USING ARTIFICIAL INTELLIGENCE (AI) TO CREATE A SCORING SYSTEM TO REDUCE ALERT FATIGUE AND IDENTIFY RELEVANT QT DRUG-DRUG MEDICATION ALERTS FOR PEDIATRIC PATIENTS

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ABSTRACT

This quality improvement project will use AI to develop a predictive model to design a scoring system for pediatric patients at risk for QT interval prolongation.

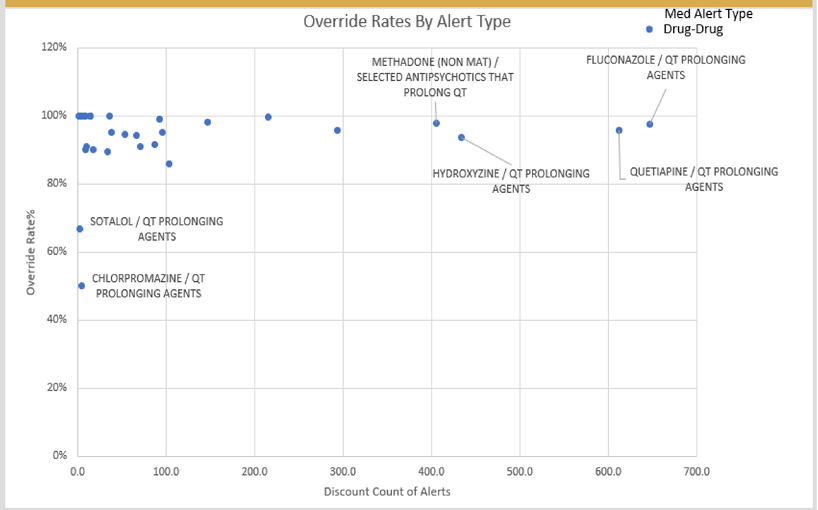
INTRODUCTION

- Alert fatigue is an increasing problem in healthcare
- Alert fatigue is risk for medical errors

METHODS

This project will review pediatric patients with and without QT interval prolongation and find risk factors to create a scoring tool that will be implemented into the electronic health record.

VOLUME OF QT DRUG-DRUG ALERTS AND OVERRIDE RATE



FEATURES

- Medical Conditions
  - Congenital LQTs
  - prior syncope
  - Heart Failure
  - Kidney/Liver injury
  - MI, COPD, DKA
  - Septic shock
  - Genetic mutation
- Pt. Demographics
  - Sex, age, race
  - QT prolonging meds
  - Admission QT interval
  - Recent QT intervals
- Labs
  - K, Mg

LABELS

- QT interval
  - >460 ms for pts. ≤ 15 years old and boys >15 years old
  - >470 ms for female patients > 15 years old
  - >500 ms at any age/sex
  - Increase of >60 ms from baseline
- TdP

POPULATION

Pediatric patients admitted to Monroe Carell Jr. Children's Hospital.

DEVELOPMENT OF ARTIFICAL INTELLIGENCE CLINICAL DECISION SUPPORT

Model Construction
- Identify key stakeholders
- Perform literature search for existing evidence

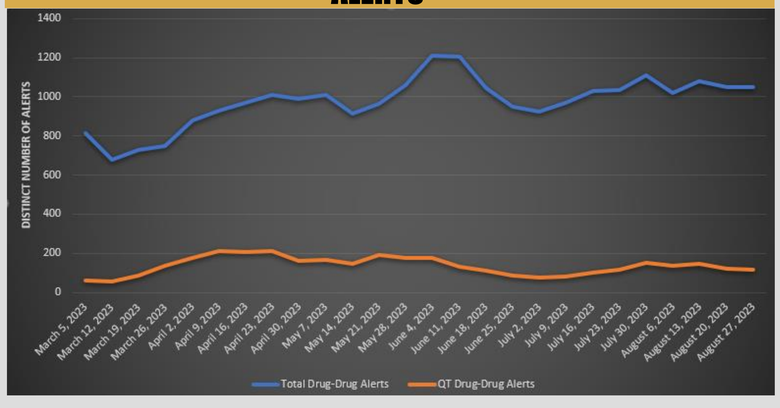
→ **Validation**
- External validation
- Review unexpected predictions
- Anticipate further inaccuracies with minority subgroups

→ **Implement**
- Development of CDS using AI
- Compare to practice standards
- Solicit feedback from stakeholders
- Review viability
- Implement as pilot in small cohort

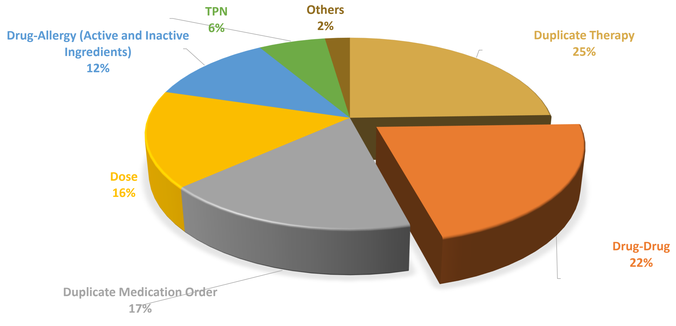
→ **Demonstrate**
- Incorporate into larger population
- Assess patient outcomes
- Disseminate results

→ **Disseminate**
- Peer review
- Migrate into EHR systems
- Continual improvement

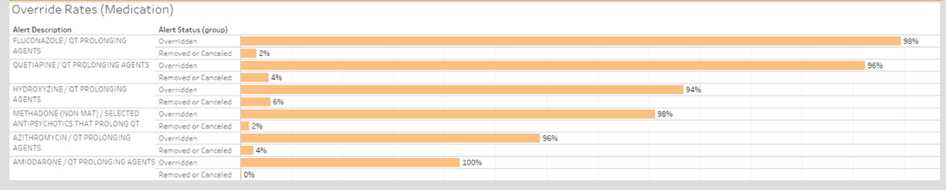
VOLUME OF QT DRUG-DRUG ALERTS AND ALL DRUG-DRUG ALERTS



PERCENTAGE OF DRUG-DRUG ALERTS TO ALL ALERTS



QT DRUG-DRUG ALERTS BY MEDICATION AND OVERRIDE RATE



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