Evaluating and Improving Specialty Access to Endocrinology Care
Pranjal Singh, BA; Amy Cohn, PhD; Amy Rothberg, MD; Henry Ballout; Wesley Chen; Joseph Sorenson; William Yang

Background

Weight Management Program
• Program implemented by Dr. Amy Rothberg
   – Geared at effective weight loss management
• Program incorporates weight loss management and long-term behavioral change
• Objective is to improve overall patient health outcomes

Current State

Basic eligibility of program
• BMI ≥ 32 kg/m² with 1 or more comorbidities (diabetes, obesity, etc.)
• BMI ≥ 35 kg/m²
• Patients required to attend more than 80% of appointments

Program timeline & design:

- Regimented visit schedule to ensure program efficacy
- 26 total program visits
  – Greater frequency of visits in the short term
- Visits occur with both physicians and dietitians

Challenges

• Insufficient capacity to see patients according to timeline
• Last minute cancellations negatively impact ability to refill appointment slots, fully utilize capacity

Solution Approach

• Build a temporal MySQL database to evaluate the dynamic clinic schedule
• Data: receive 2 spreadsheets every working day
  – Prospective appointment schedules, provider availability data
• Store information on a rolling horizon basis
  – Appointment schedule snapshots
  – One snapshot views six months of the clinic schedule
• Compare consecutive appointment snapshots
  – Evaluate and capture the changes in clinic dynamics.

<table>
<thead>
<tr>
<th>Appointment</th>
<th>Snapshot Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time</td>
</tr>
<tr>
<td>7/26</td>
<td>A Canceled</td>
</tr>
<tr>
<td>7/27</td>
<td>B Created</td>
</tr>
<tr>
<td>7/28</td>
<td>C Created</td>
</tr>
<tr>
<td></td>
<td>B Canceled</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An example of the clinic schedule leading up to July 28th viewed up to two days.

Objectives of Solution Approach

Collect and Analyze Data
Better Understand Patient Behavior and Scheduling Practices
Improve Patient Access

• Temporal database offers many advantages:
  – Capture and quantify information at multiple levels (e.g. appointment type, provider, day of week, etc.)
  – See how multiple opportunities used for one appointment

Insights & Results

Clinic Booked Rate at Various Points:

Booked Rate = \( \frac{\text{Number of Appointments Scheduled}}{\text{Number of Appointment Opportunities Available}} \)

• High variability in short term booking
• Median capacity frees up over a longer period of time
  – Median capacity refers to 50th percentile value of each box & whisker plot

Refilling Cancelled Appointments:

• Late cancellations result in low utilization

Future Work

• Create a scheduling dashboard for short term booking
• Develop a waitlist simulation tool that provides easier appointment access

Acknowledgements

We would like to thank the following for supporting this project:
• Seth Bonder Foundation
• The Metabolism, Endocrinology & Diabetes Clinic
• Center for Healthcare Engineering and Patient Safety
• Mr. David M. Giancola
• Moses Chan, MSE