

Improving First-case On-time Procedure Starts in a Large Healthcare Network

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Background

Delays in the endoscopy unit procedure room can lead to provider, staff, and patient dissatisfaction, and increased costs. Starting the first-case on-time can reduce these delays, improve efficiency, and improve provider and staff morale, and patient satisfaction. At baseline, our first-cases only started on time 78.4% of the time and a reason was often not given for delays. Our goals were to increase our first-case on-time start rate to more than 90% and increase how often a reason was given for a late start to more than 90%.

Baseline Data

We collected baseline data from 3/1/2021 to 10/31/2021. During this time period, our first-cases only started on time 78.4% of the time and a reason was given for a late start only 19.3% of the time. Our OAS CAHPS score was 93.48 (91st percentile), ADR was 40.75 (above target), and cecal intubation rate was 98.54 (above target). During this baseline time period, first-case late starts cost the network approximately \$16,393.63 per month.

Interventions

We included data for the 35 employed Gastroenterologists in our network. We excluded late starts due to patient, staff, facility, anesthesia, or change in case order.

Our first intervention took place at the end of 10/2021 and included a presentation to our Gastroenterologists at a Department Meeting and then monthly emails to all Gastroenterologists with all Gastroenterologists' first-case on-time start rates.

Our second intervention took place on 1/11/2022 and involved adding a hard-stop so an endoscopy nurse was forced to select a reason for every late first-case start. We continued to collect our data from 11/1/2021 to 1/10/2022 (after the first intervention) and from 1/11/2022 to 5/31/2022 (after the second intervention).

We also tracked how often a reason was given for a late start. We used a Chi Square test to compare the rates before and after the first intervention, and then before and after the second intervention.

Results

The first-case on-time start rate increased from 1695/2161 (78.4%) to 531/605 (87.8%) after the first intervention ($p < 0.00001$). It then increased to 1242/1309 (94.9%) after the second intervention ($p < 0.00001$). The frequency of how often a reason was given for a late start increased from 90/466 (19.3%) to 30/74 (40.5%). It then increased to 53/67 (79.1%) after the second intervention (hard-stop added on 1/11/2022) ($p < 0.00001$).

Figures & Tables

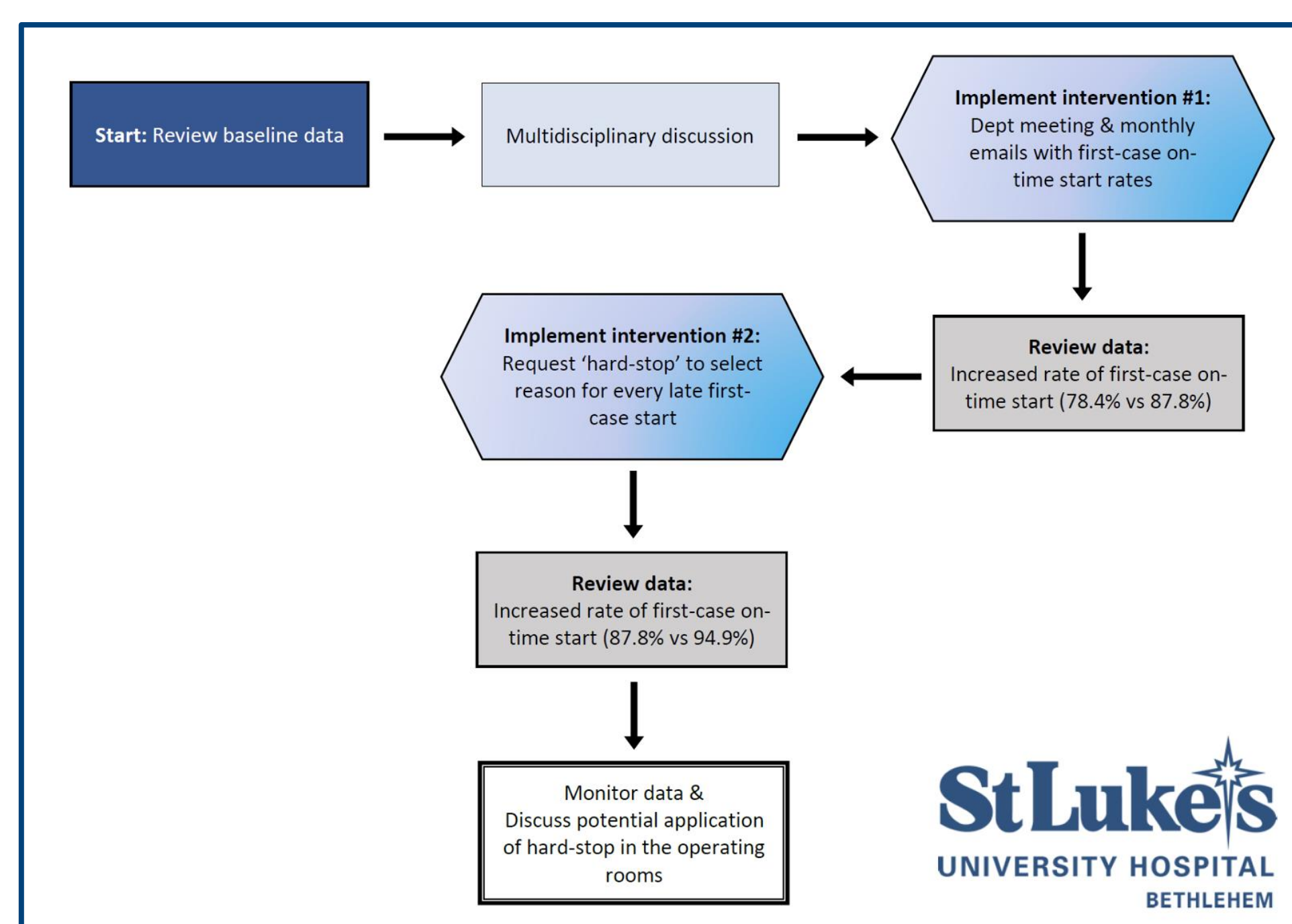


Figure 1. Process Map

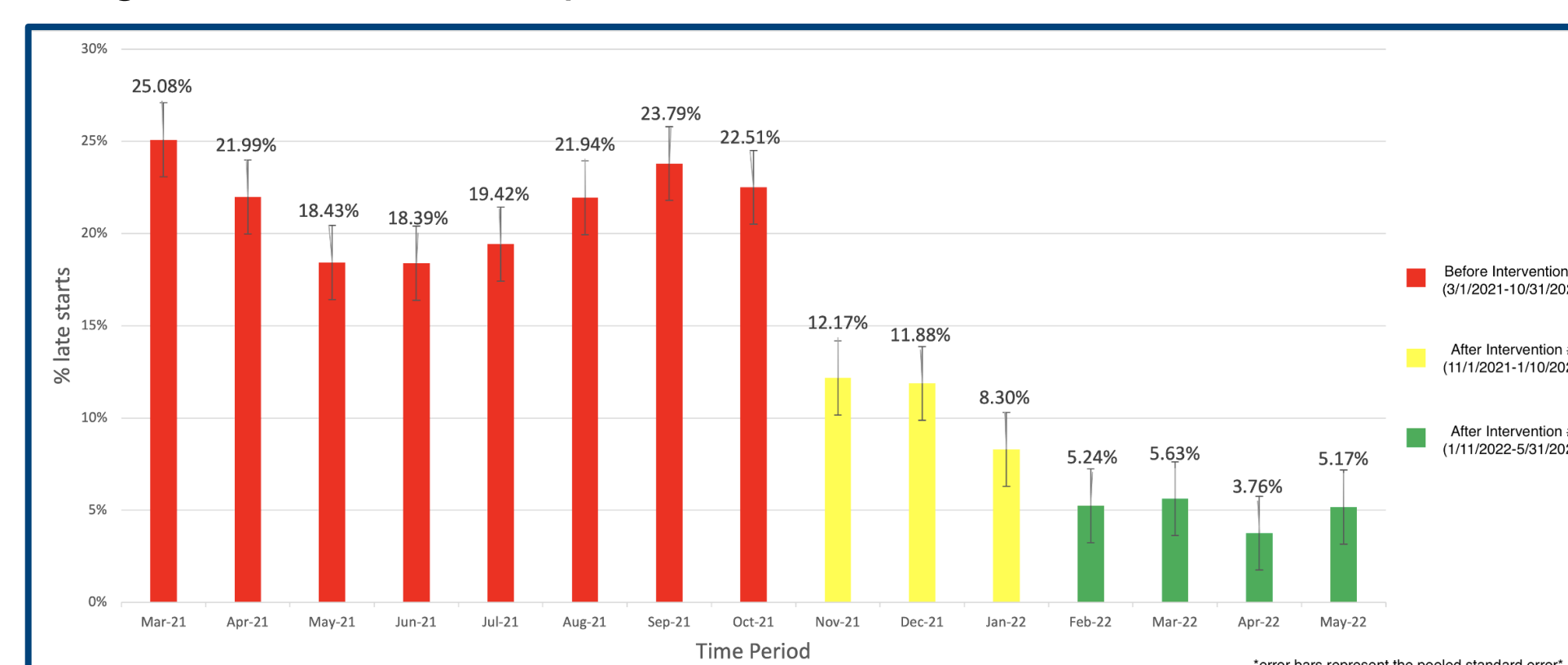


Figure 3. Displays the percentage of late cases over time, before and during our two interventions. The chart indicates significant reductions in late first-cases. Error bars indicate one standard error.

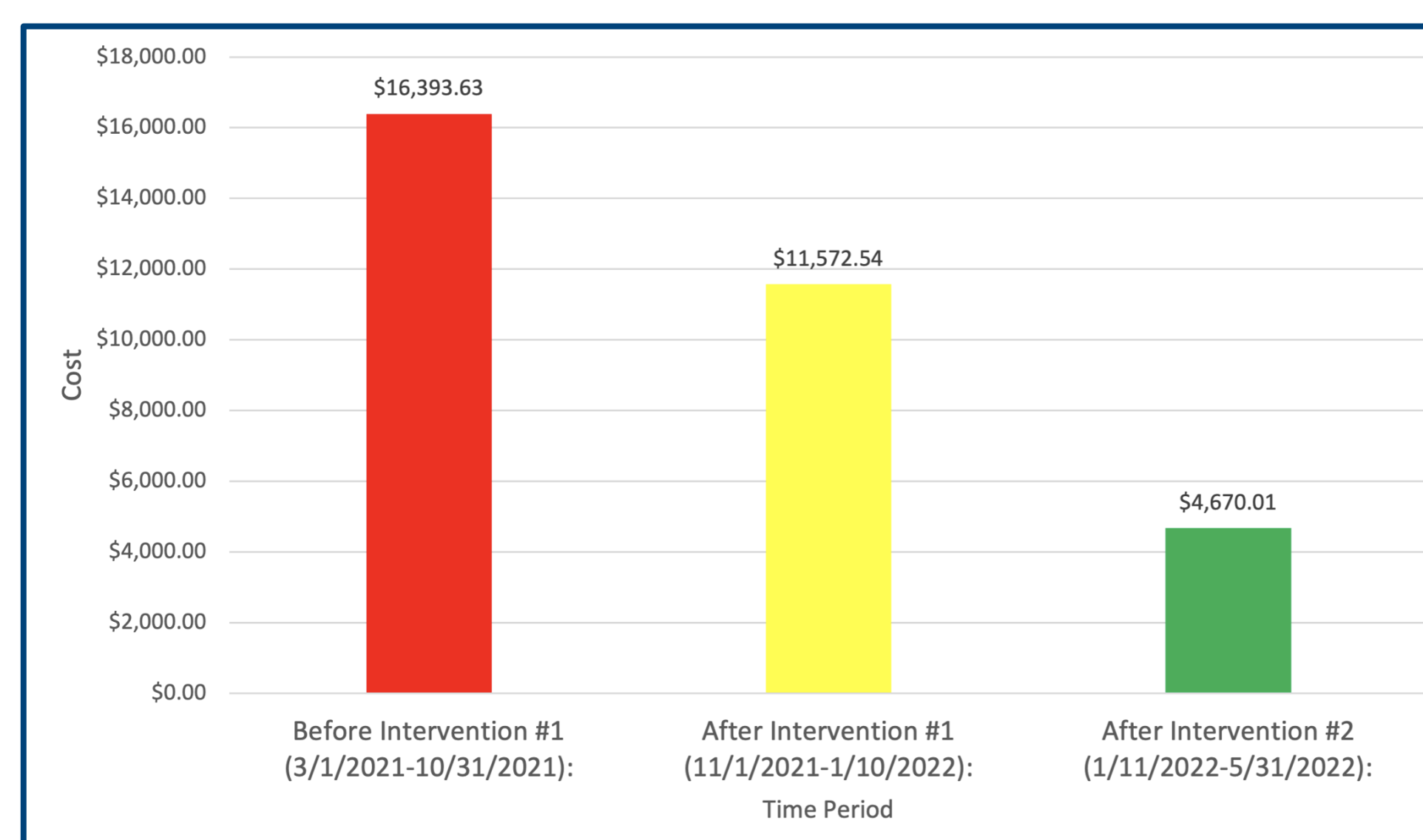


Figure 5. Displays the average cost per month of having late first-starts among the 3 different groups examined in this project. This data is based on 271.67 cases per month and an average cost of \$28.00 per minute to use an endoscopy lab. We show an average cost of \$16,393.63 per month of being late prior to our interventions. By the end of this study, we have reduced this cost waste to \$4,670.01 in a typical month.

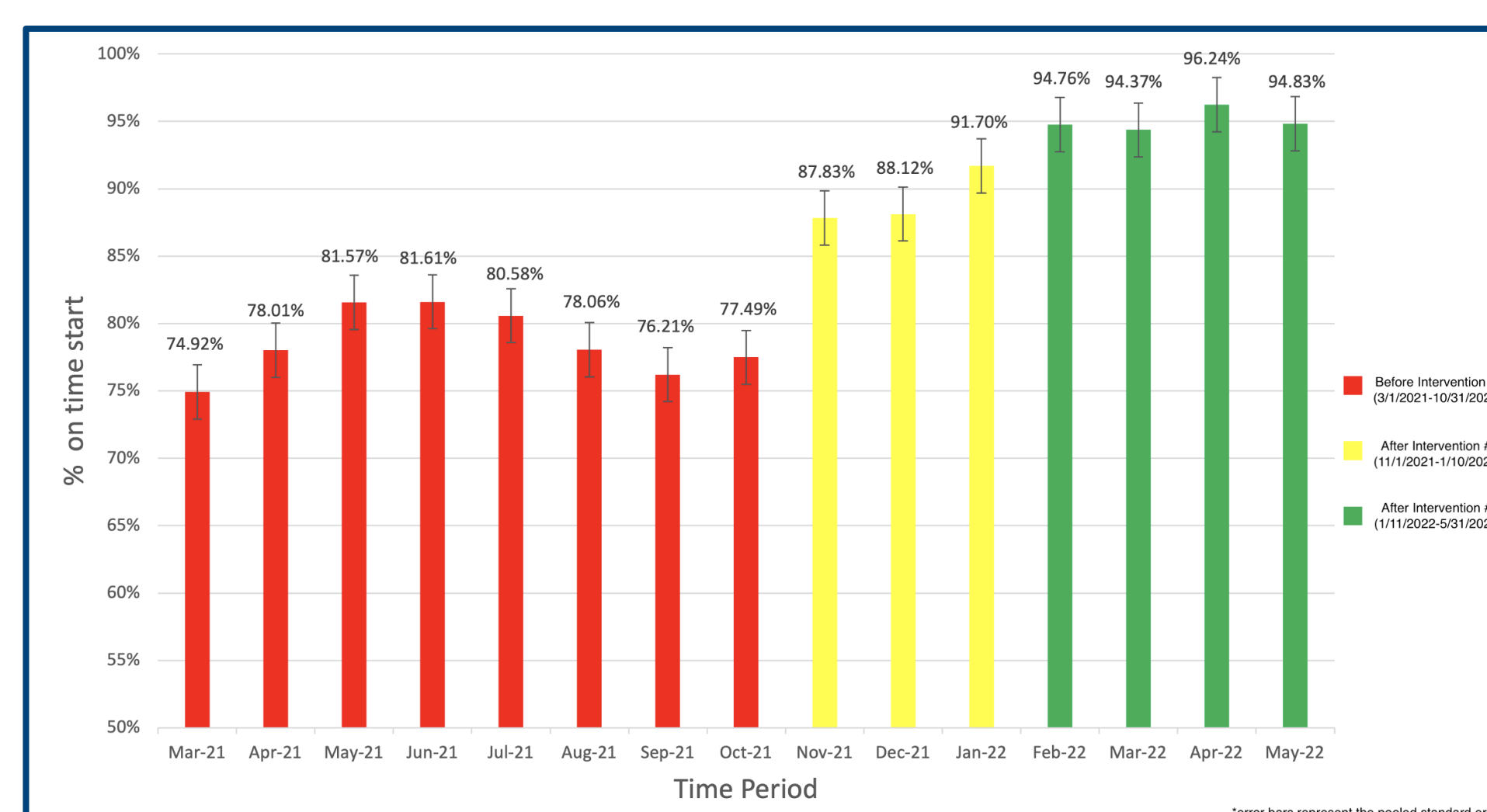


Figure 2. Displays the percentage of on-time first-cases over time (before and after interventions). The chart indicates a significant increase in on-time first-cases. Error bars indicate one standard error.

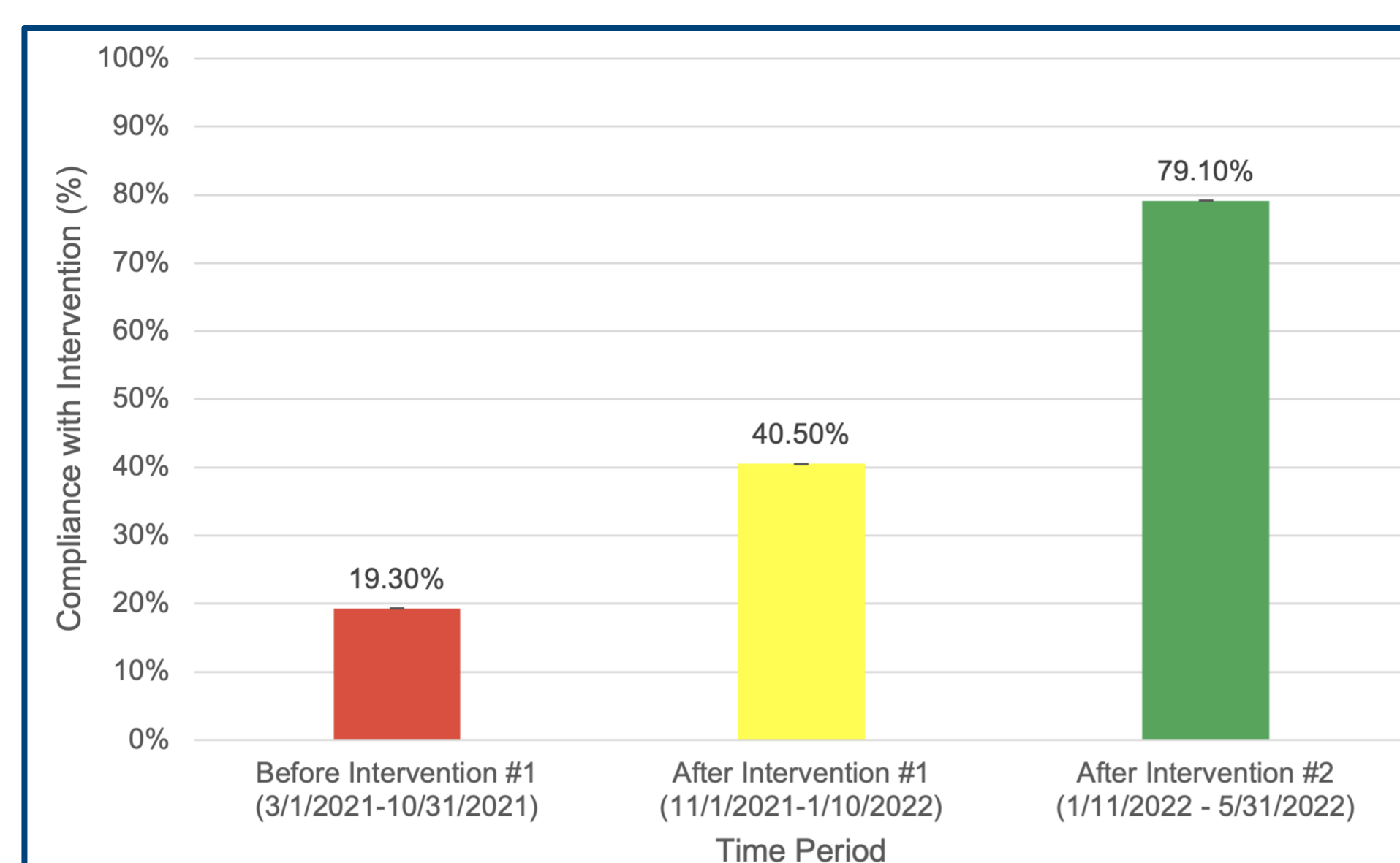


Figure 4. Displays the percentage of compliance with this intervention program over time. This chart shows a significant increase in compliance after the implementation of the interventions.

	On-Time	Late	On-Time %	% Change	OAS CAHPS Score	Adenoma Detection Rate	Cecal Intubation Rate
Before 1 st Intervention 3/1/21-10/31/21	1695	466	78.4%	—	93.48	40.75	98.54
After 1 st Intervention 11/1/21-1/10/22	1773	141	87.8%	+12.0%	93.23	40.30	98.62
After 2 nd Intervention 1/11/22-5/31/22	1242	67	94.9%	+21.0%	92.87	41.19	98.41

Table 1. Displays the on-time data, percentage change, OAS CAHPS scores, adenoma detection rates, and cecal intubation rates before the first intervention, after the first intervention, and after the second intervention.

Intervention	Average Late %	#Late Case	Avg Min/Case	Total Min Late	Cost of Late	Cost Saved
Before 1 st Intervention	21.44	58.26	10.05	585.49	16393.63	N/A
After 1 st Intervention	10.78	29.29	14.11	413.30	11572.54	4821.09
After 2 nd Intervention	4.95	13.45	12.40	166.79	4670.01	11723.62

Table 2. Displays our calculation for obtaining the cost saved by our intervention in an average month during this study. We performed a what-if-analysis to estimate the dollar amount of cost savings for our two interventions based on a network average of \$28.00 per minute to run our endoscopy rooms.

Discussion

Studies suggest there is a strong relationship with timeliness in medicine and patient experience. In an infusion center study, 20% improvements in procedure start-times translated to an equal patient performance review improvement (1). If the first case does not start on time, it has cascading effects leading to delays in subsequent cases and decreased efficiency throughout the day. Beginning the first case on-time is a complex process. It requires the patient, Gastroenterologist, Anesthesiologist, and GI nurse to be physically present and prepared before the start time (2). It is critical to identify the reasons for first-cases that do not start on-time so they can be addressed.

Many studies have explored ways to improve first-case on-time starts. In Gastroenterology, a study that implemented a badge-sign in processes resulted in reductions in the procedure start-time delay by 15 minutes per procedure (3). A paper by an Interventional Radiology team, showed that an intense quality improvement analysis resulted in a 40% increase in first-case on-time starts from the 30-40% range to the 70-80% range (4). Research in surgical publications has shown that incentivizing physicians with monetary bonuses reduced delays in first procedures from 42% to 12% (5)

These interventions resulted in a 21.0% improvement in first-case on time starts and a 309.8% improvement in the frequency of how often a reason was given for a late start. Based on a cost-analysis, these interventions led to an average reduction in cost of \$11,723.62 per month.

These results underscore the importance of regular feedback about start times as our Gastroenterologists were more motivated to start on-time when they knew their rates would be emailed to the entire group on a monthly basis. Now that we are collecting data about the reason for most late starts, we can use this data to focus on addressing the reasons for the remaining late starts.

References

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