What to do when the low hanging fruit is gone?

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PROBLEM

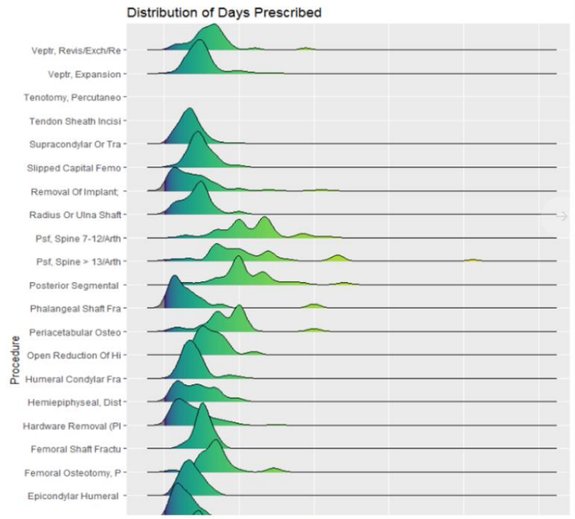
- Previously, the Center for Healthcare Quality and Analytics (CHQA) analyzed relatively well-defined healthcare problems with a traditional BI tool
- To tackle more complex problems, we needed a robust analytical tool that performed diverse visualization functions better than traditional BI tool
- R fulfilled this need while streamlining builds and decreasing maintenance costs
- Adopting R was difficult because the data team was large (n ~ 30) and its analysts had varying levels of comfort with coding languages other than SQL
- We assembled an "R Adoption" team to create a strategy to tackle these challenges

Data Visualization Functions	
Function	**Definition**
Audit & Feedback*	Dashboards to inform decision making about a specific intervention
Monitoring*	Dashboards to track performance in the absence of an intervention
Data Exploration	Investigating data to better understand problem and opportunity
Push Reporting	Regular or ad hoc static reports sent to end users

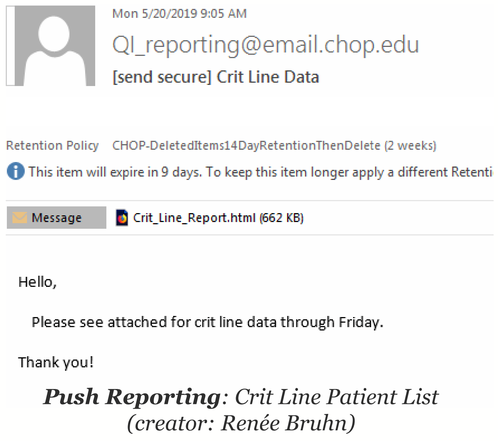
**Traditional BI tools often excel at these functions, but do not excel at the other functions listed*

PROCESS

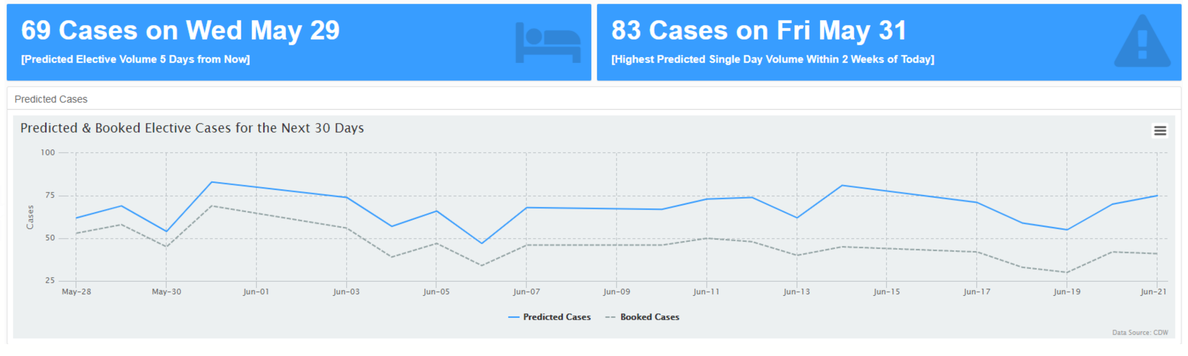
- "R Adoption" team had a unique insight into CHQA's need due to their diverse backgrounds and expertise
- Created a problem statement and goals to define scope
- Interviewed analysts to understand barriers to adoption
- Created training and standards materials that were tailored based on interview results



Data Exploration: *Distribution of Days Prescribed with Opioids by Procedure (creators: Jake Riley & Caroline Burlingame)*



Push Reporting*: Crit Line Patient List (creator: Renée Bruhn)*



Audit & Feedback Through Advanced Analytics: *OR surgical case prediction dashboard in R (creator: Brendan Graham)*

OUTCOMES

- Created a two-day R training curriculum focused on R packages that are most useful to the team
- Training included lectures, practice problems, and an opportunity to use R to solve to real analytical problems in a training environment
- Created R standards and visualization guides
- Increased average reported analyst comfort level in R from 2.3 to 3.6 out of 5
- 15 new R dashboards were created in the 3 weeks following training
- We anecdotally observed a change in R culture; analysts gravitated to R as their tool of choice

Training Curriculum

Day 1 Topics	Day 2 Topics
Standards/Set-up	Addl. resources
dplyr	Build session
lubridate	
ggplot2	
tidyr	

https://github.com/chop-analytics/chopR

CONCLUSIONS

- An analyst-created training curriculum proved very effective in making R our tool of choice
- Training allowed analysts to leverage R in solving complex problems more efficiently than before