

Comparison of Cardiac Output Measurements

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Background/Triggers

- Accuracy of Fick and thermodilution methods to obtain cardiac output
- Variance in length of time obtaining outputs
- Reliability of methods- user error can occur, i.e. position of patient, amount of fluid, and speed of injection
- Variance between physician preference

PICO

Purpose: Is Fick method more accurate than thermodilution in measuring cardiac output in patients with low cardiac output states?

- . P- Cardiac patients with a pulmonary artery catheter
- . I- Fick method
- . C- Thermodilution
- . O- Accuracy in measurement of cardiac outputs, cost efficiency

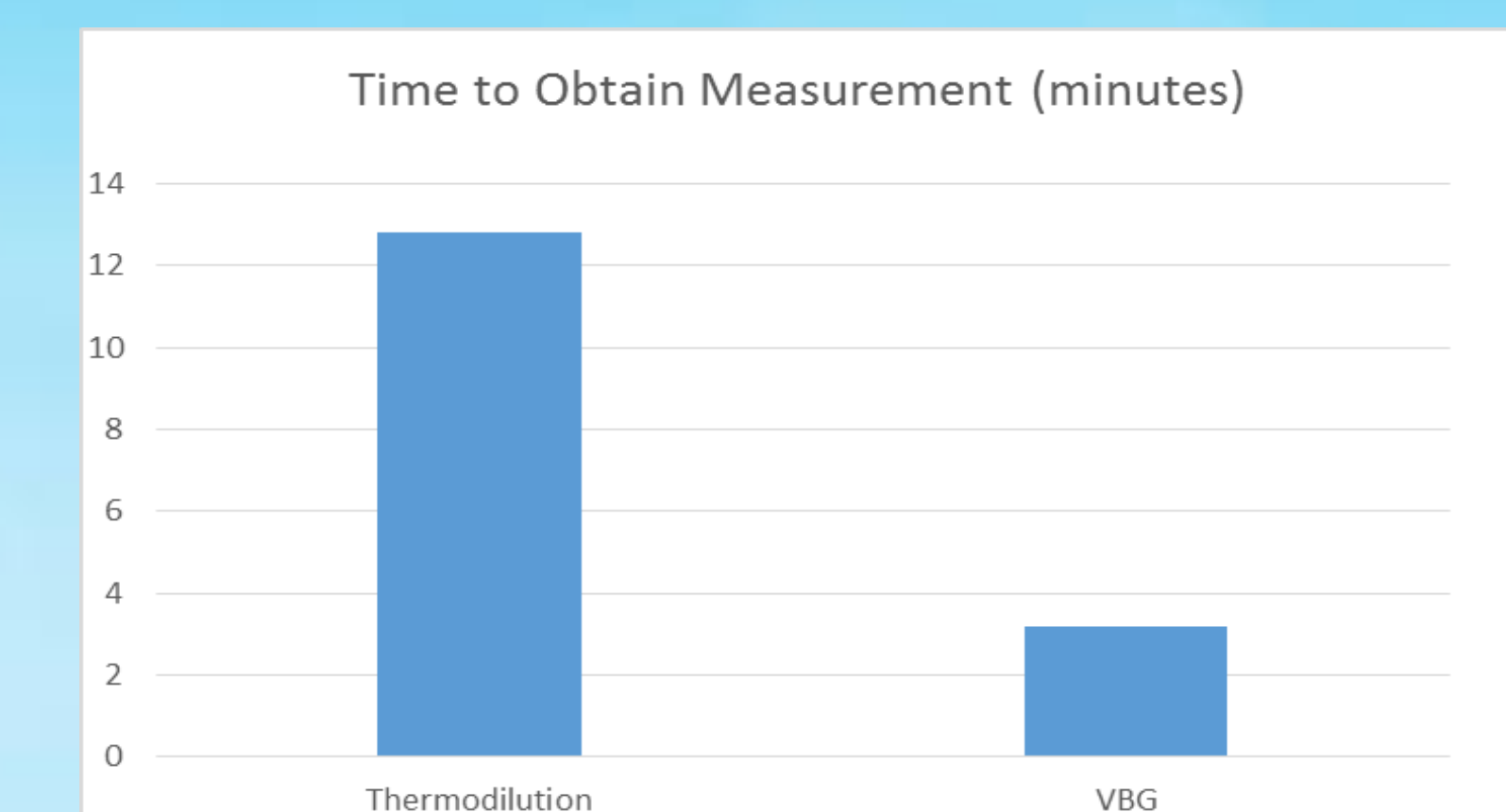
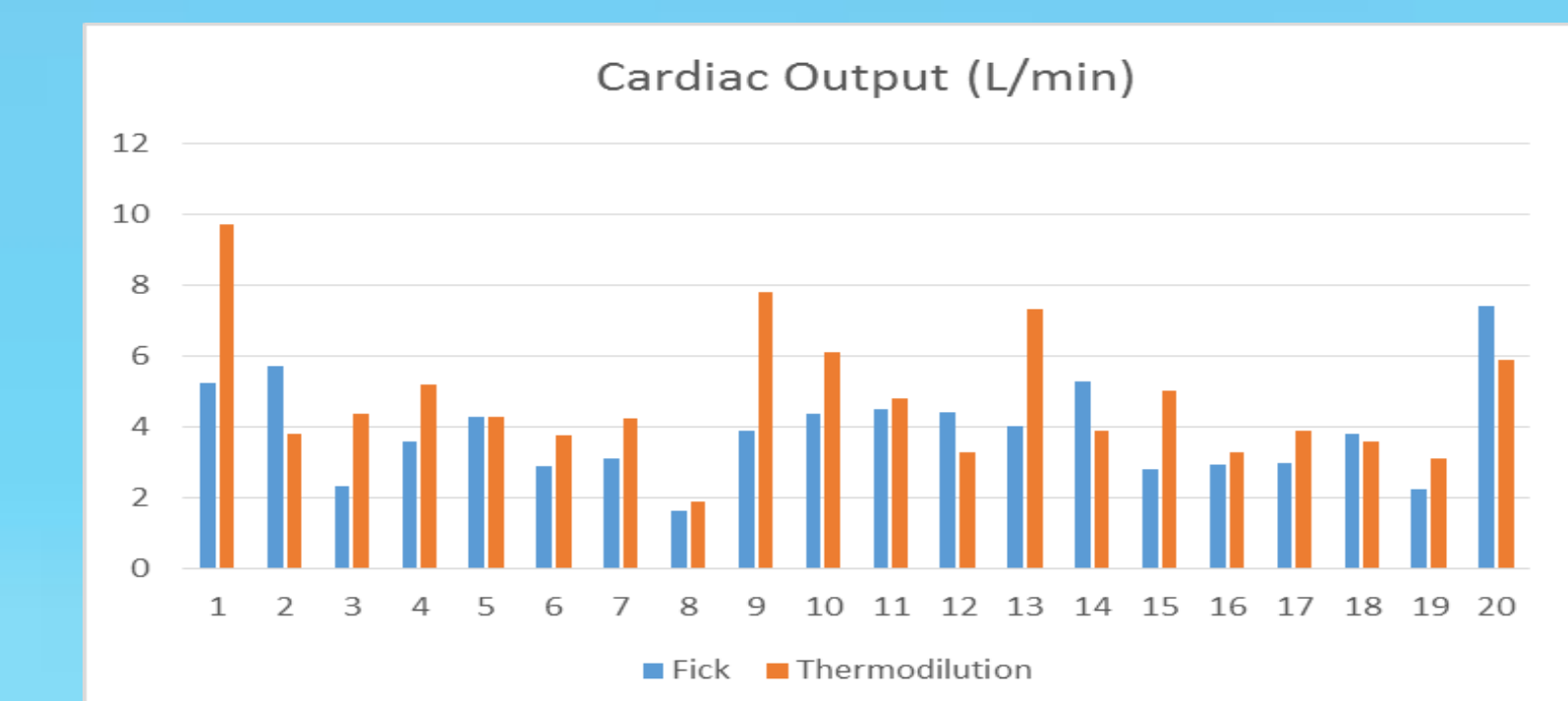
Evidence

- According to Li (2015), there was no significant difference between calculating CO by Fick and thermodilution
 - Deemed Fick the “gold standard”
- Greet (2010) found Fick is 30% more accurate and precise than thermodilution
- Fares et. al (2012) found significant discrepancies between methods for patients with pulmonary HTN
- Literature indicates inaccuracy of thermodilution as a method in patients with valve regurgitation

Process Implementation

- -Compare the original CO obtained in the CCL to the first COs obtained via thermodilution and Fick at the bedside on CICU
- -Collect data retrospectively through EPIC
- -Compare time required to perform each method

Outcomes



Next Steps

- Present findings to cardiology team to implement standardized methods of cardiac output measurement for specific populations or reasons
- Recommend further evaluation
- Revision of pulmonary artery catheter policies

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