Reinventing Reject Analysis for Radiographic Quality Improvement
Seeking a Value-Driven Strategy for Quality Patient Care

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Purpose
The Value of [Reject] Analysis in Digital Radiography

The purpose of the [reject] analysis is to improve the quality of imaging for patients. By analyzing the reasons for reject images, we can identify areas for improvement in equipment, technique, or protocols. This can lead to better patient outcomes and increased trust in the imaging process.

Methods
Using DMAIC (define, measure, analyze, improve and control) strategy, we sought to improve the value of RA as part of a digital radiography analytics quality improvement program to identify relevant sources of information, methods of analysis, useful interventions and meaningful results.

Details of Analysis and Interventions

Quality Gaps Identified

- Manual exposure variability and highly variable comparisons to AEC (Fig. 1)
- Process variability: positioning and technique (Fig. 2)
- Change in techniques
- Review of acquisition techniques with patient size data and exposure index for flexion views (Fig. 5)

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Fig 1: Quality Ranking

Fig 2: Technologist education (Fig 2)

Fig 3: AEC vs Manual exposures were


Conclusions
New technology allows for more personalized and individualized care. To ensure that our patients receive the best care possible, we need to continuously improve our imaging processes. By using reject analysis, we can identify areas for improvement and make changes that will lead to better patient outcomes.

References


Fig 5: Positioning parameters (a) AEC vs manual exposures, an average deviation index (DI) of 14.7% for flexion views.

Fig 6: Overall reject analysis with corrected reference: Quality rank: 3.7/5, with higher rank indicating better outcome.

Table 1: Image variability with respect to AEC (Fig. 1)

Table 2: Manual exposure variability with respect to AEC (Fig. 2)

Table 3: Manual exposure variability with respect to AEC (Fig. 3)

Table 4: Manual exposure variability with respect to AEC (Fig. 4)

Table 5: Manual exposure variability with respect to AEC (Fig. 5)

Table 6: Manual exposure variability with respect to AEC (Fig. 6)

Fig 7: Positioning parameters (a) AEC vs manual exposures, an average deviation index (DI) of 14.7% for flexion views.

Fig 8: Overall reject analysis with corrected reference: Quality rank: 3.7/5, with higher rank indicating better outcome.