Introduction

• ReHAP – Rehabilitation Healthcare Analytics Platform
• Web-based decision support system for acute therapy environments
• Leverages EMR data to optimize patient care and therapy team efficiency in the clinic
• Seeks to optimize costs and close demand gap for therapy

The Problem

• Demand for rehabilitation therapy services (RTS) projected to grow by 26-30% in next 10 years.\(^1\,^2\)
• Cost of RTS to increases by $7.5B for patients in hospital, and $32.3B outside of hospital over next 10 years.\(^3\)
• Current decision making is manual inspection of open orders in EMR records in Excel, Epic, Cerner, etc.

The Solution

• Web app to pull, organize, analyze, electronic medical records, then display to therapy teams and managers
• Software implements novel algorithm to categorize and prioritize patients according to Location, Performance (AMPAC), Visit Lag Time
• Real-time data pipeline:
  • EMR → Database Schema → App Display

Outcomes and Results

• MVP built and clinic-ready on snapshot of 125 patient records.
• Successfully implemented algorithm in Rails framework.
• ReHAP will be deployed at JHBMC, NYU hospitals, and other pilot hospitals in summer 2016.

Future Work

• Live testing pending Enterprise Service Bus ESB approval
• Still awaiting Web Services API provision for ESB integration. Will allow ReHAP application to be real time.
• David will be continuing to work on ReHAP after graduation into the summer.

Lessons Learned

• Plan for dependency delays, especially when dealing with large institutions and the transfer of sensitive information
• Recognize team resources early. Having a partner goes a long way, especially when writing code.
• I learned Ruby on Rails (started knowing nothing) and built my first web-app end-to-end

Credits

• ReHAP Application was designed and built by David West.
• David leveraged MATLAB program built by Dr. Krishnaj Gourab

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Publications