Adaptation of IHI Triple Aim Framework to Reflect Need for Improved Documentation in Adverse Contrast Reactions

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Introduction

- Documentation lays the foundation of patient care and has been found to improve severity of illness in addition to accuracy of injury severity and comorbidities[1]
- Documentation of contrast adverse events (CAEs) in radiology departments is non-standardized and sometimes subpar or incomplete[2]
- CAE's have been a rising concern with the ever-increasing number of medical imaging procedures, especially in the setting of cancer diagnosis and treatment[3]
- Quality documentation of CAEs has been shown to improve management programs for patients undergoing additional imaging[4]
- We believe that documentation should include more detailed descriptions of factors that improve future imaging management

Study Objectives

- Address ways to improve CAE management by implementation of low resource protocols
- Determine which methods are being recommended in the current literature for CAE management
- Develop framework incorporating personalized CAE management methods leading to better health

Methods

- Data from an initial extraction of 24 studies as part of a systematic review including three databases was used to identify areas requiring improvement for improving CAE patient outcomes
- Preliminary data from the extraction was used to construct a framework inspired by the IHI Triple Aim Framework[5]
- Recommendations for and against common CAE preventative management techniques were assessed using the preliminary data

Management	Recommend	Not Recommended
Changing Contrast Media	4	
Premedication	3	4
Skin Testing	3	
Documentation	3	

Figure 1: CAE Management Recommendations

- From an initial extraction of data, this table includes the recommendations for and against some of the most common preventative CAE management methods
- Most recommended management method is to the change specific contrast agent before the next administration
- Premedication seems to have controversial usefulness with several articles advocating for premedication as a preventative measure, while others point out the lack of robust data showing reduction of subsequent CAEs following premedication
- Improved documentation is required for implementing a change of specific contrast media
- Skin testing is recommended mostly for gadolinium-based contrast agents (GBCAs) versus iodinated contrast media (ICM)

Results

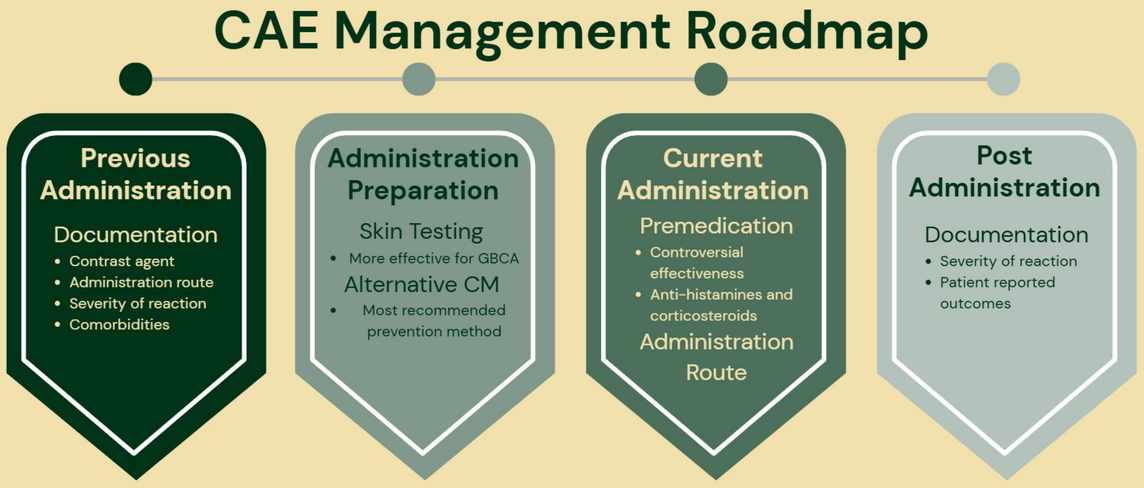

Figure 2: CAE Management Roadmap

- CAE Management Roadmap showcasing when certain management types are implemented or required
- Figure places emphasis on need for precise documentation of contrast agent used, reaction severity, comorbidities, and changing of contrast media when possible
- To implement the most effective prevention method of changing contrast media type, documentation must include the specific agent used

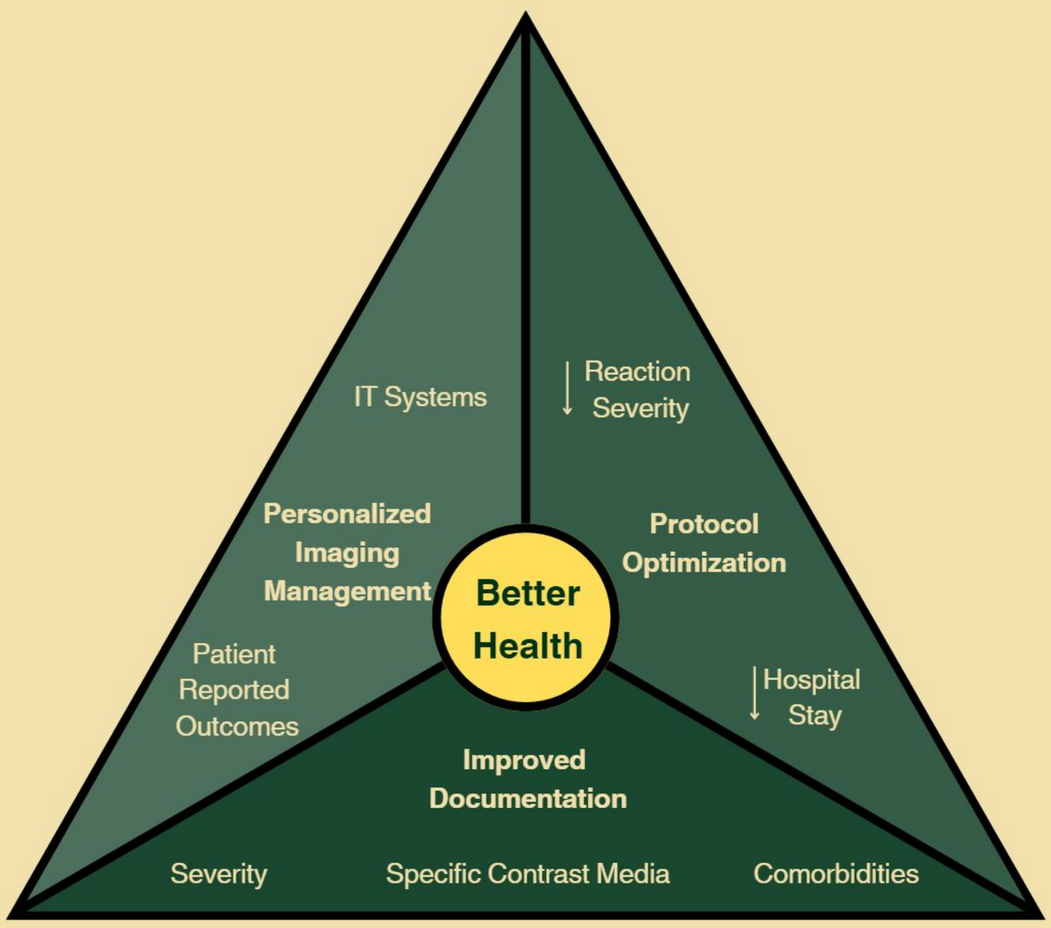

Figure 3: Triple Aim Framework Adaptation to Imaging Management Optimization

- IHI Triple Aim Framework adaptation displaying key areas that require improvement to lead to improved patient outcomes and better health

Next Steps and Future Work

- Enhance patient engagement through patient reported outcomes in reaction documentation to allow for unreported delayed contrast reactions to be assessed
- Determine a more personalized approach to contrast media selection in high-risk patients
- Robust data concerning skin testing and premedication efficacy is needed to ensure best practices are being utilized for CAE management
- Develop a system of documentation that hits key metrics that allows for improved management of future CAEs

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