

Evaluating and Improving Specialty Access to Endocrinology Care

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Background

Weight Management Program

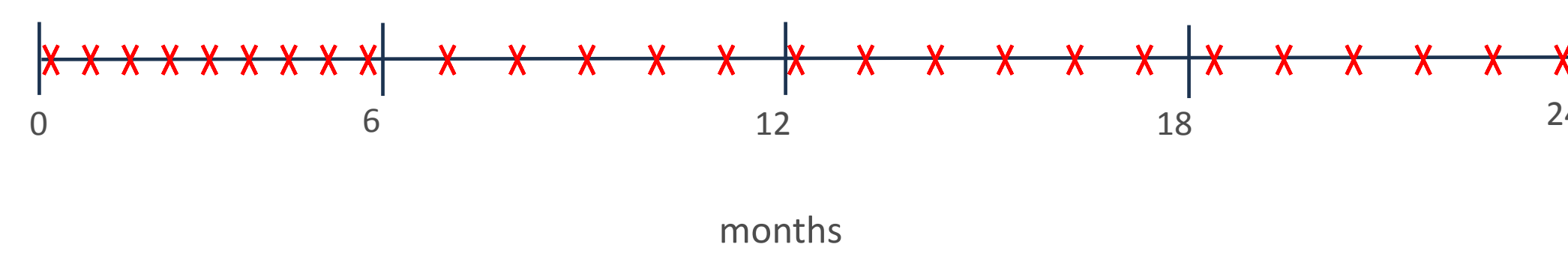
- Program implemented by Dr. Amy Rothberg
 - Geared at effective weight loss management
- Program incorporates weight loss management and long-term behavioral change
- Objective is to improve overall patient health outcomes

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

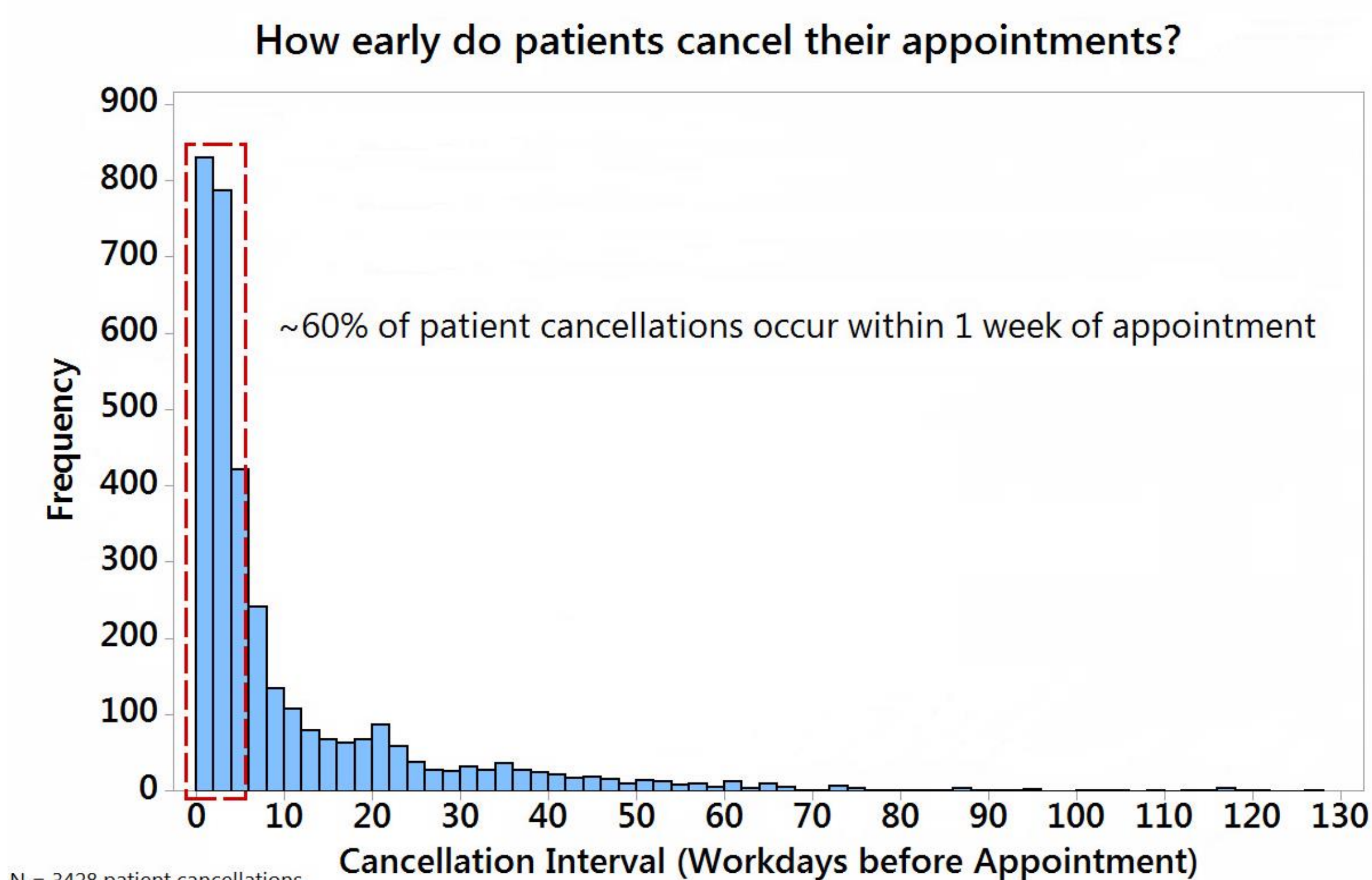
Program timeline & design:



- 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



N = 3428 patient cancellations
 Data from 2014/07/15 to 2016/04/29

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.

Appointment		Snapshot Date		
Date	Time	7/26	7/27	7/28
7/28	10:00	A Cancelled		C Created
	10:15			
	10:30			
	10:45	B Cancelled		
	11:00	Buffer		
	11:15			B Created

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

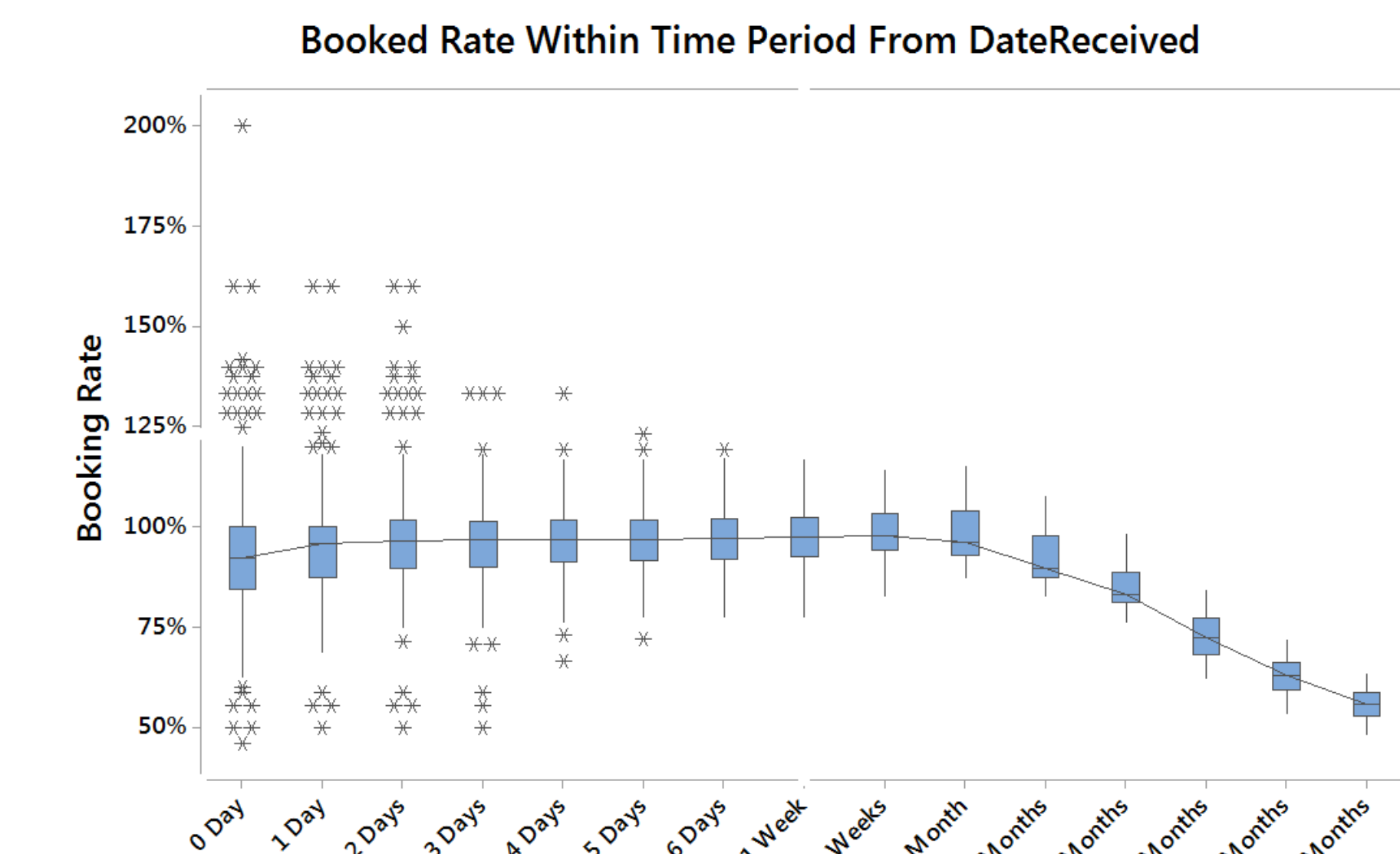
Objectives of Solution Approach



- 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

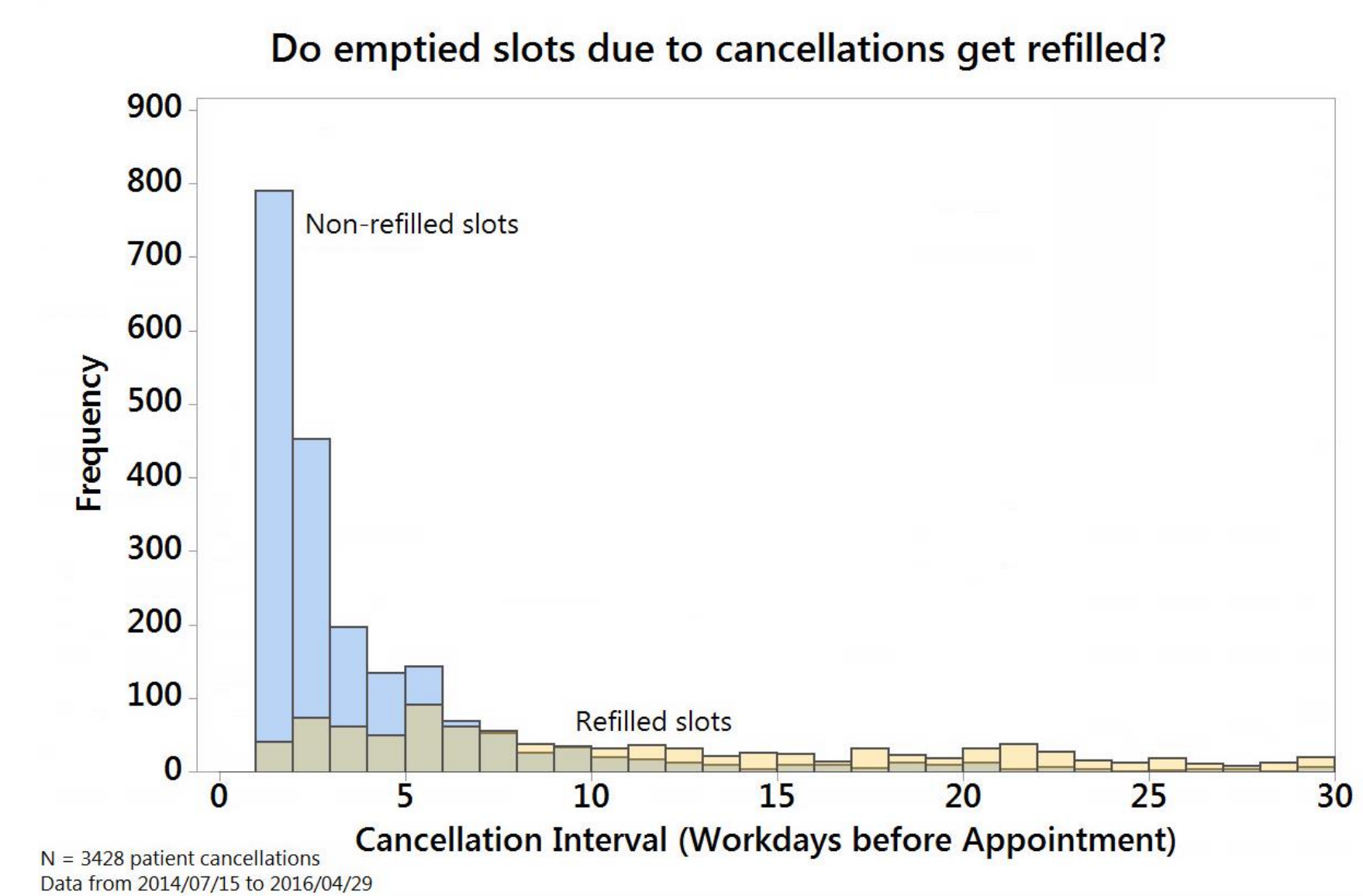
Clinic Booked Rate at Various Points:



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

- 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

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