

QUALITY IMPROVEMENT PROJECT TO IMPROVE THE QUALITY OF CLINICAL CONTEXT IN CHEST X-RAY REQUESTS

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Background

Chest X-ray (CXR) is the most requested imaging procedure in the UK, with millions performed annually, estimated at around 8.6 million in 2019. Incomplete or poorly detailed CXR requests can hinder the radiologist's ability to provide specific and accurate interpretations, which may lead to less effective patient care. Providing detailed clinical context in the requests ensures more precise and relevant interpretation of diagnoses from radiologists. This project was done within the Community Rapid Response Team (CRT) at St Woolos Hospital, Newport, which focuses on managing acutely unwell elderly and frail patients in the community to avoid hospital admissions.

Methodology

We raised our team's awareness of the importance of appropriately detailed CXR requests through discussions. The Plan-Do-Study-Act (PDSA) methodology of quality improvement was used for this project. Baseline data was collected for the first 20 CXR requests prior to May 2024 from electronic health records. These data were analysed for completeness, clarity, and relevance of clinical information provided. Based on the findings of the analysis, a new intervention was formulated as outlined below. Post-intervention, data was collected from the next 20 patients, and these were also analysed for the same criteria to ensure the effectiveness of the implemented changes.

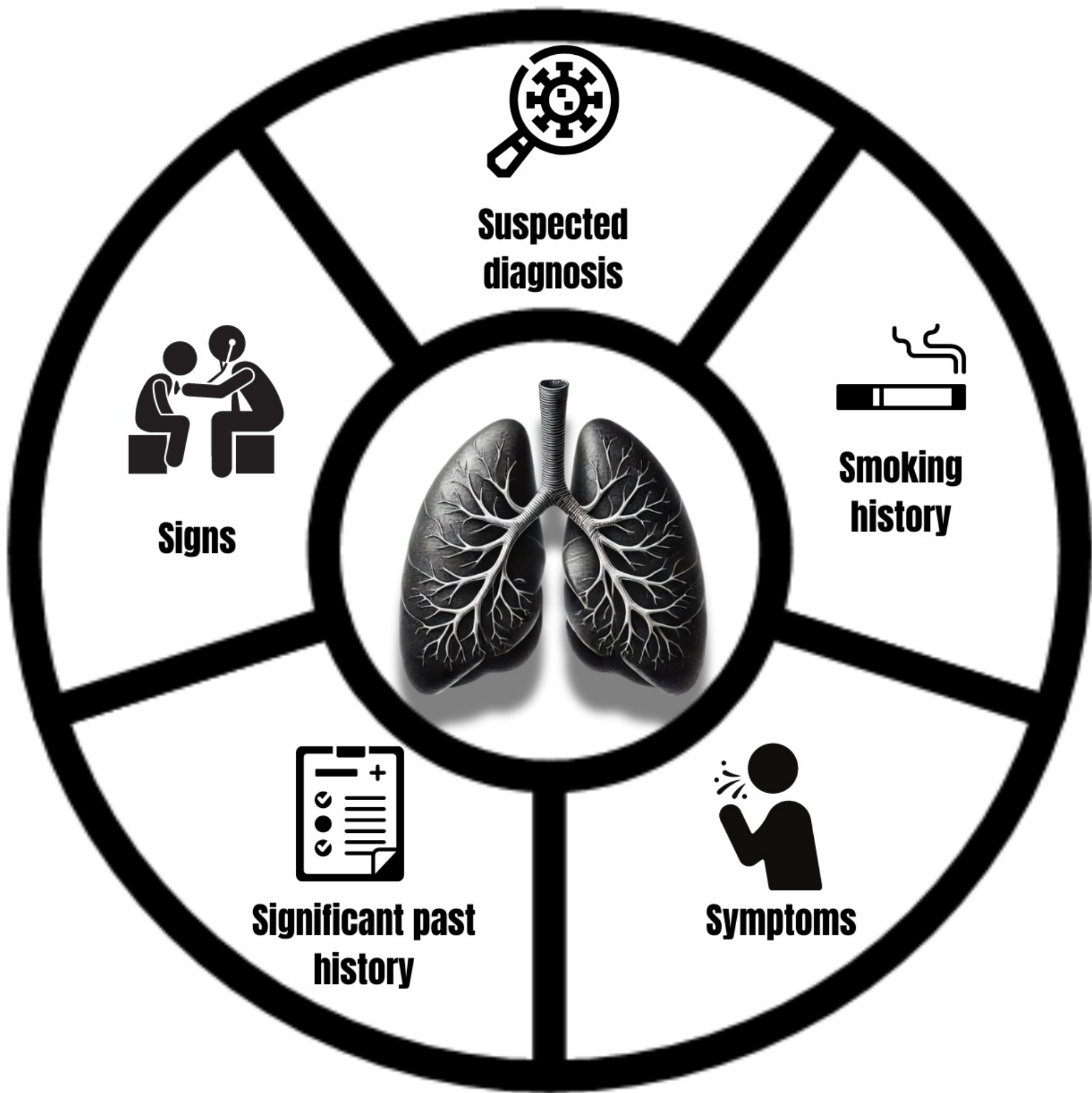
Intervention

A new checklist, termed the 5S Strategy, was introduced into the CXR request process. The 5S Strategy included:

1. Significant past medical history: Focused on lung-related conditions.
2. Smoking history: Quantified in pack years where possible.
3. Symptoms: Detailed description.
4. Signs: Examination findings.
5. Suspected diagnosis.

All team members were made aware of the new checklist and instructed to implement it when requesting CXR. A detailed 5S strategy document was emailed to all team members and physical copies were circulated within the team. To aid in quick reference, a small card outlining the 5S Strategy was placed below all the computer monitors.

5 S Strategy

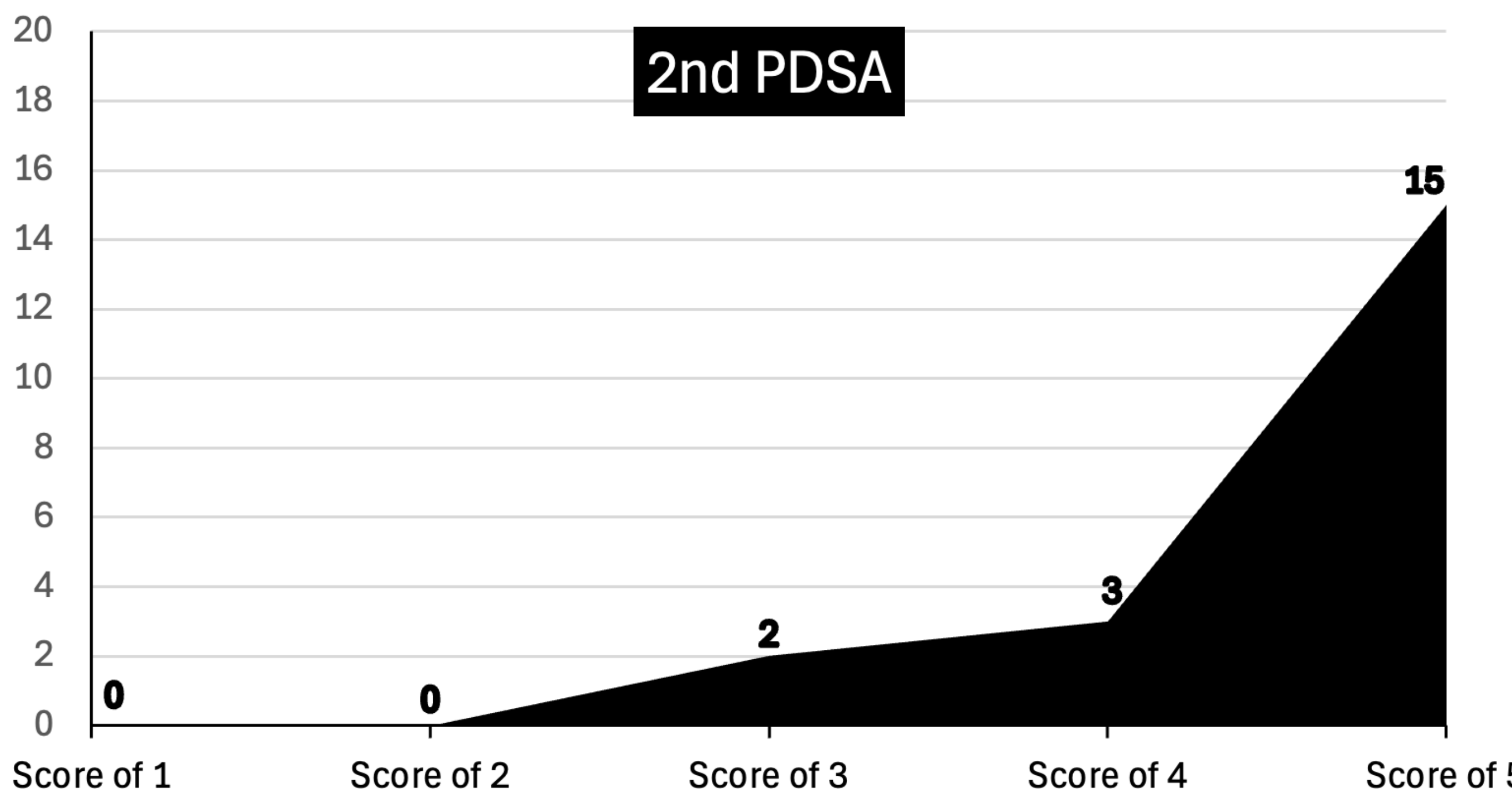
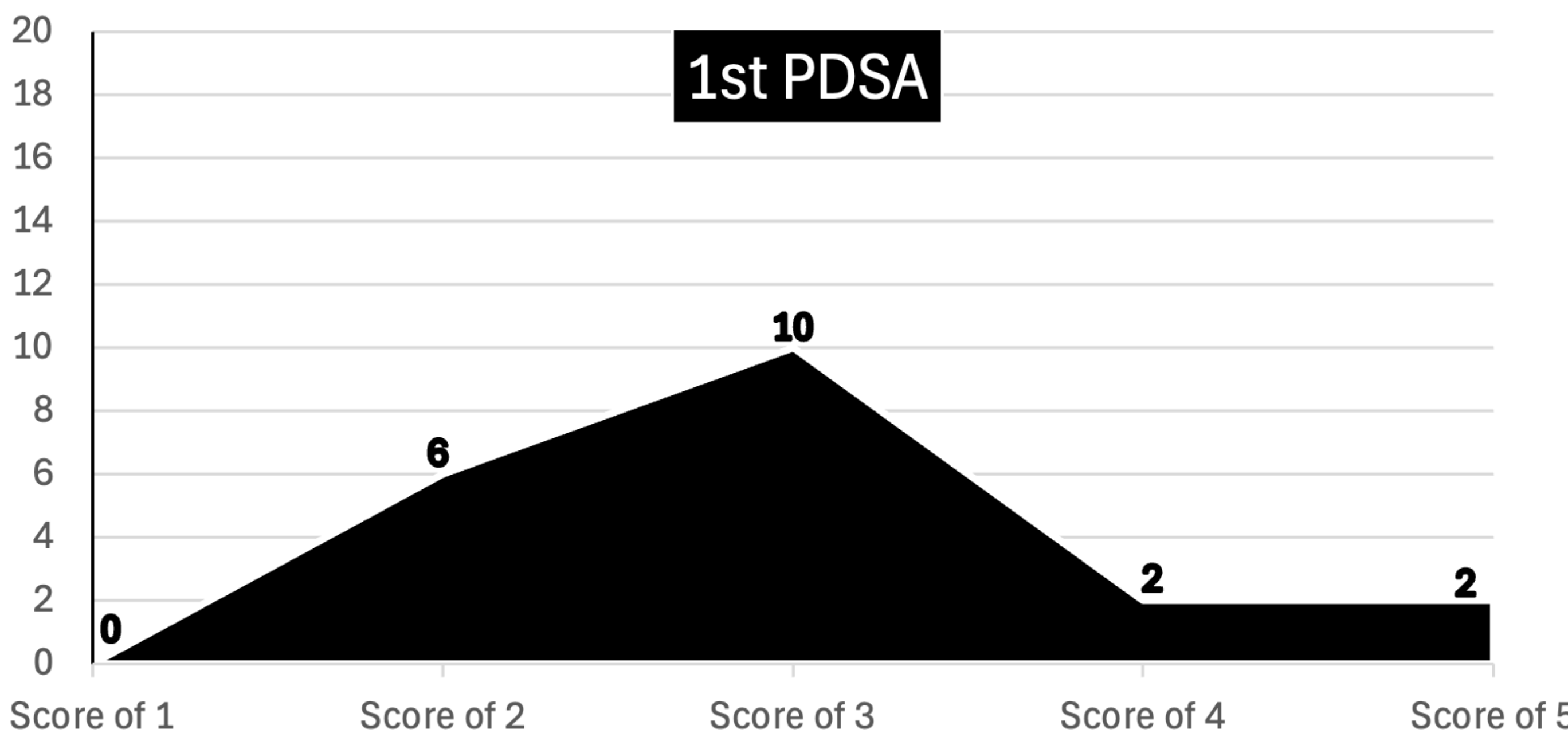


Both the pre- and post-intervention data were evaluated using the 5S strategy, with each domain allocated 1 point, resulting in a total score ranging from 0 to 5. A low score indicated that fewer criteria were met, while a high score indicated that all five criteria were addressed, representing a complete request.

Result

The provided stacked area charts represent the distribution of compliance scores for CXR requests before (1st PDSA cycle) and after (2nd PDSA cycle) the implementation of the intervention. In the 1st PDSA cycle, a combined 16 requests scored between 2 and 3, indicating that the majority of requests lacked sufficient detail while only 2 requests achieved a perfect score of 5. Whereas in the 2nd PDSA cycle, 15 requests achieved a perfect score of 5, an increase from 2 in the previous cycle, indicating a substantial improvement in adherence to the checklist criteria. Lower Scores (2 and 3) reduced drastically from 16 requests in the 1st cycle to just a few in the 2nd cycle, showing that the intervention effectively addressed the issues causing incomplete requests.

Stacked area chart comparison



Conclusion

The implementation of the new intervention (5S strategy) significantly improved the quality of CXR requests as clearly evidenced by the positive shift towards high-scoring requests. Improved quality of CXR requests will aid radiologists in providing more accurate interpretation of images, thereby improving the overall quality of patient care.