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CONSOLIDATION OF P2Y12 TESTING WHILE MAINTAINING QUALITY AND TURNAROUND TIME

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BACKGROUND

Approved by the FDA in 1997, clopidogrel (Plavix) is a commonly used prophylactic antiplatelet medication.

Mechanism of action: Clopidogrel irreversibly binds to adenosine diphosphate (ADP) platelet receptor P2Y12 and prevents activation of glycoprotein IIb/IIIa, preventing platelet aggregation.

VerifyNow PRU® is a lab blood test that measures the level of P2Y12 receptor blockade in patients treated with clopidogrel and newer drugs, prasugrel and ticagrelor.

When are Patients on P2Y12 inhibitors tested?

1. Preoperatively to assess the risk of bleeding and to time the surgery.
2. To determine resistance to the drug and appropriate dosing.

Problem?

- Currently, the assay is performed at 2 locations: Thomas Jefferson University Hospital(TJUH) and Jefferson Hospital for Neuroscience(JHN).
- 10X more tests are ordered at JHN than at TJUH.
- Maintaining and running the assay for a small volume of samples at TJUH is expensive without an established benefit in patient safety or quality of care.

OBJECTIVE

- To consolidate the test performed at 2 different locations to 1, thereby improving cost effectiveness while maintaining quality and result turnaround time.

- This project was approved by the Cardiology and Thrombosis Subcommittee and will be implemented in the near future following EPIC go-live.

METHODS

- In 2016, the clinical laboratory at TJUH performed VerifyNow PRU® P2Y12 assay on **31** samples, and JHN on **465** patient samples.

- The cost for testing the 31 samples at TJUH:

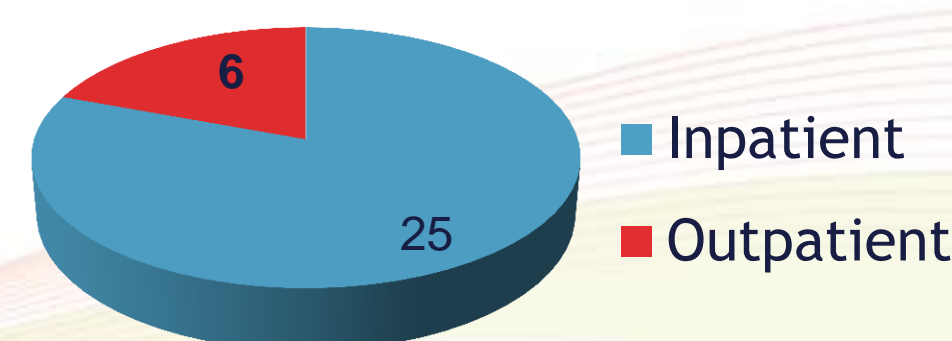
Reagent cost per test sample: \$60
 Reagent cost of control for each test: \$200
 Total cost per test sample: \$60 + \$200 = \$ 260
 Reagent cost for weekly instrument calibration with controls : \$200

Total expenditure in 2016:
 (\$260 x 31) + (\$200 x 52) = \$18,460

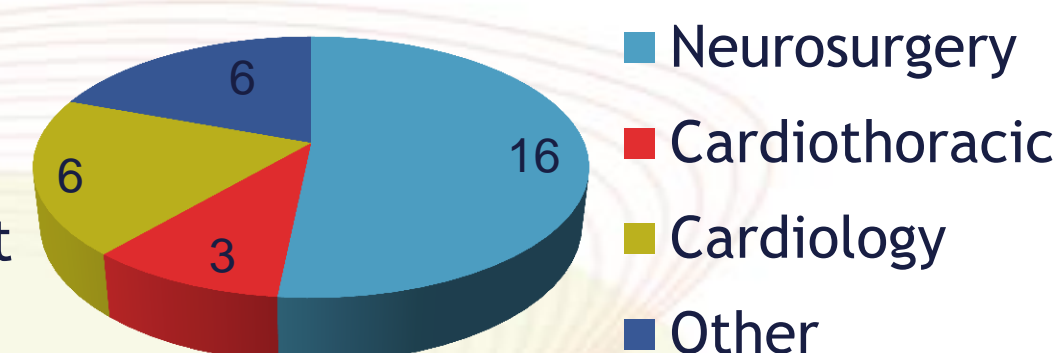
- The cost of testing the 31 samples at JHN upon test location consolidated is estimated as:

Total reagent cost of 31 samples: \$60 x 31= \$1,860
 No cost for calibration since it is already being performed on the instrument at JHN
Potential total saving: \$18,460- \$1,860= \$16,600

Inpatient vs outpatient



Departments ordering assay



Potential challenges:

- VerifyNow PRU® P2Y12 is run within 4 hours of collection of the blood sample which is delivered manually to the lab.
- Consolidation will require a courier service for transport of samples from TJUH to JHN.

Data collected at TJUH lab for 2016

Median turnaround time	50mins
Delay in reporting	2 samples (technical errors), by 11 and 16 hrs
No. of stat orders	None

CONCLUSION

- By consolidating, VerifyNow PRU® P2Y12 assay will be managed by 1 team of technicians at 1 location, ensuring better standardization and quality.
- Data will be collected for a period of 1 year following implementation.

Measures to be tested

Outcome	Result turnaround time from blood draw, any delay in reporting
Process	Time taken to transport samples
Balancing metrics	Ensure transport/courier cost does not outweigh the cost effectiveness of measure

- If successful, this measure can be applied to similar tests run at different locations within the hospital.