

# Guiding bleeding management for improved patient outcomes



# Rapid results for real-time decision-making—and fewer unnecessary blood transfusions<sup>1-3</sup>

The ROTEM *delta* viscoelastic testing system enables timely and comprehensive assessment of coagulopathy. Fast, easy-to-interpret TEMograms provide real-time, actionable results.

In patients exhibiting clinically significant bleeding, ROTEM testing guides appropriate clinical decisions toward individual and goal-directed therapy. This helps clinicians optimize hemostasis, while minimizing blood product exposure—a key goal of patient blood management (PBM) programs.



# A complete viscoelastic testing system for effective PBM

**Offering enhanced interpretation and reproducibility for timely and comprehensive assessment**

## Enables rapid clinical decisions

- Early parameters in <10–15 minutes, enabling clinical decisions up to 3x faster than traditional methods
- No incubation time—testing initiated in <1 minute
- Rapid activators for timely results
- Heparin neutralization allows testing during cardiopulmonary bypass

## Enhanced interpretation

- Large TEMograms viewed at-a-glance
- Reference ranges to assess hemostasis and inform therapeutic decisions
- Profile and patient overlays to compare in-process results to reference curves

## Accurate, reproducible results

- System performance continuously monitored to ensure quality results
- Four independent channels for differential diagnosis of coagulopathy

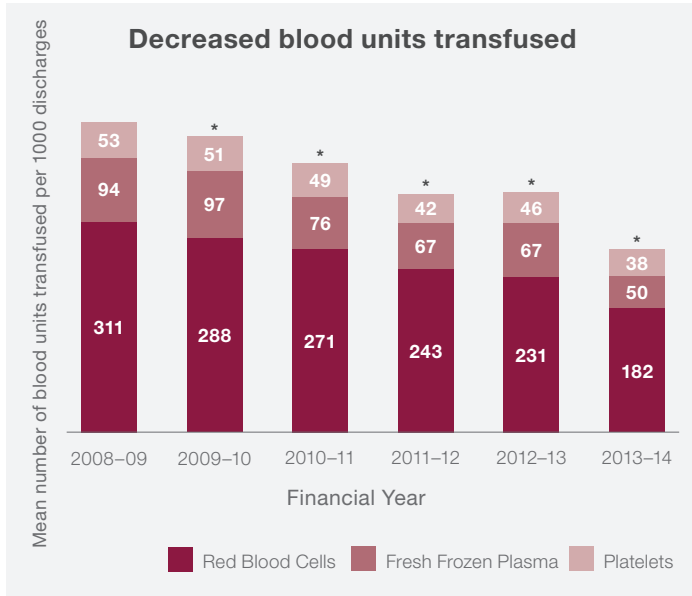
## Easy to use

- Automated pipetting, with step-by-step onscreen guidance
- Intuitive, touchscreen interface
- Automated assay initiation upon sample introduction

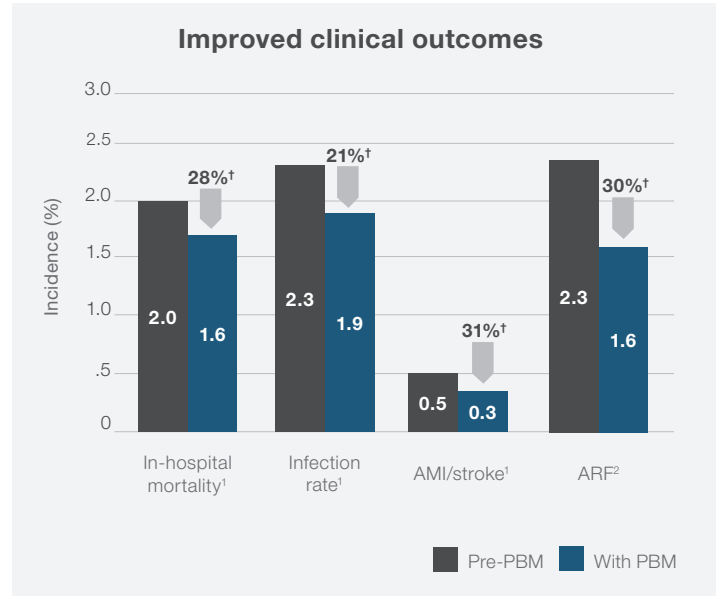
**Evidence-based and validated.** Viscoelastic testing is recommended in key clinical guidelines<sup>4,5</sup> to inform patient-specific transfusion decisions and respond to patient needs.

# An essential part of any PBM program

Studies show that PBM can reduce transfusions and improve patient outcomes<sup>1,2</sup>



\*p-value <0.05, indicating significant decrease in mean units transfused/100 discharges vs. 2008-09.

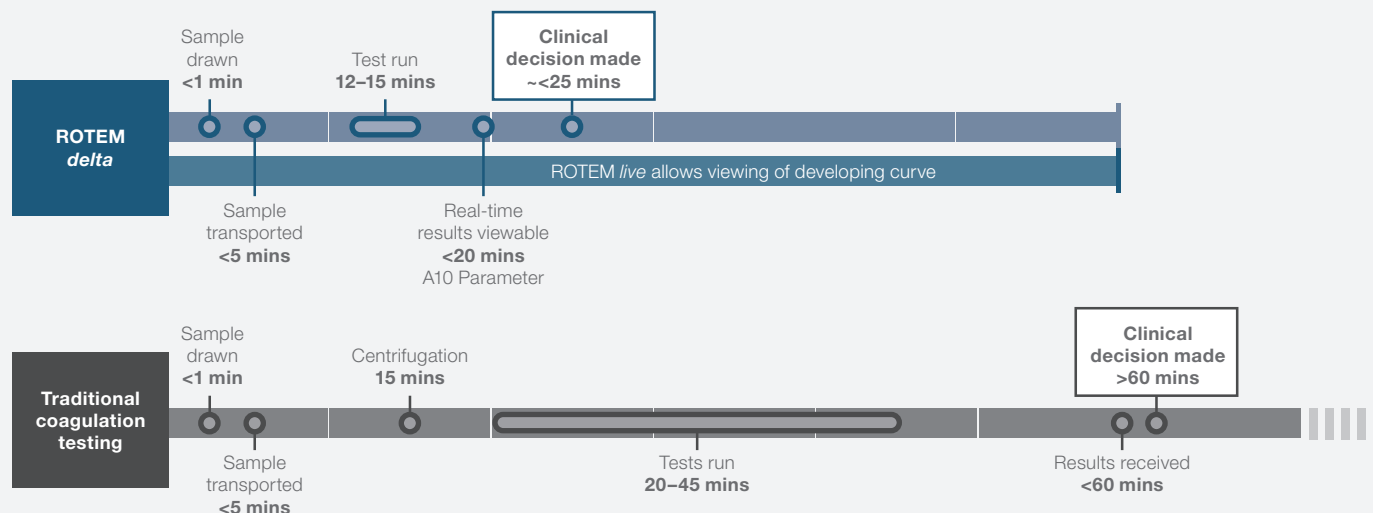


AMI=acute myocardial infarction; ARF=acute renal failure

<sup>†</sup>Adjusted

## ROTEM *delta* testing guides appropriate and timely decisions for effective bleeding management

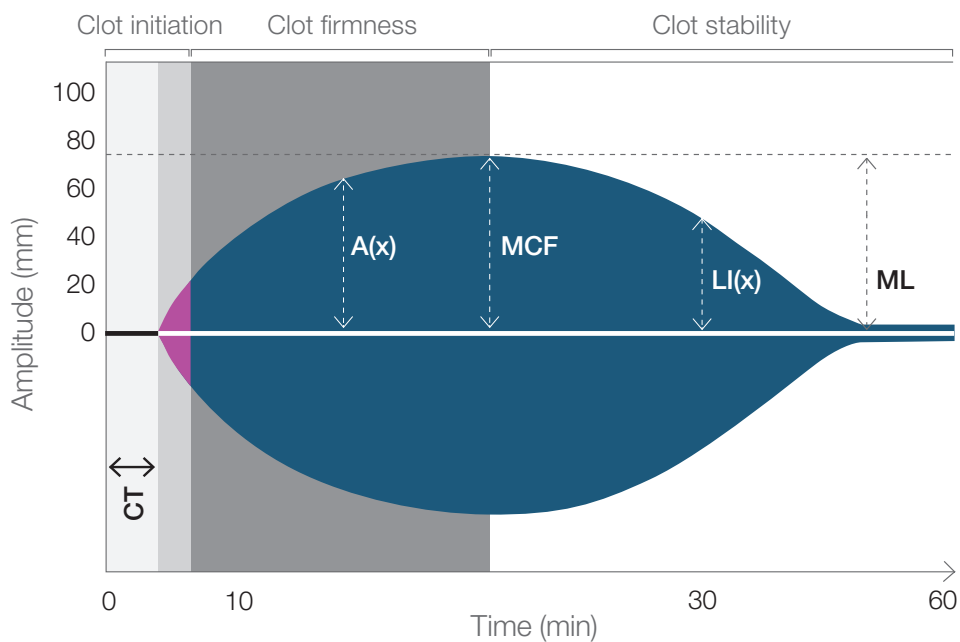
Enables clinical decisions within 25 minutes of sample draw vs. >60 minutes with traditional testing.



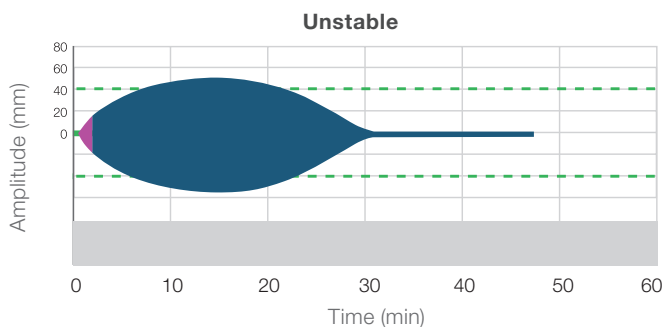
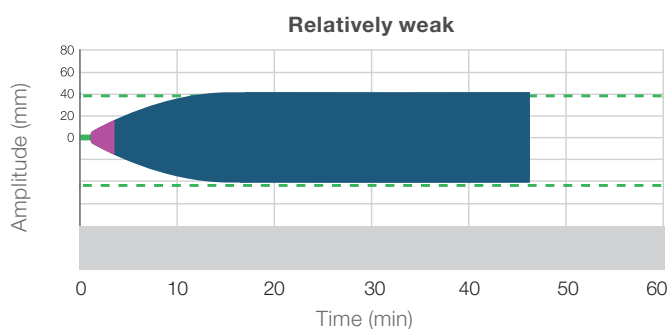
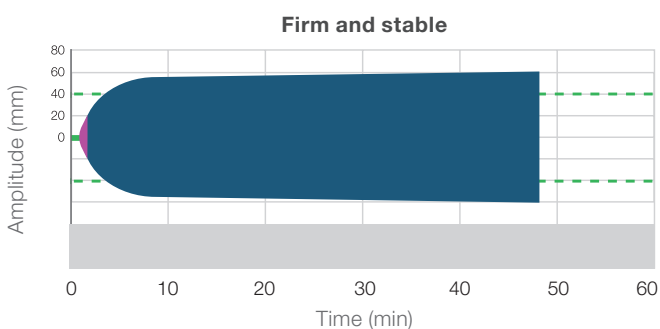
# Enhanced interpretation with ROTEM TEMograms

## A clear picture of coagulopathy

- Immediate, at-a-glance assessments of clot firmness and stability
- Enhanced clotting activators expedite TEMogram formation and results
- Shapes and published reference ranges inform hemostasis assessment and therapeutic decisions



- CT:** Clotting time
- A(x):** Amplitude x mins after CT
- MCF:** Maximum clot firmness
- LI(x):** Lysis index x mins after CT
- ML:** Maximum lysis

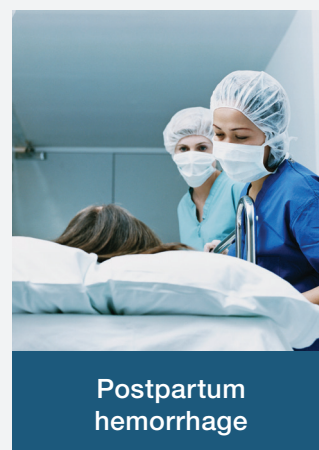
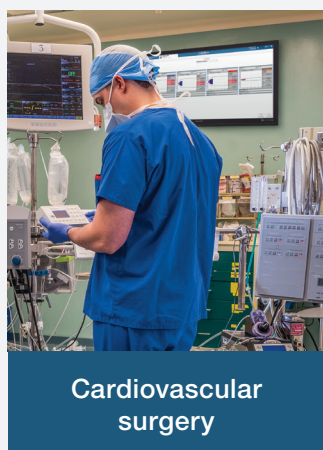


**Facilitates differential diagnosis.**  
Comparing TEMograms from multiple assays allows quick interpretation of results and targeted therapeutic decisions.

# Flexible assay menu for broad indications

Assay	Analytical principle	Heparin neutralization
<b>EXTEM</b>	Assesses clot formation, firmness and stability through activation of extrinsic pathway	Up to 5 IU/mL
<b>INTEM</b>	Evaluates influence of heparin, clot formation, firmness and stability through activation of intrinsic pathway	N/A
<b>FIBTEM</b>	Assesses fibrinogen status and fibrin polymerization by blocking platelet contribution	Up to 5 IU/mL
<b>HEPTEM</b>	Monitors intrinsic pathway after neutralizing influence of unfractionated heparin	Up to 7 IU/mL, used in cardiovascular surgery
<b>APTEM</b>	Monitors clot firmness after blocking hyperfibrinolysis	Up to 5 IU/mL, used in trauma

Enables individualized, goal-directed therapy guidance in a wide range of clinical scenarios



## Remote viewing of results in real-time

- Web-based and secure data viewer
- TEMograms and numeric ROTEM measurement results displayed in real-time, from site of analysis to the point of care
- Searchable measurements by patient or sample ID

# Advanced connectivity and training

## Simple management of information, systems and operators

**GEMweb<sup>®</sup> Plus<sup>500</sup>**  
CUSTOM CONNECTIVITY

- Full traceability from a single interface, accessed from anywhere
- Enhanced operator management and data analysis
- Simplified quality management of ROTEM *delta* systems
- Remote system configuration
- Open connectivity including Werfen and non-Werfen instruments\*

At-a-glance dashboards facilitate access to patient samples, controls and historical results



\*Open connectivity for select non-Werfen analyzers. Contact your local Werfen representative for information on non-Werfen device connection details and availability.

## Centrally support laboratory decision-making

**HEMOHUB**

- Connects ROTEM systems, Werfen Hemostasis systems and operators
- Critical results and system status displayed in real time
- Simple, efficient management of quality control (QC)
- Helps optimize operations and facilitate accreditation

## Simplify education, training and certification

**werfen|academy**

- Educational programs for ROTEM *delta* operators
- Point-of-care operator training for certification and accreditation
- Comprehensive online classes in PBM, Hemostasis, Acute Care and Autoimmunity
- Available online 24/7, from PC or mobile device



# Guiding real-time decisions for fewer unnecessary transfusions



## Acute Care Diagnostics

### Integrative solutions at the speed of life

ROTEM systems are part of the broad Acute Care Diagnostics portfolio from Instrumentation Laboratory. Acute care requires timely, decisive action, based on accurate diagnostic assessment. That's why thousands of hospitals trust our Blood Gas, PBM and Whole Blood Hemostasis products for fast, quality results, enhancing efficiency and patient care.



### References

1. Leahy M, Hofmann A, Towler S, et al. Improved outcomes and reduced costs associated with a health-system-wide patient blood management program: a retrospective observational study in four major adult tertiary-care hospitals. *Transfusion*. 2017;57:1347-1358.
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4. Rotondo MF, Cribari C, Smith RS, et al. Resources for optimal care of the injured patient. Chicago: *American College of Surgeons, Committee on Trauma*. 2014.
5. American Society of Anesthesiologists Task Force on Perioperative Blood Management. Practice guidelines for perioperative blood management: an updated report by the American Society of Anesthesiologists Task Force on Perioperative Blood Management. *Anesthesiology*. 2015;122:241-275.

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