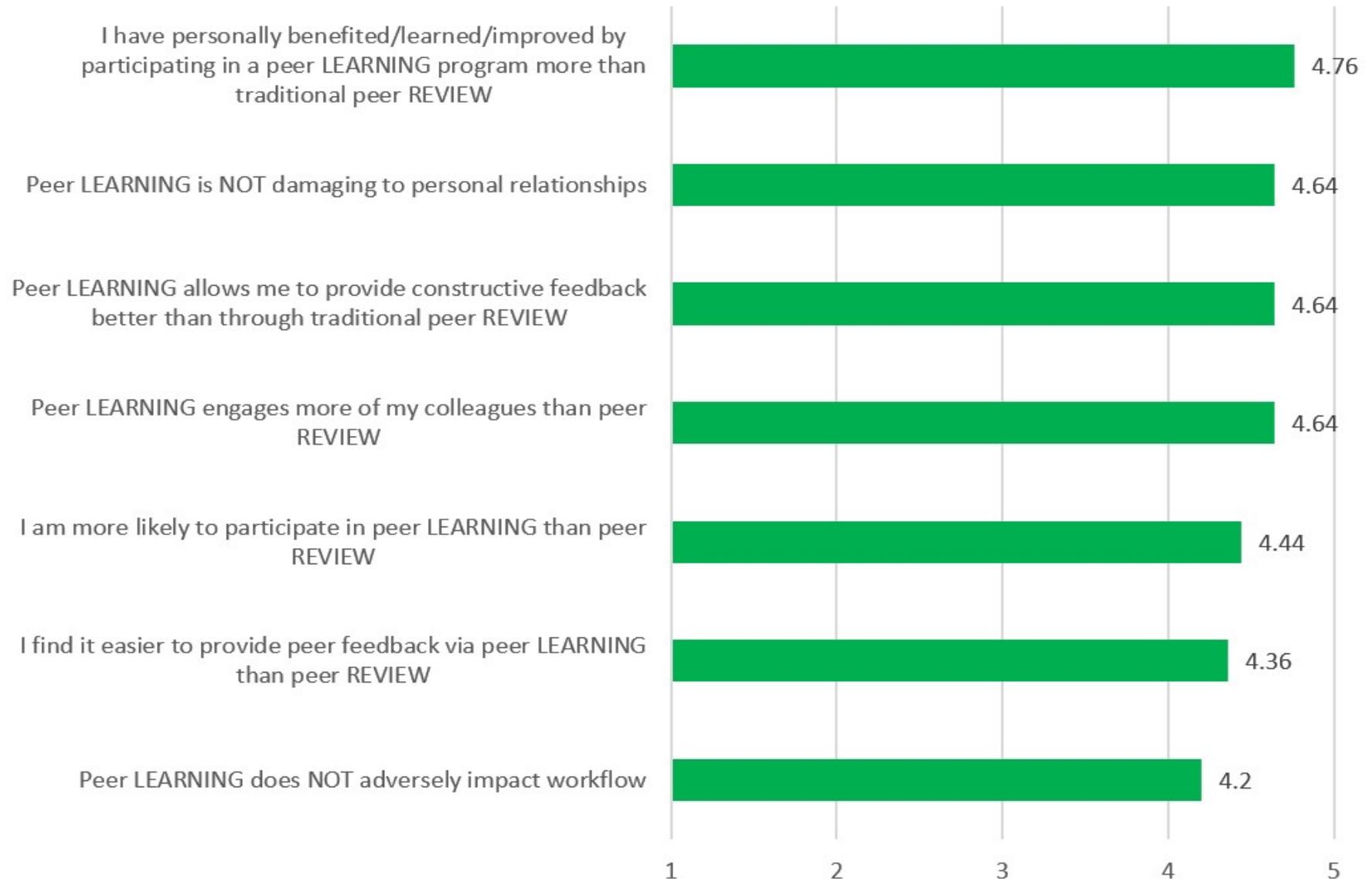
Improvement	Additional details
<p>Improve visual signals/controls</p>	<ul style="list-style-type: none"> • Create a PACS worklist for radiologists to view exams of patients with recent breast cancer diagnoses • Expand hanging protocol definitions of relevant prior exams, facilitating comparison of nontraditional prior examinations • Create a PACS worklist for Breast biopsy follow up to prevent name mismatches when dictating pathology addenda
<p>Create standardized workflows</p>	<ul style="list-style-type: none"> • Standardized interpretation of thyroid nodules, including individual nodule standardized risk assessment and management guidelines • Standardized breast cancer needle localization review process to ensure correct site surgery • Standardized interpretation and reporting of femoroacetabular impingement, liver masses, adrenal nodules, lung nodules • Standardized the ordering of follow up chest radiographs to evaluate for the clearing of pneumonia and to exclude malignancy.
<p>Reduce waste</p>	<ul style="list-style-type: none"> • Reconfigured settings for EMR to increase time for radiologist timeout from 5 minutes to several hours, reducing time spent repeatedly signing in during a shift • Created a transpelvic only pelvic US protocol • Developed criteria for follow up of incidental ovarian cysts • Create system level pick lists standardizing the reporting of possible ectopic pregnancies
<p>Improve communication</p>	<ul style="list-style-type: none"> • Organized a joint conference with endocrinology department to review challenging thyroid nodule cases • Standardized the reporting process for fetal ultrasound follow up and technical callbacks to ensure effective communication • Created content to improve individual accuracy of voice recognition software, and use of voice commands • Standardized the reporting of cervical incompetence

Peer Learning Results: Peer learning program participants strongly agreed that peer learning was effective



Peer Learning Results: Peer learning improves upon commonly described limitations of score based peer review, and was more effective than peer review

Results



Potential limitations of peer learning

Potential limitation 1: Anecdotal reporting could be prone to bias or other subjective factors.

However, data is used to create a curriculum and facilitate discussion among the entire team in an anonymous style, and some data can be omitted from these presentations.

Potential limitation 2: Peer learning cannot calculate radiologist specific error rates.

However, radiologist error rates estimated by RADPEER were all very similar and lower than expected, limiting their usefulness

Furthermore, there are many other means to evaluate radiologist performance:

- Evaluation of radiologist behavioral and professionalism trends
- Feedback from peer radiologists, non-radiologist physicians and patients
- Radiologist participation in peer learning or other educational activities
- Radiologist participation in practice improvement efforts

Conclusions

Compared to score based peer review, radiologists participating in peer learning:

- Were more satisfied
- Were more engaged
- Identified more learning opportunities
- Discussed learning opportunities with more team members
- Earned more CME credits
- Implemented more practice improvement projects
- Felt peer learning to be more effective than peer review

Next steps

- More work is needed to ensure this approach can be successful in different practice environments and various specialties in radiology, and perhaps other medical specialties.
- Codify the basic requirements of a peer learning program to ensure these programs can be understood by regulatory bodies, such as the American College of Radiology and the Joint Commission, to be superior, at least equivalent, to score based peer review for accreditation purposes.

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