PRECISION MATTERS:

THE REAL-WORLD IMPERATIVE TO ADVANCE ACT TESTING METHODOLOGIES

Every physician experiences career-defining moments that fundamentally change their perceptions and often mark the starting point of a journey toward new clinical strategies to improve patient outcomes. For anesthesiologist Dr. Florian Falter, one such event fueled his quest to find an ACT assay with a more precise testing methodology. Today, he urges fellow clinicians to recognize the potential consequences of imprecise ACT testing and accelerate adoption of improved testing methods.

AN UNACCEPTABLE LOSS

Dr. Falter remembers the worst day of his career.

It was about 3 hours into a routine transplant procedure, things had been going well and the patient was close to coming off bypass. With 15 or 20 minutes to go Dr. Falter ordered an ACT from the benchtop device they relied on for whole-blood testing. There was a dip in the number returned, which was close to 400 seconds. In response, an additional dose of heparin was given and a control ACT showed an adequate rise.

Twenty minutes later, he again ordered an ACT. The number he got back was trending downward, but the decrease was not precipitous enough to be alarming. The team carried on confidently.

Shortly after that, with only minutes left before the patient was to come off bypass, the entire circuit suddenly clotted. The team initiated emergency procedures, eventually restoring circulation with a new bypass machine. However, it was impossible to regain sufficient blood pressure and flow. Despite their best life-saving efforts, the patient passed away.

Dr. Falter was devastated.

> *“This tragedy ignited my deep interest in ACT. I was determined to learn everything about every ACT device—to find a safer way of managing bypass.”*

INSPIRED TO ACT

The regrettable events of that day awakened a deep resolve in Dr. Falter to ensure that no patient would ever suffer the same fate again. The ACT numbers captured during the procedure had proven unreliable, failing to warn of an imminent clot. Dr. Falter wanted to know why.

> *“Devices with better reproducibility give me confidence that the number I’m getting is actually the right number.”*

He immersed himself in an analysis of ACT and clotting during bypass, investigating various testing devices, scrutinizing the literature, and conducting his own research.

He eventually concluded that **the best indicator of a testing system’s reliability is the reproducibility of its results.** Medical teams have to be able to trust that the ACT values they are receiving at all times are as precise as possible. Every patient’s life depends on it.

The results shown here are specific to one health care facility and may differ from those achieved by other institutions.

IN PURSUIT OF PRECISION

Reliability matters in the OR—and this is often determined by how an ACT device works. Traditionally, the number returned is generated at some point only after a clot has already started to form. This number is vulnerable to a number of external factors often associated with cardiopulmonary bypass and cannot completely control bypass-associated dilutional coagulopathy. As a result, some devices may overread the ACT, possibly producing an imprecise value.

> ***"Perhaps if I hadn't done such a rigorous analysis, I wouldn't feel as confident about using a newer method with i-STAT ACT. But I did, and I do."***

Through his exhaustive pursuit of greater precision, Dr. Falter identified the advantages in the methodology and reproducibility of the i-STAT point of care assay, which he now champions. The i-STAT measures ACT at a well-defined, earlier point in the coagulation cascade and before clot formation, while avoiding some of the vulnerabilities of traditional devices, resulting in less variability and greater reliability of results.

ONE CLOTTED CIRCUIT IS ONE TOO MANY

Dr. Falter finds it perplexing—and particularly vexing, given his experience—that a widespread transition to newer ACT methodologies has not yet occurred. He suspects that the low incidence of reported clotted circuits is one reason for this. The true magnitude of clot formation during bypass may be greater than generally presumed and is an area of further research.

Whatever the actual incidence, a clotted circuit during by pass is a potential—and likely—disaster no medical team should ever accept. Utilizing newer ACT methodologies can help mitigate the risk of this occurring because they deliver more precise readings. And precise readings are an absolutely essential step to reaching the day when no patient, family, or care team ever need suffer a tragedy like the one that propelled Dr. Falter on his quest.

ADVANCE YOUR ACT TESTING TODAY

Dr. Falter urges clinical teams everywhere to work with their laboratory partners on implementing conversion strategies to secure the newest, most precise ACT modalities for their institutions, sooner rather than later, for the benefit of every patient they serve.

INVALUABLE INSIGHTS*

FOR ACT TESTING:

Precision and reproducibility are paramount

An earlier marker:

- Provides vital information before a clot is formed
- Improves reliability of results

Newer clot detection modalities are less susceptible to dilution and other interferences

Successful platform conversion requires collaboration between clinical teams and the lab

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