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DIGITAL X-RAY FILM REJECT ANALYSIS: A LOCAL STUDY IN THE RADIOLOGY DEPARTMENT OF ALEX-EKWUEME UNIVERSITY TEACHING HOSPITAL, ABAKALIKI, EBONYI STATE

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ABSTRACT

Film reject analysis is a crucial aspect of quality assurance in hospital radiology departments, promoting the delivery of high-quality diagnostic imaging services and ensuring accurate patient diagnoses. By identifying and addressing the root causes of film rejection, healthcare facilities can improve the overall efficiency and effectiveness of radiology services, leading to enhanced patient care outcomes. To determine the rate and reasons for film reject in Alex Ekwueme Federal Teaching Hospital Abakaliki. A retrospective review of rejected X-ray films over a specified period will be conducted to gather data on rejection rates, reasons and type of exam. The study will utilize a quantitative research design to systematically analyze X-ray film rejection rates, identify reasons for rejection, and evaluate the types of exam that is rejected the most in the hospital and a qualitative study to analyze the current steps taken to reduce rejection rates. The sample size used for the qualitative design was 17 and the total films were 6900 with 900 being rejected. Table 1.1 shows that the rate of rejected film is 13.04% in which 900 out of the total 6900 films were rejected. The results also show the highest examination being chest (n=2160) and the lowest examination being contrast studies (n=559). Contrast studies has the highest reject rate percentage (28.44%) in which 159 out of 559 radiographs were rejected, followed by abdomen examination (19.44%) where 154 examination out of the total 792 examinations were rejected. Extremities have the lowest reject percentage (8.46%) where 88 out of the total 1039 images were rejected. The study shows the common subjective reasons for rejecting films with their percentages in AE-FUTHA. Some of the major reasons for rejection of films are overexposure, underexposure, rotation and positioning error representing 216(24%), 196(21.78%), 168(18.67%) and 151(16.68%) respectively. Moreover, very few of the rejected radiographs 34(3.78%) were due to artifacts. Table 8 displays the average score derived from respondents' feedback on the current steps taken to tackle the number of films rejected in the hospital. According to the decision rule, if the mean score is below 3, it is deemed rejected; if the mean score is 3 or above, it is accepted. In this case, majority of the items in the table were rejected as they scored a mean lower than 3. The table has an overall mean of 1 indicating that there is poor compliance with steps set aside to ensure reduced film analysis in AE-FUTHA.

INTRODUCTION

X-ray imaging, also known as radiography, is a widely used diagnostic tool in healthcare that utilizes electromagnetic radiation to produce detailed images of the internal structures of the body. X-ray imaging plays a critical role in diagnosing a variety of medical conditions, including bone fractures, lung diseases, dental issues, digestive disorders, and cardiovascular conditions. This imaging technique offers numerous benefits, including its non-invasive nature, quick and painless process, cost-effectiveness, diagnostic precision, and real-time monitoring capabilities.[1] One of the key technological advancements in X-ray imaging is digital radiography (DR), which has revolutionized the way X-ray images are captured, viewed, stored, and shared. Digital radiography systems offer immediate image availability, high-quality images, and the ability to manipulate and enhance images for better visualization and diagnostic accuracy.[2] In addition to traditional X-ray imaging, computed tomography (CT) scans are another important technology that uses X-rays to create cross-sectional images of the body. CT scans provide detailed 3D views of internal structures, allowing for more precise and comprehensive assessments of various medical conditions, such as tumors, fractures, and internal injuries.[3] Safety considerations are paramount in X-ray imaging to minimize radiation exposure to patients and healthcare workers. While X-rays are generally safe, efforts are made to reduce radiation doses through dose optimization techniques, proper shielding, and adherence to ALARA (As Low as Reasonably Achievable) principles. Regular quality assurance measures, such as equipment calibration and maintenance, are essential to ensure the accuracy and safety of X-ray imaging system.[4]

Future advancements in X-ray imaging are focused on improving diagnostic accuracy, patient safety, and imaging efficiency. Artificial intelligence (AI) algorithms are being integrated into X-ray imaging systems to automate image interpretation, enhance diagnostic capabilities, and streamline radiologist workflows. Additionally, advances in low-dose imaging techniques and the development of advanced imaging modalities are pushing the boundaries of diagnostic imaging, making the technology more precise and patient-friendly.[5] X-ray imaging is a vital tool in healthcare for diagnosing and monitoring various medical conditions. With ongoing technological advancements, safety practices, and research efforts, X-ray imaging continues to evolve, providing healthcare professionals with valuable insights into patient health while ensuring patient safety and diagnostic accuracy. X-ray imaging plays a critical role in healthcare as a widely used diagnostic tool for detecting and visualizing various medical conditions. This imaging technique, also known as radiography, utilizes electromagnetic radiation to produce detailed images of the internal structures of the body. X-rays are particularly useful for examining bones, organs, and tissues, aiding in the diagnosis, treatment, and monitoring of a wide range of medical conditions. In this discussion, we will explore the various aspects of X-ray imaging in healthcare, including its uses, benefits, technologies, safety considerations, and future advancements. X-ray imaging is used across various medical specialties and settings for different purposes, including: Bone Fractures and Injuries: X-rays are commonly used to diagnose fractures, dislocations, and other bone-related injuries, Pulmonary Imaging: Chest X-rays are essential for assessing lung conditions such as pneumonia, tuberculosis, and lung cancer, Dental Radiography: X-rays are used in dentistry for detecting dental caries, periodontal disease, and assessing oral health. Digestive System: X-rays can visualize the gastrointestinal tract for diagnosing conditions like ulcers, blockages, or tumors. Cardiovascular Imaging: Angiography uses X-rays to view blood vessels and diagnose heart-related conditions. Orthopedic Surgery: X-rays are crucial for planning and monitoring orthopedic surgeries such as joint replacements or spinal procedures.

Non-Invasive: X-ray imaging is non-invasive, meaning it does not require surgical procedures to visualize internal structures. Quick and Painless: X-rays are fast and usually painless, making them convenient for patients. Cost-Effective: X-ray imaging is relatively affordable compared to other imaging modalities, making it accessible in various healthcare settings. Diagnostic Precision: X-rays provide detailed images that help in accurate diagnosis and treatment planning.

Real-Time Monitoring: Fluoroscopy, a type of X-ray procedure, allows real-time visualization of moving body parts like the heart or digestive system. X-ray imaging continues to be a cornerstone of diagnostic imaging in healthcare, providing invaluable information for clinicians, radiologists, and patients. Its versatility, accessibility, and diagnostic precision make it a vital tool in the early detection and management of a wide range of medical conditions. Advances in technology, safety practices, and imaging modalities are shaping the future of X-ray imaging, promising further improvements in patient care, diagnostic accuracy, and treatment outcomes in healthcare.

Film reject analysis in the hospital is a critical component of quality assurance in radiology departments, aiming to identify and address issues that lead to the rejection of X-ray films. The analysis of rejected films helps improve the overall quality of diagnostic imaging, reduce radiation exposure to patients, and enhance the efficiency of radiology services.[6] Understanding the reasons for film rejection and implementing corrective measures are essential for ensuring accurate and timely diagnoses in healthcare settings. One of the common reasons for film rejection is technical errors during the imaging process, such as improper positioning, incorrect exposure factors, or processing errors. Additionally, artifacts on the image, such as motion blur, grid lines, or image degradation, can lead to film rejection. These issues impact the quality of the images and may hinder accurate interpretation by radiologists, ultimately affecting patient care outcomes. The reasons for film rejection in a Nigerian teaching hospital and identified factors such as positioning errors, artifacts, and film processing issues as the leading causes of rejected X-ray films.[7] The study emphasized the importance of staff training, quality control measures, and equipment maintenance in reducing film rejection rates and improving the overall quality of diagnostic imaging services. Effective film reject analysis involves a systematic review of rejected films, documentation of rejection reasons, and communication of findings to radiology staff for corrective action. Quality assurance programs that include regular film reject analysis and feedback mechanisms help identify trends, patterns, and areas for improvement in the imaging process.[8] Furthermore, technological advancements, such as digital radiography systems, have improved the efficiency of image capture, processing, and storage, reducing the likelihood of film rejection. Digital imaging allows for immediate image preview, manipulation, and transmission, enabling radiology staff to identify and correct imaging errors in real-time, thereby minimizing film rejection rate.[9] Film reject analysis is a crucial aspect of quality assurance in hospital radiology departments, promoting the delivery of high-quality diagnostic imaging services and ensuring accurate patient diagnoses. By identifying and addressing the root causes of film rejection, healthcare facilities can improve the overall efficiency and effectiveness of radiology services, leading to enhanced patient care outcomes. Quality assurance (QA) in X-ray imaging plays a vital role in ensuring the accuracy, safety, and effectiveness of diagnostic radiology services in healthcare settings. QA programs aim to monitor and maintain the quality of X-ray imaging procedures, equipment, and processes to minimize errors, reduce patient risks, and enhance the overall quality of patient care. By implementing QA measures, healthcare facilities can improve the reliability and consistency of diagnostic imaging, leading to better outcomes for patients and healthcare providers. One of the key aspects of QA in X-ray imaging is the establishment of imaging protocols and standard operating procedures to ensure consistent and high-quality image acquisition. Protocols define parameters such as exposure factors, patient positioning, image processing techniques, and quality control checks to standardize imaging practices and optimize image quality.[10]

Regular equipment maintenance and calibration are essential components of QA programs in X-ray imaging. Routine inspections, performance testing, and quality control measures help identify equipment malfunctions, ensure accuracy and reliability of imaging systems, and reduce the likelihood of errors in image acquisition and interpretation.[11] Radiation safety is another critical aspect of QA in X-ray imaging, aiming to minimize patient exposure to ionizing radiation while maintaining diagnostic image quality. Compliance with radiation dose limits, optimization of exposure factors, and adherence to ALARA principles (As Low as Reasonably Achievable) are fundamental in ensuring patient safety and minimizing radiation risks.[12] The importance of quality assurance (QA) in digital radiography for optimizing image quality and diagnostic accuracy. The study highlighted the role of QA programs, staff training, and image post-processing techniques in enhancing the performance of digital radiography systems and improving patient outcomes.[13]

Effective QA in X-ray imaging also involves ongoing performance monitoring, data analysis, and feedback mechanisms to identify trends, address issues, and drive continuous improvement in imaging quality. By regularly evaluating imaging practices, outcomes, and patient feedback, healthcare facilities can identify areas for enhancement, implement corrective actions, and ensure the delivery of high-quality diagnostic imaging service.[14] Quality assurance is essential in X-ray imaging to maintain the quality, safety, and effectiveness of diagnostic radiology services. By implementing robust QA programs, healthcare facilities can optimize imaging practices, ensure equipment reliability, uphold radiation safety standards, and enhance patient care outcomes.

MATERIALS AND METHOD

A retrospective review of rejected X-ray films over a specified period was conducted to gather data on rejection rates, reasons and type of exam. Using a quantitative research design to systematically analyze X-ray film rejection rates, identify reasons for rejection, and evaluate the types of exam that is rejected the most in the hospital and a qualitative study to analyze the current steps taken to reduce rejection rates. The study was carried out for a period of one year: January 2023 to December 2023. This study was carried out at the radiology department of Alex Ekwueme-Federal University Teaching Hospital, Abakaliki (AE-FUTHA) Ebonyi sate, Nigeria. The data for the study was obtained from the record books of the radiology department, collecting and reviewing existing rejection films maintained by Alex Ekwueme Federal University Teaching Hospital, Abakaliki which document details of rejected films, reasons for rejection, types of exam and patient demographics. Questionnaire was used to collect data on the existing methods used to reducing the rate of film rejection at Alex Ekwueme Federal University Teaching Hospital, Abakaliki.

In this study, the target population were the x-ray films rejected in the radiology department of Alex Ekwueme Federal University Teaching Hospital, Abakaliki. This study involved all the film collected from the radiology department within the period of the study which was six thousand nine hundred (6,900) for the secondary data. Primary data the sample size was calculated using the Z-score formula with 1.65 (for a 90% confidence level): n = (z2 * p * (1 - p)) / e2. Where:n = the required sample size. And z = the z-score, which is 1.96 for a 95% confidence level to get a sample size of 17. The secondary data, simple random sampling was used to collect the data and for the primary data, usingconvenience sampling technique. X-ray films that were rejected within the time frame of this study were considered for this study. Films taken outside the time frame were not considered for this examination. Films were obtained from the archives of radiology department AE-FUTHA after consent was obtained from the ethical clearance committee of the hospital. Each film was assessed on viewing box under similar viewing conditions of room light and temperature. The evaluation was done by a chief radiographer. Rejected films were analyzed and classified according to radiographic examination of body parts which includes but is not limited to abdomen, chest, contrast studies extremities, pelvis, skull/mandible/sinuses and spine. Moreover, the reasons for the reject were also categorized as overexposure, underexposure, rotation, positioning error, poor breathing, artifact, equipment malfunction and absence of anatomical marker. The questionnaire consisted of four (4) questions, designed in line with the aim of the study, it contains questions derived from the research objectives that develop and generate more responses and insights into the study. A pilot test is an initial trial or test of a product, system, or process before it is fully implemented or rolled out. It is typically conducted with a smaller group or sample of users to gather feedback, identify any potential issues or areas for improvement, and refine the final version of the product or process. The purpose of a pilot test is to assess feasibility, effectiveness, and user acceptance before broader implementation. The questionnaire will be subjected to face and content validity by my research supervisor. Face validity was used to ensure that the questionnaire was subjected to review to ensure it has a good representation. Data were analyzed using SPSS version 20.0 software, descriptive statistics such as frequency, mean, mode were generated.

RESULTS

Table 1: Rate of Reject for Radiographic Examination at AE-FUTHA.

Radiographic examination	Number of films used	Number of films rejected	Reject rate (%)
Chest	2160	151	6.99%
Skull/mandible/sinuses	756	84	11.11%
Extremities	1039	88	8.46%
Abdomen	792	154	19.44%
Pelvis	696	106	15.23%
Contrast studies	559	159	28.44%
Spine	898	158	17.59%
Total	6900	900	13.04%

Table 1.1 shows that the rate of rejected film is 13.04% in which 900 out of the total 6900 films were rejected.

Table 1 also shows the highest examination being chest (n=2160) and the lowest examination being contrast studies (n=559). Contrast studies has the highest reject rate percentage (28.44%) in which 159 out of 559 radiographs were rejected, followed by abdomen examination (19.44%) where 154 examination out of the total 792 examinations were rejected. Extremities have the lowest reject percentage (8.46%) where 88 out of the total 1039 images were rejected.

Table 2: Common Reasons for rejecting Films in AE-FUTHA.

Reasons for Reject	*Number of Rejected Films*	*Percentage(%)*
Overexposure	216	24%
Underexposure	196	21.78%
Rotation	168	18.67%
Positioning error	151	16.68%
Poor breathing	39	4.33%
Artifact	34	3.78%
Equipment malfunction	57	6.33%
Absence of anatomical marker	39	4.33%
Total	900	100%

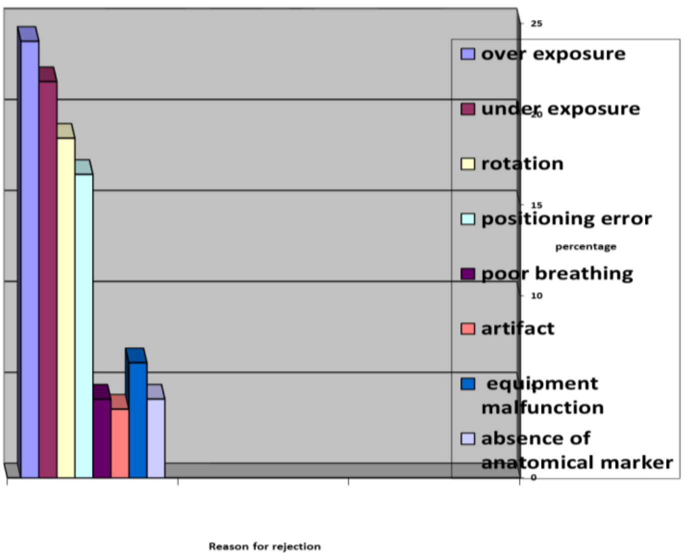

Fig 1: The Distribution of Reasons for Film Rejection with their Corresponding Percentages.

Table 2 and Figure 1 above shows the common subjective reasons for rejecting films with their percentages in AE-FUTHA. Some of the major reasons for rejection of films are overexposure, underexposure, rotation and positioning error representing 216(24%), 196(21.78%), 168(18.67%) and 151(16.68%) respectively. Moreover, very few of the rejected radiographs 34(3.78%) were due to artifacts.

Table 3: Questionnaire Distribution and Return.

QUESTIONNAIRE	RESPONDENTS	PERCENTAGE (%)
Returned	17	100
Not returned	0	0
Total distributed	17	100

Source: Field Survey, 2024

Table 3 illustrates the distribution and returns of the questionnaire. A total of 17 questionnaires were distributed, representing 100% of the sample size. Of these, 17 (100%) were returned. The returned questionnaires were deemed sufficient for making valid deductions and conclusions. Therefore, the research analysis was based on these returned questionnaires.

Table 4: Distribution of Respondents According to Gender.

OPTION	FREQUENCY	PERCENTAGE (%)
Male	11	64.7
Female	6	35.3
Total	**17**	**100**

Source: Field Survey, 2024

Table 4 presents the gender distribution of the respondents. It shows that 11 respondents, representing 64.7%, are male, while the remaining 6 respondents, accounting for 35.3%, are female. Thus, the table indicates that the majority of respondents are male.

Table 5: Distribution on Educational Qualification.

Option	Frequency	Percentage %
B.Sc.	10	58.8
M.Sc.	5	29.4
Ph.D. and above	2	11.8
TOTAL	**17**	**100**

Source: Field Survey, 2024

Table 5 presents the educational qualifications of the research respondents. Out of all respondents, 58.8% (10 individuals) reported having B.Sc., 29.4% (5 individuals) possess an M.Sc. qualification, 11.8% (2 individuals) hold a Higher Ph.D and above qualification. The data suggests that the majority of respondents hold a B.Sc. qualification.

Table 6: Age Distribution of Respondents.

Option	Frequency	Percentage
21-25	2	**11.8**
26-30	5	**29.4**
31 - 35	4	**23.5**
36 and above	6	**35.3**
Total	**17**	**100%**

Source: Field Survey 2024

Table 6 presents the age distribution of respondents. It shows that 2 respondents, representing 11.8% of the total, fall within the 21-25 age bracket, while 5 respondents (29.4%) fall within the 26-30 age range. Furthermore, 4 respondents (23.5%) are in the 31-35 age bracket, and finally, 6 respondents (35.3%) indicated they are aged 36 and above.

Table 7: Distribution on the Marital Status.

Option	Frequency	Percentage (%)
Married	9	52.9
Single	8	47.1
Total	17	100

Source: field survey, 2024

Table 7 presents the marital status of the respondents. Out of all respondents, 52.9% (9 individuals) are married, 47.1% (8 individuals) are single. Therefore, it's clear from the table that the majority of respondents are married.

Table 8: Distribution of the current steps taken to tackle the number of film rejects in the hospital.

S/N	Items	SA	A	N	D	SD	Total score	Mean score	Decision
1	There is an established rejection criteria standard	3	3	-	7	4	45	2.6	Rejected
2	There is ongoing staff Training and Education in proper imaging techniques	2	2	-	5	8	36	2.1	Rejected
3	There is regular equipment Maintenance and Calibration	2	1	-	3	11	31	1.8	Rejected
4	There is communication with patient during positioning	8	4	-	4	1	65	3.8	Accepted
	Mean TOTAL	3.75	2.5	-	4.75	6	17	1	Rejected

Source: field survey, 2024
Total respondents: 17
Where; SD is strongly Disagree. D is Disagree. A is Agree. SA is Strongly Agree

Table 8 displays the average score derived from respondents' feedback on the current steps taken to tackle the number of film rejects in the hospital. According to the decision rule, if the mean score is below 3, it is deemed rejected; if the mean score is 3 or above, it is accepted. In this case, majority of the items in the table were rejected as they scored a mean lower than 3. The table has an overall mean of 1 indicating that there is poor compliance with steps set aside to ensure reduced film analysis in AE-FUTHA.

DISCUSSION

Table 1.1 shows that the rate of rejected X-ray film is 13.04%, with 900 out of the total 6900 films being rejected. A rejection rate of 13.04% indicates that a significant proportion of the X-ray films produced at the hospital did not meet the required quality standards for diagnostic imaging. This has important implications for patient care, as inaccurate or substandard X-ray films can lead to misdiagnosis, delays in treatment, and compromised healthcare outcomes. The high rejection rate suggests that there may be issues with the production process or quality control measures in place at the hospital. It is essential for the hospital to investigate the root causes of film rejection, such as equipment malfunctions, technical errors, insufficient training of staff, or inadequate materials, in order to implement corrective actions. Furthermore, the rejection of 900 X-ray films out of 6900 highlights the need for improvements in quality assurance practices at the hospital. This may involve implementing more stringent quality control checks, conducting regular equipment maintenance and calibration, providing ongoing training for staff, and ensuring the availability of high-quality materials for film production. Reducing the rejection rate of X-ray films is critical for maintaining the hospital's reputation, optimizing resource utilization, and ensuring the delivery of accurate and reliable diagnostic images for patient care. By addressing the issues identified in the film reject analysis project, the hospital can enhance the overall quality of its X-ray film production and ultimately improve patient outcomes. The results of the project underscore the importance of quality control in X-ray film production at Alex Ekueme Federal University Teaching Hospital Abakaliki and emphasize the need for continuous monitoring and improvement of production processes to reduce the rate of rejected films and uphold high standards of patient care.

The findings from Table 1.1 provide valuable insights into the distribution of examinations and rejection rates for different types of radiographic studies conducted at the facility. The table indicates that the highest examination conducted is chest radiographs, totaling 2160, while the lowest examination conducted is contrast studies, with only 559 radiographs. Interestingly, despite contrast studies being conducted at a lower frequency compared to chest radiographs, it has the highest reject rate percentage of 28.44%. This means that out of the 559 contrast studies conducted, 159 radiographs were rejected due to quality issues. This high rejection rate could be attributed to the complexity of contrast studies, which may require a higher level of technical expertise and precision in positioning and exposure settings. On the other hand, the abdomen examination has a reject rate of 19.44%, with 154 out of the total 792 examinations being rejected. This indicates that there may be specific challenges or quality issues associated with abdominal radiographs that need to be addressed to improve the overall quality of the images produced. It is worth noting that extremities examinations have the lowest reject percentage of 8.46%, with only 88 out of the total 1039 images being rejected. This suggests that the quality control measures in place for extremities radiographs may be more effective or that the examination process for extremities is relatively straightforward compared to other types of studies.[15] These findings highlight the importance of monitoring rejection rates for different types of radiographic examinations and identifying areas for improvement in the quality control processes.[16] By analyzing rejection rates and identifying trends among different types of studies, the facility can implement targeted interventions to address specific challenges and improve the overall quality of radiographic images produced. The findings from Table 1.1 underscore the importance of quality assurance and continuous improvement in radiographic imaging services to ensure accurate diagnostic results and enhance patient care outcomes. By addressing the factors contributing to high rejection rates in specific types of examinations, the facility can enhance the quality of radiographic studies and improve overall efficiency in delivering imaging services.

The findings presented in Table 2 and Figure 1 provide important insights into the common subjective reasons for the rejection of radiographic films at AE-FUTHA. The data highlights several key reasons for film rejection, with overexposure, underexposure, rotation error, and positioning error being among the major contributing factors. Additionally, a small percentage of rejected radiographs were due to artifacts. Overexposure, representing 24% of the rejected films, occurs when the image has been exposed to too much radiation, resulting in a darker image than what is required for proper visualization. Underexposure, accounting for 21.78% of rejections, conversely, happens when the image has not received enough radiation, leading to a lighter or unclear image that lacks sufficient diagnostic quality. Rotation error, which accounted for 18.67% of rejected films, occurs when the radiographic image is not aligned properly, leading to distortion or misinterpretation of anatomical structures. Similarly, positioning error, representing 16.68% of rejections, indicates that the patient's positioning during the radiographic procedure was incorrect, resulting in inadequate visualization of the targeted area. The data also indicates that a small percentage of rejected radiographs were due to artifacts, contributing to only 3.78% of all rejections. Artifacts are unwanted image distortions or anomalies that can arise from various sources, such as equipment malfunctions, foreign objects, or patient movement during image acquisition. These findings underscore the importance of quality control measures in radiographic imaging to ensure the production of accurate and reliable diagnostic images. Addressing common reasons for film rejection, such as overexposure, underexposure, rotation error, and positioning error, requires concerted efforts to improve technical skills, implement standardized protocols, and enhance quality assurance practices.[17] By identifying and addressing the root causes of film rejection, AE-FUTHA can enhance the quality of radiographic images, minimize re-examinations, and ultimately improve patient care outcomes. Developing strategies to reduce common errors and artifacts in radiographic films can lead to more efficient and accurate diagnosis benefitting both patient and healthcare providers.[18]

The findings presented in Table 8 shed light on the average scores derived from respondents regarding the current steps taken to address the issue of film rejects in the hospital. According to the decision rule outlined, a mean score below 3 is considered rejected, while a mean score of 3 or above is deemed accepted. In this case, the majority of the items in the table were rejected as they scored a mean lower than 3, indicating that there is room for improvement in the measures being implemented to tackle film rejects. The table also shows an overall mean score of 1, suggesting that, on average, the respondents rated the current steps taken to address film rejects as significantly below the acceptable threshold of 3. This indicates a clear consensus among the respondents that the measures in place are not meeting expectations or effectively addressing the issue of film rejects within the hospital setting.[19] The fact that the majority of items were rejected based on the mean scores indicates a critical need for reassessment and enhancement of the strategies and interventions aimed at reducing film rejects. It signals a lack of confidence or satisfaction among the respondents regarding the effectiveness of the current initiatives and highlights the urgency of implementing more robust and comprehensive measures to improve the quality control processes in place.[20] Addressing the findings from Table 8 and the low overall mean score of 1 requires a detailed analysis of the specific areas of weakness identified by the respondents. This could involve conducting a root cause analysis, seeking feedback from stakeholders, and developing a targeted action plan to address the deficiencies in the current approach to reducing film rejects.[21] By heeding the feedback provided by the respondents and taking proactive steps to enhance the quality control measures for radiographic imaging, the hospital can work towards reducing the rejection rate of films, improving the quality of diagnostic images, and ultimately enhancing patient care outcomes. It is essential for the hospital to prioritize continuous improvement initiatives based on the feedback received from stakeholders to address the challenges identified in table 8 effectively.[22]

CONCLUSION

While the overall rate of rejected films is low, there are notable variations in rejection rates across different types of examinations, with contrast studies exhibiting the highest reject rate percentage and extremities showing the lowest reject percentage. Common reasons for the rejection of films include overexposure, underexposure, rotation errors, and positioning errors, highlighting the importance of maintaining high standards in image acquisition and quality control. Other contributing factors to film rejection include poor breathing techniques, artifacts, equipment malfunctions, and the absence of anatomical markers, underscoring the need for enhanced attention to detail and technical proficiency in radiographic procedures. Moreover, the findings suggest that there is poor compliance with the current steps set aside to ensure reduced film rejects at AE-FUTHA, as indicated by the low average scores provided by respondents regarding the effectiveness of the measures in place. This underscores the critical need for reassessment and improvement of the strategies and interventions aimed at reducing film rejects within the hospital setting.

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