Analysis of Implementing a Scheduling Software in a Hospitalist Department

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Introduction

Background:
Each department at Seattle Children's Hospital uses a different process for physician scheduling. This project focuses on the Hospitalist Department at Seattle Children's Hospital. The department includes 92 hospitalists across 10 locations in the Greater Seattle Area.

Previous State:
The schedule for each location was created by a hospitalist in Excel by hand. The schedule was then uploaded by an administrator to Amion (an online viewing platform). In total, this process would take more than 800 labor hours per year.

Current State:
In January 2017, the hospitalist department purchased a new scheduling software, Qgenda, to save time spent on scheduling. We are seeking to understand the costs, benefits, and future opportunities of Qgenda.

Objectives:
· Gain a complete understanding of Qgenda and its functions.
· Analyze and assess the costs and benefits of implementing Qgenda.
· Find opportunities within Qgenda to improve its utilization.
· Reduce overall time spent on scheduling by hospitalists.

Methodology

· Determine current and optimal states of the scheduling process.
· Interview schedulers to collect process times for producing schedules in Excel and Qgenda.
· Gather data on costs for each scheduling method.
· Survey hospitalists to understand schedule preferences.
· Collaborate with Qgenda to assess the capabilities of the Qgenda software.
· Determine feasible and scalable recommendations.

Analysis

A cost benefit analysis was conducted to evaluate the state of the hospital before, during, and after the implementation of Qgenda.

(Source: Interviews with 3 of 7 schedulers and 1 of 3 admins.)

Previous State → Current State → Predicted State

	2016-2017 (Excel & Amion)				2017-2018 (Qgenda w/ implementation)				2018-2019 (Qgenda predicted State)			
	Multiplier	Cost/Individual	Hours	Cost	Multiplier	Cost/Individual	Hours	Cost	Multiplier	Cost/Individual	Hours	Cost
Amion Purchasing Cost	-	-	-	$0	-	-	-	$0	-	-	-	$0
Amion Recurring Cost	1	$349	-	$349	-	-	-	$0	-	-	-	$0
Qgenda Purchasing Cost	-	-	-	$0	1	$80	-	$7,360	-	-	-	$0
Qgenda Recurring Cost	-	-	-	$0	92	$240	-	$22,080	92	$240	-	$22,080
Total Software Costs				**$349**				**$29,440**				**$22,080**
Qgenda Training Time (Schedulers)	-	-	-	$0	4	$95	2	$760	-	-	-	$0
Qgenda Training Time (Hospitalists)	-	-	-	$0	92	$95	0.5	$4,370	-	-	-	$0
Scheduling Hours (Schedulers)	-	$95	409	$37,765	-	$95	213.5	$19,678	-	$95	168	$15,460
Maintenance Hours (Admins)	-	$28	437	$12,236	-	$28	105	$2,940	-	$28	100	$2,800
Total Labor Costs			846	**$50,001**			321	**$27,748**			268	**$18,260**
Total Costs				**$50,350**				**$57,188**				**$40,340**

Figure 1: Direct and Indirect costs associated with scheduling.
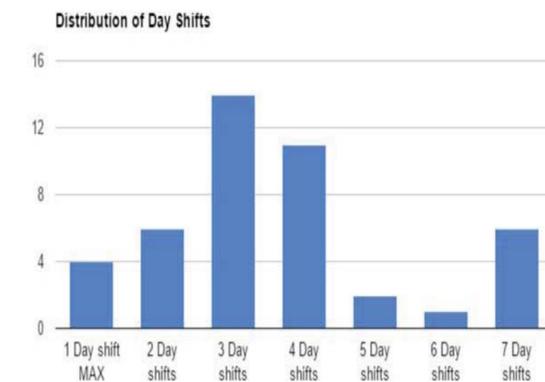
Hospitalist Shift Preferences:

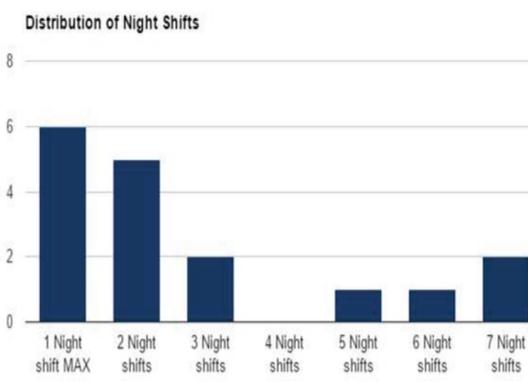Figure 2: Prefered sequence of day shifts.   Figure 3: Prefered sequence of night shifts.

(Source: Survey responses from 41 of 92 hospitalists.)

Satisfaction of Qgenda:
+ *"Having the ability to swap shifts independently will save admin time."*
- *"Difficult user interface."*
- *"Very uneven distribution of shifts across the year. Some months with 18 shifts, others with <10."*
- *"Inability to make requests to the scheduling team for blocks of night shifts is a concern."*

(Source: Survey responses from 41 of 92 hospitalists.)

Recommendations

Recommendation A: Delegate scheduling responsibilities to the administrators.
Have the administrators create the initial iteration of the schedule instead of the hospitalists. Since hospitalists' hours are valued at a higher cost, this will reduce hospitalists' scheduling time by 61 hours every year, which will reduce overall costs by $3,587/year.

Impact of Recommendation A in 2018-2019				
	Team Size	Cost per Individual	Hours	Cost
Qgenda Yearly Cost	-	-	-	$22,080
Physician Scheduler Time	7	$95	107	$10,165
Admin Time	3	$28	161	$4,508
Total Costs				**$36,753**
Savings:			61	$3,587

Figure 4: Total savings by allocating work to administration.

Recommendation B: Standardize the distribution of shifts.
Reduce the number of individual hospitalist preferences and replace them with a standardized set of preferences. This will allow the Qgenda algorithm to produce a more complete schedule on the initial iteration. Physician hours will be reduced by 36 hours and costs will be reduced by $3,110 / year.
Scheduling can be standardized based on the results in Figure 2 and Figure 3.

Impact of Recommendation B in 2018-2019				
	Team Size	Cost per Individual	Hours	Cost
Qgenda Yearly Cost	-	-	-	$22,080
Physician Scheduler Time	7	$95	130	$12,350
Admin Time	3	$28	100	$2,800
Total Costs				**$37,230**
Savings:			38	$3,110

Figure 5: Total savings by standardizing shift distribution.

Future Opportunities:
· Continue to work with Qgenda engineers to improve the visual interface.
· Enhance the scheduling process by developing forecasting and analytical capabilities to support staffing decisions.

Acknowledgements