Comparison of TDABC-estimated visit cost for telehealth with centralized support vs in-person visits and benchmarked against previous data

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INTRODUCTION

- The COVID-19 pandemic resulted in a substantial increase of telehealth (TH) visits and a significant proportion of visits have remained virtual.

- In late 2021, we developed a Telehealth Centralized Support (TCS) team to assist patient navigation, patient triage, and provider troubleshooting for all virtual visits across ambulatory care departments.

- The objective of this project was to compare the average cost of providing a sick visit in family medicine using TH with TCS support versus in person (IP) visits estimated by a standardized modified time-driven activity-based costing (MTDABC) approach and "benchmarked" against a previous assessment of TH without TCS from a pediatric clinic.

METHOD

We examined TH and IP visits in clinics before and after the implementation of TCS using MTDABC that includes:

1. Recorded structured interviews with providers and TCS team
2. Iterative workflow mapping
3. 2022 standard cost weights for wages
4. Clinic CPT billing code mix for complexity weights

- We examined the variability in estimated time using a decision tree model with Monte Carlo simulations in Excel using Crystal Ball.

ACKNOWLEDGEMENT

RESULTS

- Overall labor costs between IP and TH visits were the same within the respective time points for clinics.

- The labor time for IP visits were similar across time points, demonstrating a stable process for the same visit regardless of clinic.

- Before TCS, the majority of the time spent was by the provider.

- After TCS, provider time decreased by 33%.

- Before the implementation of TCS, the mean weighted labor visit mix cost of $71.10.

- After the implementation of TCS, the mean weighted visit mix cost of $59.82.

- **This was an overall decrease in mean weighted labor costs of 15.9%.**

- Sensitivity analysis was conducted using the provider and visit weights from the clinic after TCS implementation on the clinic labor before TCS implementation. There was no significant changes in overall mean weighted labor costs ($71.10 vs. $71.06) using "after TCS" case mix weights.
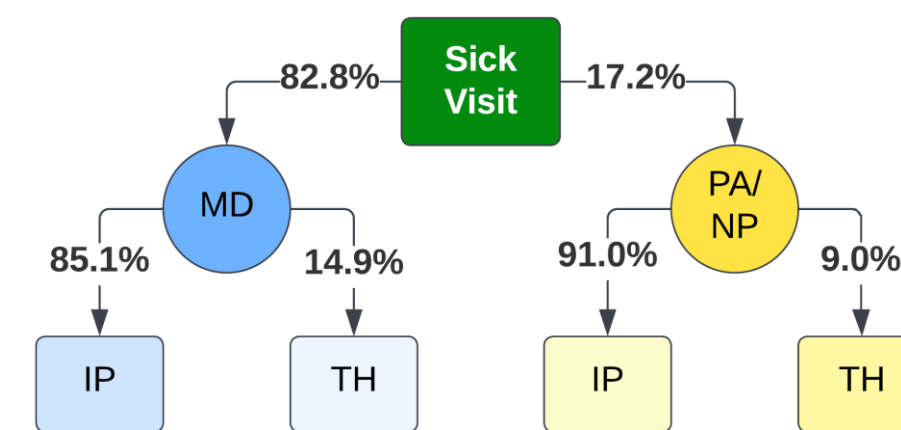
Figure 1. Decision Tree for visit mix.

Table 1. Mean weighted clinic labor costs by visit type and overall weighted clinic cost across provider type and visit type.

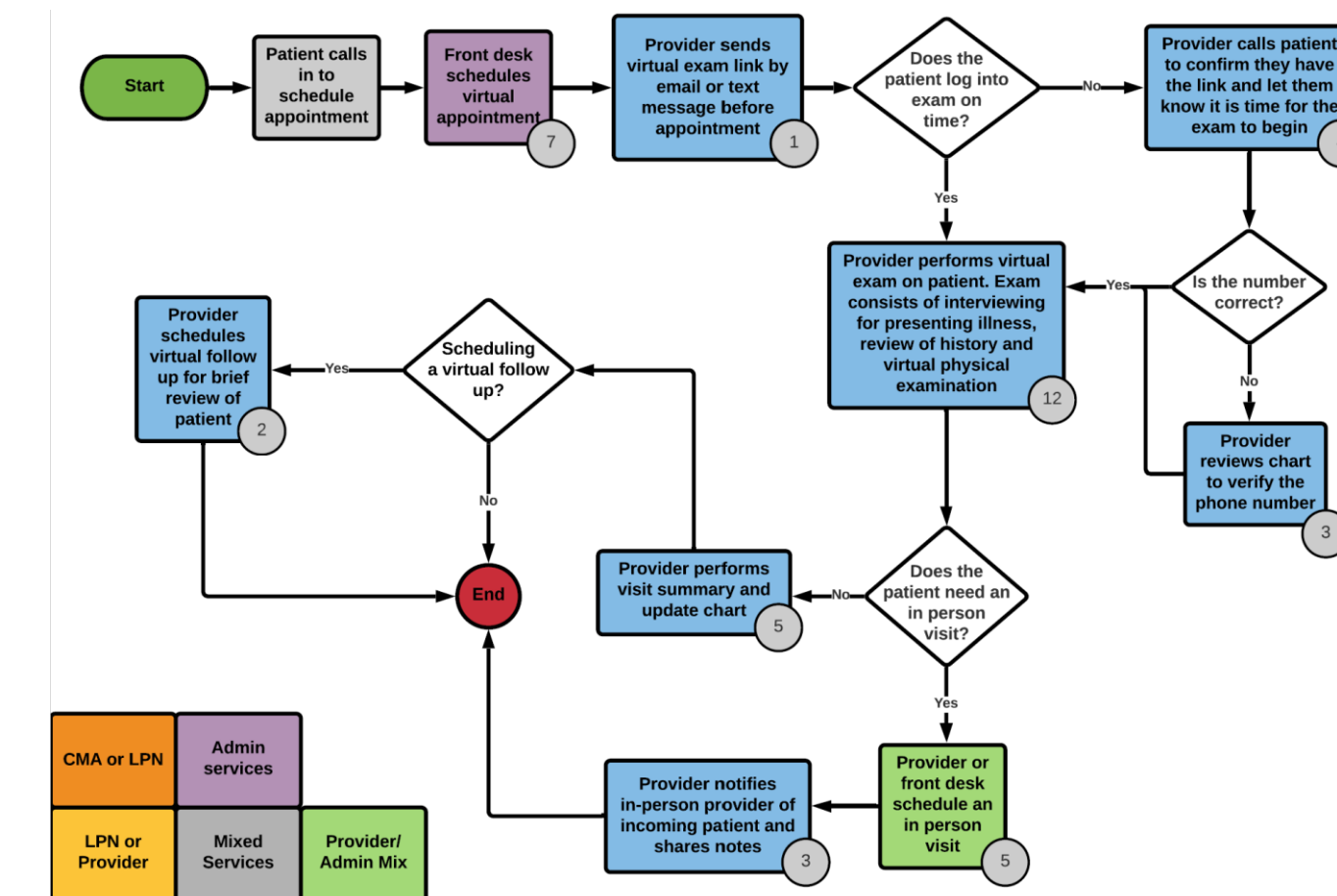| Visit Type	Before TCS		After TCS	
	Mean	±1 SD	Mean	±1 SD
In-Person	$71.25	(52.49-80.01)	$59.88	(50.37-69.39)
Telehealth	$70.71	(61.99-79.42)	$59.49	(49.68-69.29)
Overall	$71.10	(62.35-79.84)	$59.82	(50.27-69.37)

Figure 2. TH flow chart before TCS implemented.

Figure 3. TH flow chart after TCS implemented.

METHOD CONT'D

- Sensitivity analysis was conducted for provider and visit type mix between the clinics.

- Minimally important difference (MID) measured by a well-defined anchor has been identified as a conservative effect size for low-cost studies.

- The median Medicare medical fee in 2017 was $125 and $184 (a 47% difference), for low and moderate complexity sick visits, respectively, therefore the CPT anchored MID identified as a meaningful cost difference between the two adjacent visit CPT codes is set at 47%.

CONCLUSION

- Adding TCS decreases labor costs and streamlining may contribute to making the organization more efficient.

- As such, we anticipate the labor costs associated with TCS visits to decrease even further in the future.

- Preliminary data and anecdotal evidence points toward TCS reducing telehealth cancellation rates, increasing provider satisfaction, and enhancing patient digital navigation. This is especially important given the serious problem of provider "burn-out" and increased focus on patient digital literacy.