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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:

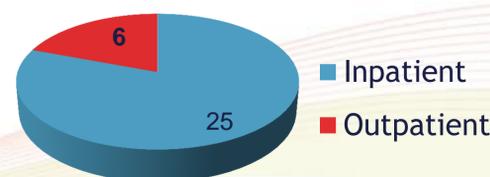
Reagent cost per test sample: \$60  
 Reagent cost of control for each test: \$200  
 Total cost per test sample: \$60 + \$200 = \$ 260  
 Reagent cost for weekly instrument calibration with controls : \$200

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

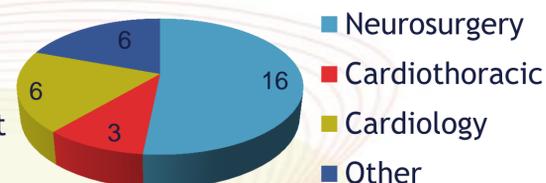
- The cost of testing the 31 samples at JHN upon test location consolidated is estimated as:

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.