

PRIMARY IMAGING DELAYS

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Abstract

Having delays during imaging exams can further prevent patients from receiving the care they need and lead to economical impacts on the hospital as well. An anonymous survey was sent out to technicians across different imaging modalities to find out how often these delays occur, the average delay length, and cause. The results showed that these delays are often linked to patients factors such as patient volume, movement, and arrival time. These delays happened a moderate amount across all modalities with CT, IR, and MRI experiencing the most delays on average, and the delays generally lasted for 10 minutes or longer. This indicates that finding factors to properly help manage the scheduling of patients or educate patients prior to exams are needed to allow for better workflow and patient care in imaging departments.

Introduction

Patient anxiety is a common barrier across healthcare, often impacting how well patients can tolerate procedures, follow instructions, and affect the patient's experience. In diagnostic imaging, it can present a greater challenge as some scans may require more cooperation from the patient such as staying still and holding their breaths in order to capture quality images. MRI scans can be especially difficult for patients due to having to remain still in an enclosed space for 30–60 minutes on average [1]. When anxiety interferes with a patient's ability to cooperate, it can compromise the image quality, lead to delays, or result in being forced to rescan patients [2,3]. Not only that, but it can also affect the hospital economically as well due to losing scanning time [2].

Summary

Recognizing the complications that come with a patient experiencing anxiety when it comes to diagnostic imaging is an important step in learning how to address them. However, there is a lack of clear research done on how great of an effect patient anxiety has on the scanning process and the scans themselves. While patient anxiety can very well cause some issues during imaging, there have been a few studies that suggest that even patients that have claustrophobia are only responsible for around 0.54% of failed MRI examinations [2]. However, there is overall a limited amount of studies done on imaging modalities outside MRI on what the main source of delayed or canceled scans is, and finding more evidence is needed. While patient anxiety can be a factor behind these delays, there are likely stronger reasons such as patient movement or the patient being unprepared that are the source of a majority of scheduled scans being delayed.

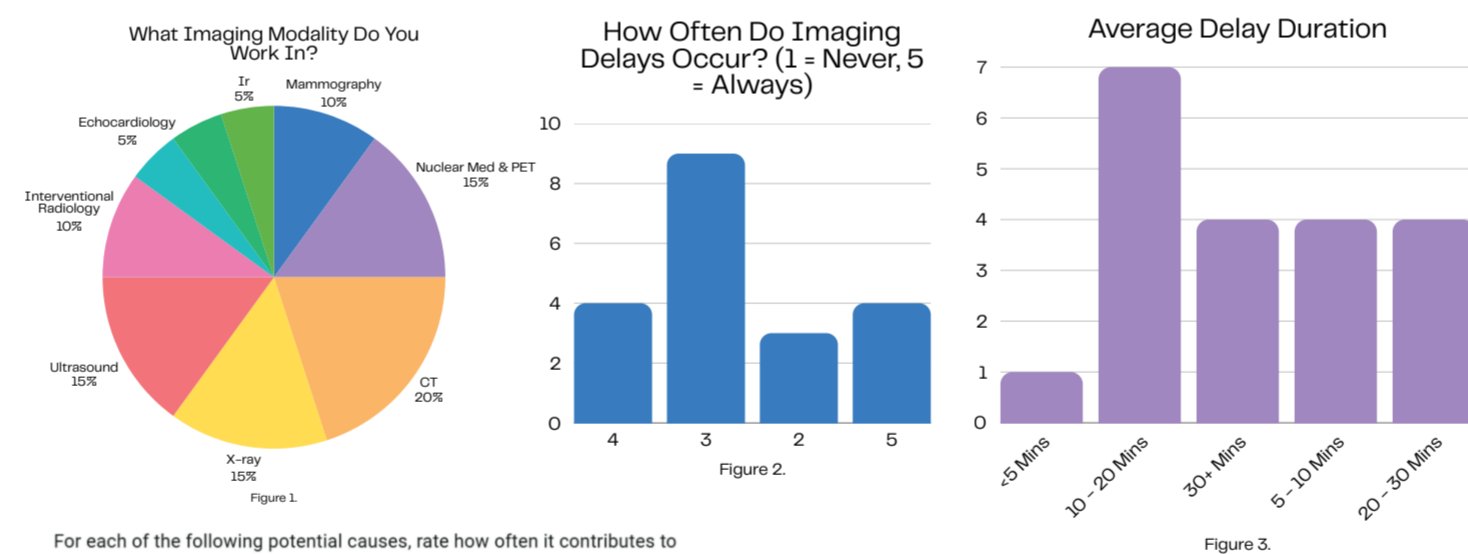
Methodology

An anonymous survey was given to technicians throughout the different imaging modalities that perform scans on patients. Responses were gathered on a voluntary basis and distributed through emails requesting that they provide honest answers based on past experiences. First, the survey asks them to specify which imaging modality they are in or frequently perform in. Survey then asks them to rate the following reasons on a scale of 1–8 based on what they believed to be the most likely cause of imaging delays: patient anxiety, patient movement, patient having a delayed arrival/no-show, patient having inadequate preparations (not fasting, wearing metal, etc.), staffing shortages, equipment malfunctions, and experiencing a large volume of patients. Limiting common answers to a numerical scale helps reduce variability between responses and makes assessing the data easier. An optional, open-answer question is provided where the responder may list additional reasons they may be a major reason for scanning delays along with a corresponding rating. This helps in accounting for factors that didn't appear on the given list of potential reasons.

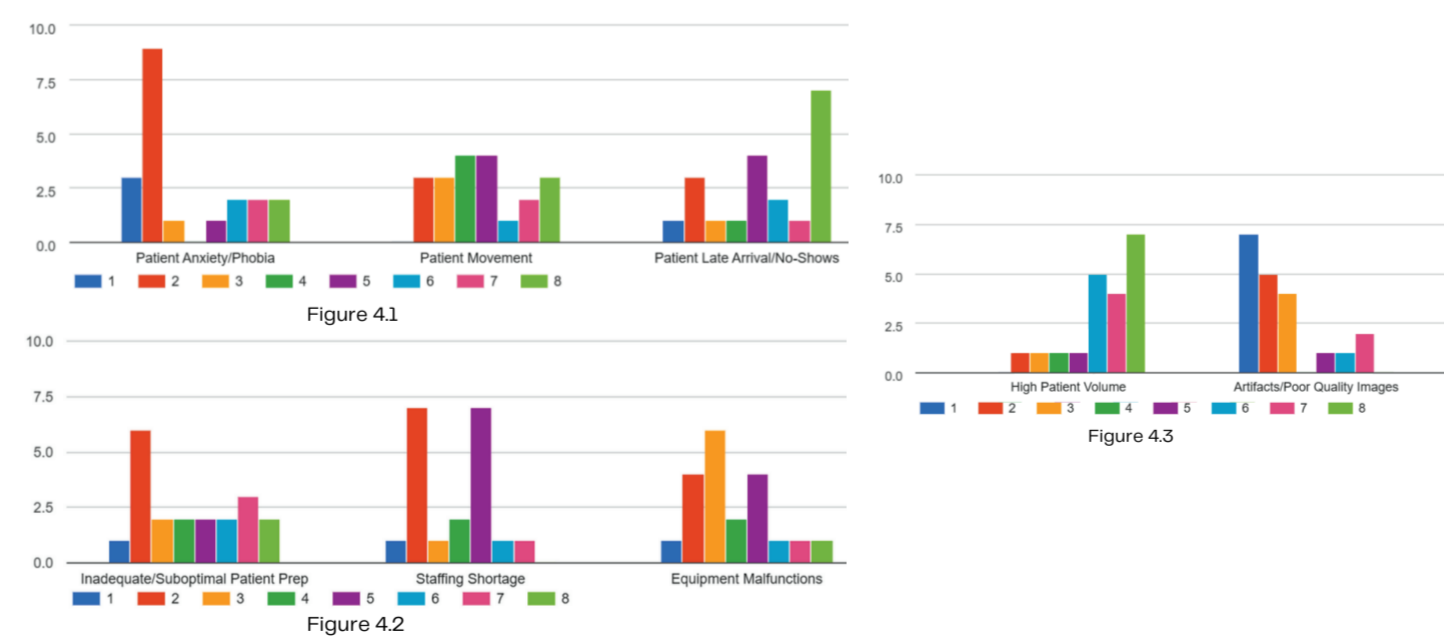
Findings

According to the data shown in Figure 1, there is representation of at least one response from each imaging modality, and across each of the different modalities, they all reported routinely experiencing some range of delays impacting patient exams (Figure 2). A large majority (70%) of delays experienced by technicians added at least 10 or more minutes to the duration of an exam (Figure 3). Some modalities in particular, such as CT, IR, and MRI, reported experiencing 30+ minute delays on average. This not only impacts the technicians from being able to complete the exam and share the images in a timely manner, but also prolongs the time before a patient can receive appropriate treatment and/or diagnosis. The workflow of the patient's care team will be impacted as well given that obtaining these scans/treatments can be a vital part in understanding the underlying cause or treating a patient's condition. When examining the causes behind these delays, it was mostly attributed to high patient volume (~6.40), patient movement (~4.75), and patients arriving late or not showing up (~5.45), having received an average score above 4 across all the modalities as a common reason for experiencing delays (Figure 4.1, 4.3). Patient anxiety was present but often scored lower (~3.55) and was the second lowest scored factor, suggesting that while it contributes to delays, it is not the dominant factor compared to operational factors (Figure 4.1). Additional comments addressed workflow related issues such as incorrect orders, waiting on nursing staff, and the patients not being in the room, reinforcing the importance of addressing system inefficiencies (Figure 5). While the overall data doesn't fully match my initial hypothesis, it still highlights that patient factors do play a role in experiencing delays in imaging, with the most significant drivers of imaging delays being patient volume, movement, and arrival time.

Results



For each of the following potential causes, rate how often it contributes to imaging delays in your modality. (1 = Never, 8 = Very frequently)



Additional delay reasons not originally listed and rated. (1 = Never, 8 = Very frequently)

3 responses

PT not in room - 6

Order needs to be corrected before able to image patient - 4

Waiting on RN - 6

Figure 5

Discussion

Limitations of this study include data from a small pool of participants from the same hospital. There were also some modalities that weren't fully represented due to low participation. This may be attributed to factors such as certain modalities being busy and unable to fill it out during work hours. This may have led to skewed results and certain modalities being underrepresented. In future studies, this will require a larger participant pool from different hospitals seeing a greater population demographic in the future in order to gather more generalizable data. Despite this, the study was able to gather data across a large variety of imaging modalities, expanding the scope of research on delays beyond MRI and CT alone. Overall, this study can serve as an indicator for hospitals to look into managing patient scheduling more efficiently, transportation, and methods to reduce the movement during exams.

References

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