Simple, Rapid Antiplatelet Therapy Response Assessment







Antiplatelet therapy. Is it working?

- At least 1 in 3 patients on antiplatelet therapies do not receive the intended physiological effect^{1,2,3}
- 40% of patients receiving clopidogrel (Plavix®) may not adequately respond to therapy4
- Hyper-response is associated with an increased risk of bleeding⁵
- Individual response to antiplatelet therapies can change over time⁶

Thus, understanding a patient's unique response to antiplatelet medications is essential for effective medical decision-making.

VerifyNow testing offers antiplatelet therapy guidance in many clinical scenarios

- Interventional procedures for endovascular aneurysm treatment
- Cardiovascular surgery requiring patients to suspend antiplatelet therapy
- Surgery involving patients taking antiplatelet therapy who are at risk for bleeding

For better patient management

One of the most cited and utilized platelet reactivity testing systems, VerifyNow is an indispensable aid to understanding the complete patient profile. Monitoring patient response to antiplatelet medication optimizes patient outcomes.

VerifyNow testing:

- Offers platelet reactivity results in minutes
- Measures the effect of antiplatelet therapies prior to a procedure or discharge
- Identifies patients at risk for an antiplatelet-related bleeding or thrombotic event
- Identifies therapeutic noncompliance

VerifyNow testing may help:7

- Reduce time off antiplatelet therapy and its associated risks
- Reduce the need for standard pre-op platelet orders
- Optimize patient length of stay prior to surgery
- Reduce 30-day readmissions

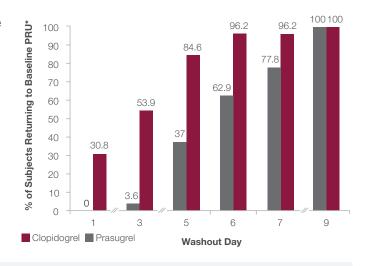
Variability in antiplatelet response

Factors contributing to variations in patient response to antiplatelet medication include:8

- Concomitant medications
- Genetic differences
- Current health conditions
- Patient noncompliance

* PRU = P2Y12 Reaction Units

Decrease in Drug Effect Over Time⁹



Challenge

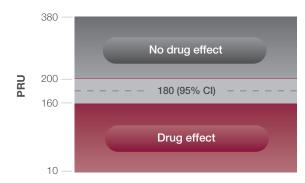
Patients with inadequate response to antiplatelet medications may be at significantly greater risk of myocardial infarction and stent thrombosis.

A number of commonly prescribed antiplatelet medications block the P2Y12 platelet-receptor, reducing the risk of major adverse cardiac events (MACE).

VerifyNow PRUTest[™]

Measures the level of P2Y12 platelet-receptor blockade to help identify patient response to antiplatelet therapy.

Patient Response to Antiplatelet Therapy^{10†}



Normal platelet reactivity or a low response to a P2Y12 inhibitor

Decreased platelet reactivity consistent with effects of a P2Y12 inhibitor

 \dagger Based on patients with Acute Coronary Syndrome not taking a P2Y12 inhibitor

Challenge

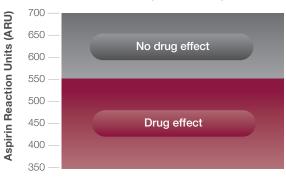
Whether used alone or as part of a dual antiplatelet therapy, not all patients respond to aspirin equally.

Up to 30% of patients demonstrate lower-thanexpected levels of platelet inhibition while on aspirin therapy, putting them at greater risk of heart attack, stroke and other vascular events.^{1,2,3} Alternatively, other patients can exhibit a hyper-response, increasing bleeding risk.²

VerifyNow Aspirin Test

Aids in assessing how aspirin inhibits platelets, allowing rapid, informed treatment decisions.

Patient Response to Aspirin¹¹



No evidence of aspirininduced platelet dysfunction

Evidence of aspirininduced platelet dysfunction

Specific drug-receptor site activation

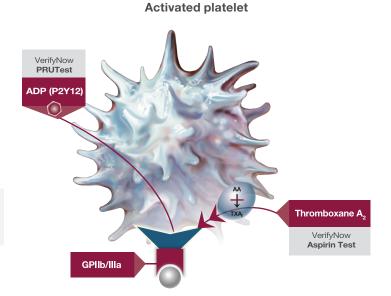
VerifyNow PRUTest

Uses ADP and PGE1 to measure the degree of P2Y12 platelet-receptor blockade, identifying patient response to a P2Y12 inhibitor.

VerifyNow Aspirin Test

Utilizes an arachidonic acid-initiated reaction to measure platelet response to aspirin.

Commonly prescribed antiplatelet medications, including clopidogrel (Plavix®), prasugrel (Effient®) and ticagrelor (Brilinta®/Brilique), block the platelet P2Y12 receptor.



VerifyNow testing supports patient care in many areas of the hospital

- Cardiac Care Unit
- Interventional Neuroradiology Suite
- Emergency Department
- Cardiac Catheterization Laboratory
- Laboratory

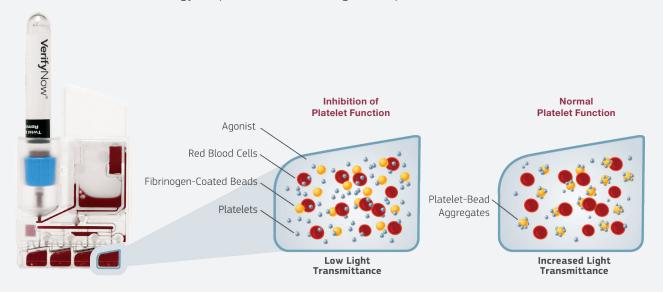


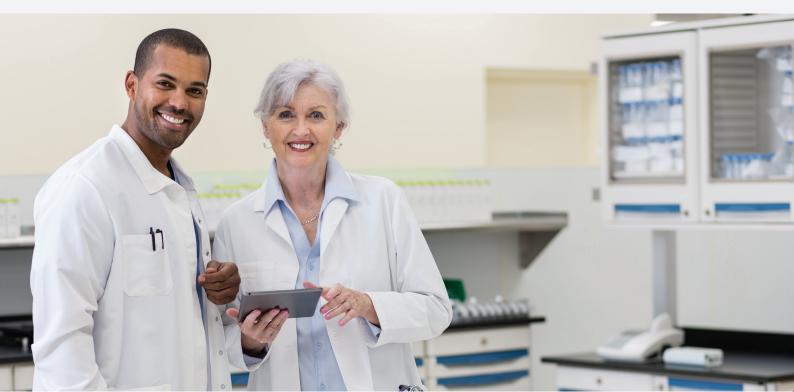
Simple integration into any workflow

- Easy to use
- No pipetting or sample preparation
- Sample-to-answer results in a fully contained, single-use test system

Uses Light Transmission Aggregometry (LTA)-correlated technology

- Requires no sample manipulation, eliminating analytical sample variation
- Patented, accurate and intuitive
- · Gold standard technology for pharmaceutical drug development







Customer testimonials

"Testing with VerifyNow supports ongoing expansion of the frontiers of endovascular aneurysm treatment by helping minimize risk of perioperative complications."

Josser E. Delgado, MD

Neurointerventionalist Abbott Northwestern Hospital Neuroscience Institute Minneapolis, Minnesota "I test all patients on platelet inhibitors prior to open heart surgery to assess whether or not antiplatelet therapies are having their desired effect."

Pierre R. Tibi, MD

Cardiothoracic Surgeon and Medical Director The James Family Heart Center at YRMC West Prescott, Arizona "Having the VerifyNow system allows me to assess the effect of the chosen antiplatelet treatment strategies and make informed decisions."

J. Brent Muhlestein, MD

Interventional Cardiologist Intermountain Heart Institute Murray, Utah

References

- 1. Gurbel PA, et al. Platelet function monitoring in patients with coronary artery disease. J Am Coll Cardiol. 2007;50(19):1822–34.
- 2. Krasopoulos G, et al. Aspirin "resistance" and risk of cardiovascular morbidity: systematic review and meta-analysis. BMJ. 2008;336(7637):195-8.
- 3. Steinhubl SR, et al. Point-of-care measured platelet inhibition correlates with a reduced risk of an adverse cardiac event after percutaneous coronary intervention: results of the GOLD (AU Assessing Ultegra) multicenter study. Circulation. 2001;103(21):2572–8.
- Stone G, et al. Platelet reactivity and clinical outcomes after coronary artery implantation of drug-eluting stents (ADAPT-DES): a prospective multicentre registry study. Lancet. 2013;382(9892):614–23.
- Aradi D, et al. Bleeding and Stent Thrombosis on P2Y12-inhibitors: Collaborative Analysis on the Role of Platelet Reactivity for Risk Stratification after Percutaneous Coronary Intervention. European Heart Journal. 2015;36(27):1762–71.
- Delgado Almandoz JE, et al. Variability in initial response to standard clopidogrel therapy, delayed conversion to clopidogrel hyper-response, and
 associated thromboembolic and hemorrhagic complications in patients undergoing endovascular treatment of unruptured cerebral aneurysms. *Journal of NeuroInterventional Surgery*. 2014;6:767–73.
- 7. Brizzio ME, et al. Use of an objective tool to assess platelet inhibition prior to off-pump coronary surgery to reduce blood usage. J Invasive Cardiol. 2012;24(2):49-52.
- 8. Serebruany, VL, et al. Variability in Platelet Responsiveness to Clopidogrel among 544 Individuals. Journal of the American College of Cardiology, vol. 45, no. 2, 2005, pp. 246–251.
- 9. Price MJ, et al. Recovery of platelet function after discontinuation of prasugrel or clopidogrel maintenance dosing in aspirin-treated patients with stable coronary disease: the recovery trial. J Am Coll Cardiol. 2012;59(25):2338–43.
- 10. VerifyNow PRUTest [package insert]. San Diego, CA; Accriva Diagnostics
- 11. VerifyNow Aspirin Test [package insert]. San Diego, CA; Accriva Diagnostics.

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