AI use cases discovery in improving care quality and patient safety

Ryan Troy, Kailin Xu, Taieb Bennani, Karishma Sewaramani

Dana-Farber Cancer Institute

Dana-Farber Cancer Institute is an academic medical research center dedicated to advancing the understanding, diagnosis, treatment, cure, and prevention of cancer and related diseases. Based in Boston, Massachusetts, Dana-Farber is one of the leading cancer hospitals in the world and has made significant contributions to oncology since its founding in 1947.

Project Scope & Problem definition

The **Quality and Patient Safety department** at Dana-Farber Cancer Institute is executing arduous, repetitive work going through high volumes of medical and operation data to gain critical insights to improve patient outcomes. This work is occurring within each of its four departments and they **see an opportunity to leverage Large Language Models and Generative AI.** They are seeking strategic clarity regarding how AI can reduce the administrative burden and provide better patient outcomes. They are also looking to understand how to evaluate AI use cases and what to consider with governance.
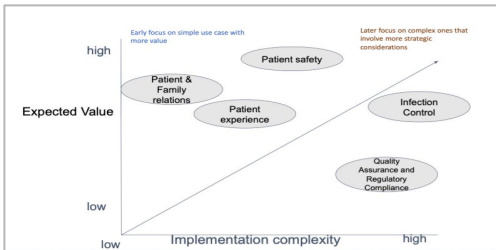
Finding Summary

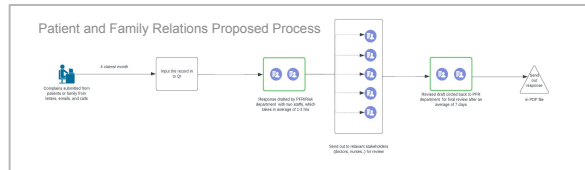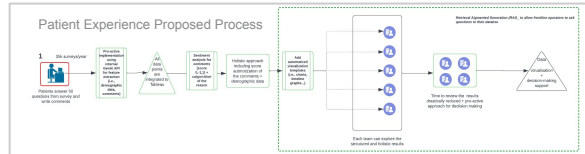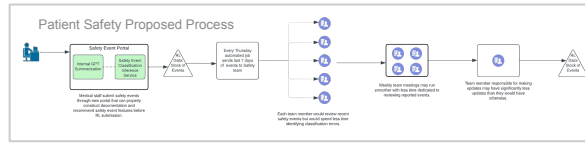| Department	Use Case Summary	Organizational Value
Patient and Family Relations	The department must review a volume of patient feedback from letters, emails, and surveys and select the best documentation template to respond. AI could be used to select the appropriate template and generate a response.	Increases operational efficiency and reduces overhead costs.
Patient Experience and Equity	The team is challenged with identifying certain equity disparities across its patient population. AI can be used to do sentiment analysis within survey and complaint data and summarize insights by demographic categories (race, gender, geography, etc.)	Insights that enable Dana-Farber to develop corrective action plans to improve patient experience and provide more equitable care.
Patient Safety	The Patient Safety team must quickly respond to safety events and spends significant time reviewing narratives and classifying events. AI can be used to automate event classification, predict safety events, and surface the related policies and procedures.	Improved policies and procedures to minimize risk. Decreased administrative time reviewing data and more time focused on proactive measures.
Quality Assurance and Regulatory Compliance	The QA & RC team is responsible for creating CQPT performance scorecards for each department at Dana-Farber. Data is manually gathered from Epic, Rx, Press Ganey and Excel to generate reports. Generative AI can be used to develop the scorecards. Chat bot for policies and procedures.	Reduced administrative burden and automated insights for just in time communication and continuous monitoring of performance.
Infection Control	The Infection Control department is tasked with monitoring, detecting, and preventing the spread of infectious diseases. AI can detect symptoms of infectious diseases and spread by analyzing data from the CDC, Epic and tracking devices.	Reduction in the spread of infectious diseases thus preventing extra direct costs associated with care.

AI Usage and Concerns

- Protecting patient privacy
- AI for human augmentation, not autonomous decision making
- AI diverting attention away from critical insights
- Interpreting what they are seeing and how to validate it is true
- Technical resources to properly build and maintain AI models
- All were eager to leverage AI
- Conservative adoption is preferred to mass rollout
- Wants constant human validation

Priority Analysis

Recommendations for Priority Cases

Product UI Sample