

# Improving Door-to-CT Times at Vidant Medical Center: A Quality Improvement Project



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## BACKGROUND

The popular mantra for stroke care is “time is brain,” and the “BE FAST” mnemonic is used to help the general population identify strokes early. The emphasis on efficiency in stroke identification and treatment is very appropriate, as the efficacy and safety of the most successful management options, including tPA and mechanical thrombectomy, are time sensitive.

## PROJECT AIM

To decrease the Door-to-CT (DCT) times for acute stroke patients presenting to the Vidant Medical Center via Pitt County EMS by 10% by December 2019.

## PROJECT DESIGN/STRATEGY

The DCT times for patients presenting to the Vidant Medical Center from January 2017 to December 2019 were provided by the Vidant Neurology Department. The authors included only patients who presented via Pitt County EMS. The median DCT of the selected acute stroke victims was calculated using Microsoft Excel spreadsheet and reported on run charts to show both the monthly and annual change over the study period. The percent mean change between 2017 and 2019 was calculated and a t-test performed.

## CHANGES MADE (PDSA CYCLES)

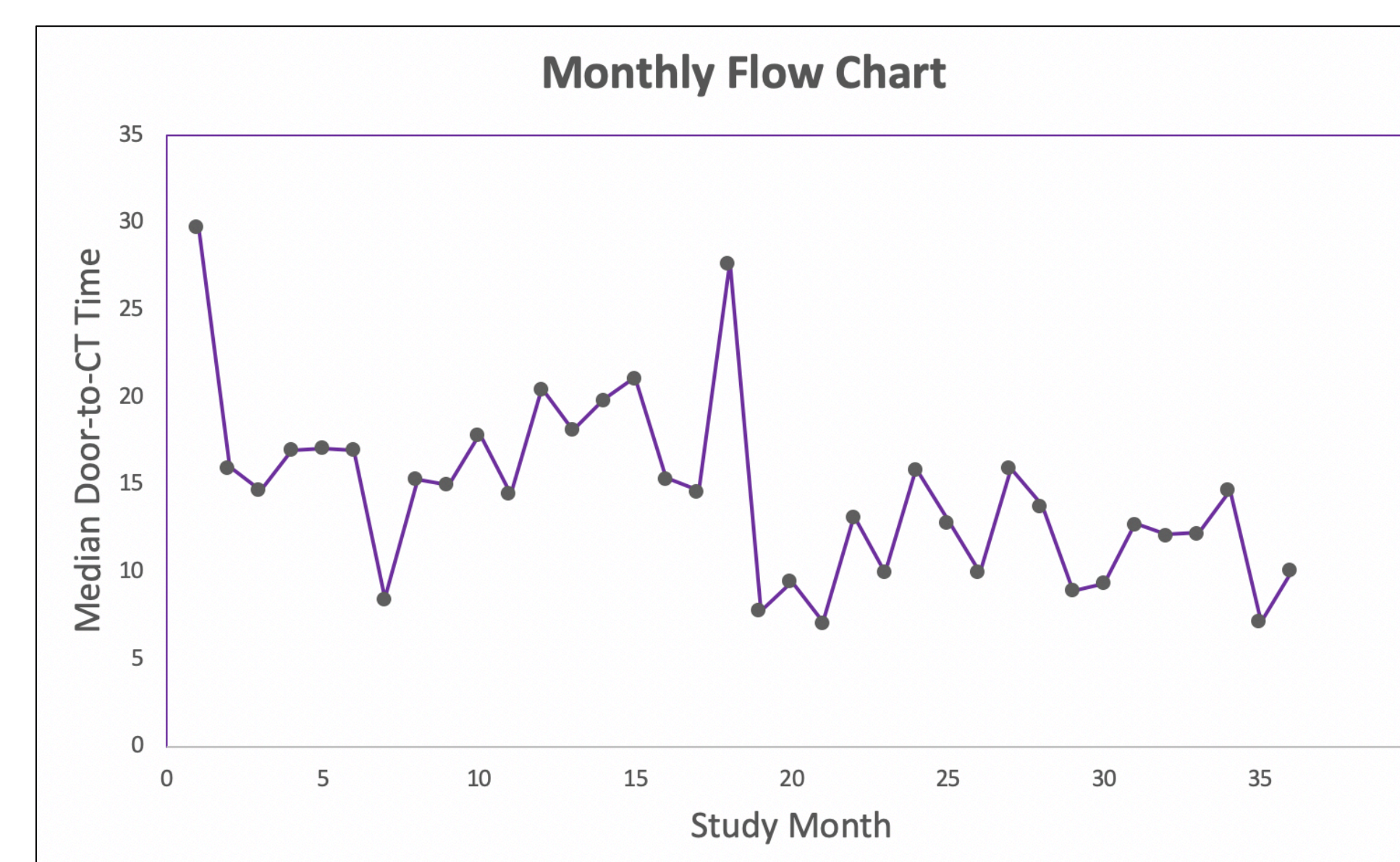
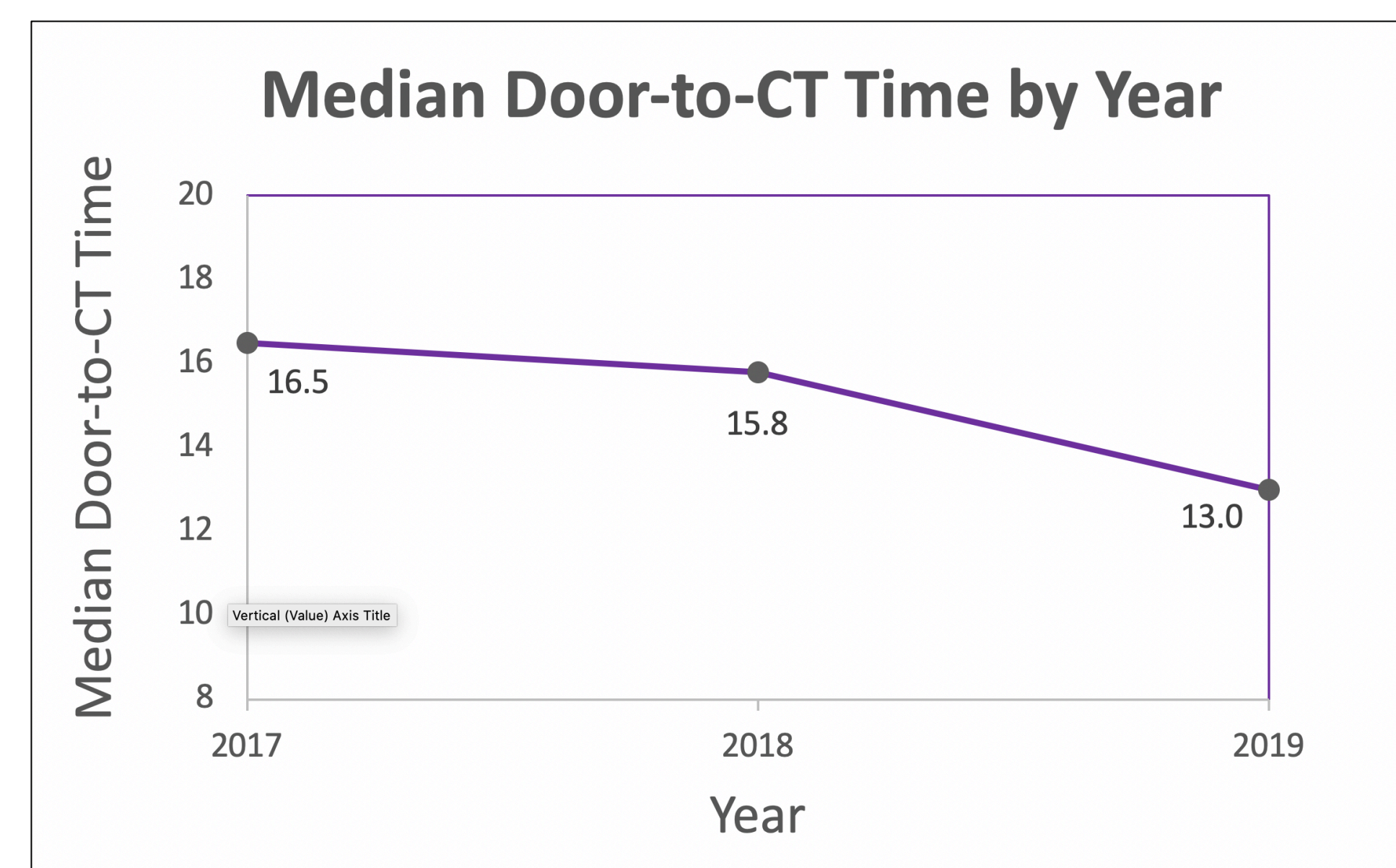
1. EMS activates stroke alert for hospital, improving timeliness of activation and hospital preparedness.
2. EMS transports patient through the Emergency Department for physician evaluation and then on to the CT room to avoid time lost due to room placement and transferring stretchers and monitors.
3. The RACE stroke scale was initiated to give physicians more information on type, severity, and progress of strokes.
4. A partnership with the Pitt County Community College was instituted for Paramedic training. In-house training modules were designed, which included computer-based-training, individualized performance monitoring, and feedback.

The changes were implemented throughout 2017 with the goal of having the new protocols fully in place by January 2018.

## RESULTS/OUTCOMES

Data collection began in January 2017. Mean 2017 DCT was 16.5 minutes with N = 177. 2018 mean DCT showed improvement to 15.8 minutes with N = 189. 2019 mean DCT showed continued improvement to 13.0 minutes with N = 153. 2019 showed a statistically significant decrease of 21.2% from 2017 ( $p = 0.013$ ).

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## LESSONS LEARNED

The interventions implemented across 2017 and early 2018 are improving the efficiency of DCT times. The results have the potential to increase the number of patients who receive definitive treatments, which have been shown to improve long-term functional outcomes.

## NEXT STEPS

Follow up measures will include continued DCT monitoring as well as individualized team monitoring and training as indicated.

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