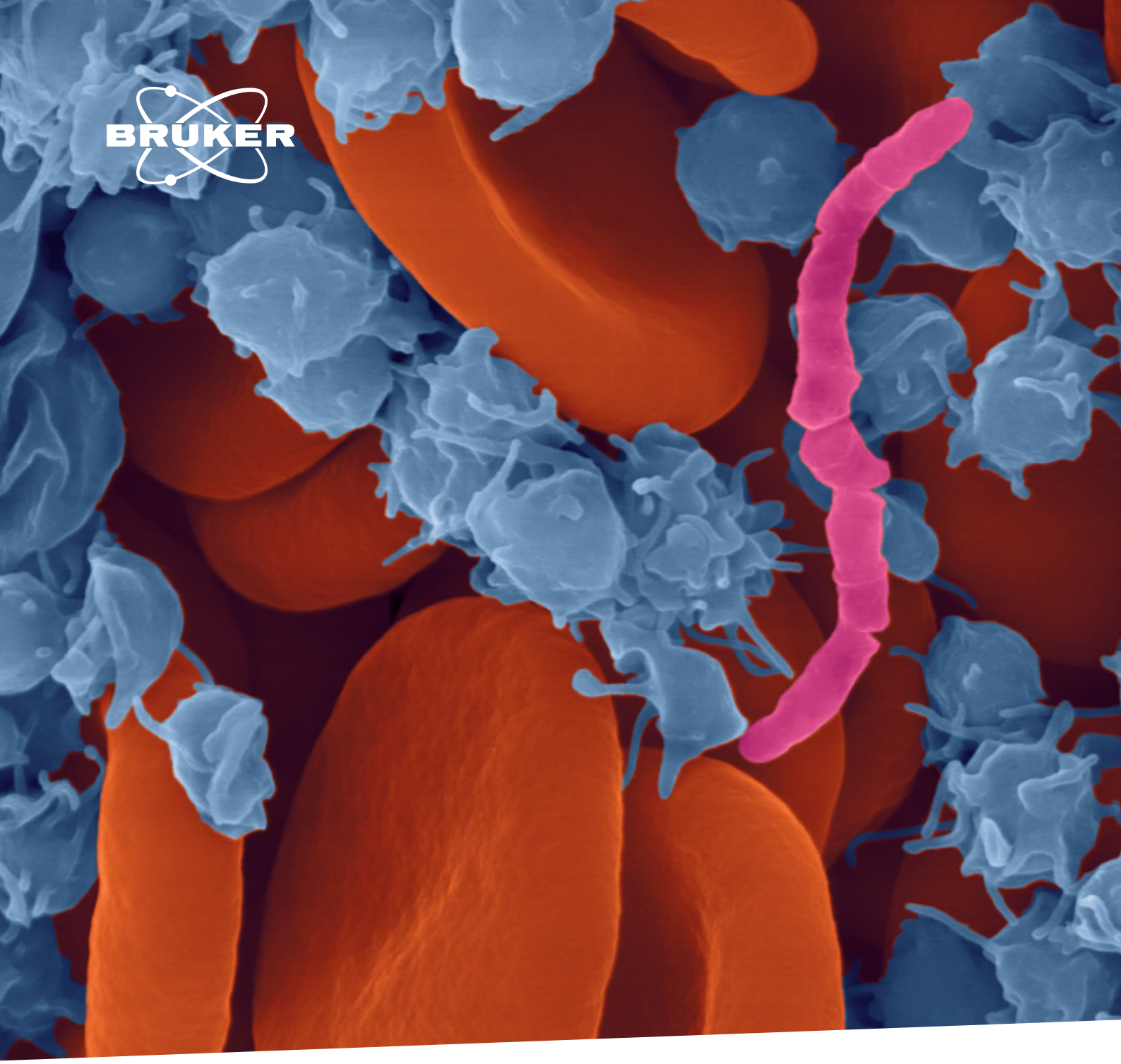


MALDI Biotyper®

MBT Sepsityper® IVD Workflow

Rapid pathogen identification directly from positive blood culture

Innovation with Integrity

IVD

When every minute counts

Early identification and appropriate treatment of blood stream infections and sepsis has tremendous benefits for patient outcomes and healthcare economy.

To address this topic, Bruker offers the MBT Sepsityper solution, which is performed in conjunction with the Bruker IVD MALDI Biotyper system, saving precious time when every minute counts.

The Sepsityper pathogen identification workflow reduces the turnaround time resulting from traditional positive blood culture (PBC) identification workflows by up to 48 hours. Identification results can therefore be reported significantly faster to ICU consultants, compared to traditional methods.

Within an hour after the PBC alert, the ICU consultant can be informed about a clear and actionable pathogen identification result, possibly leading to therapy optimization.

Fast pathogen identification, up to 48 hours quicker than traditional methods

With the Rapid Sepsityper Workflow, taking less than 10 minutes hands-on-time, the identification result is available in only 15-20 minutes after the positive blood culture (PBC) alert.

Accurate, specific and efficient

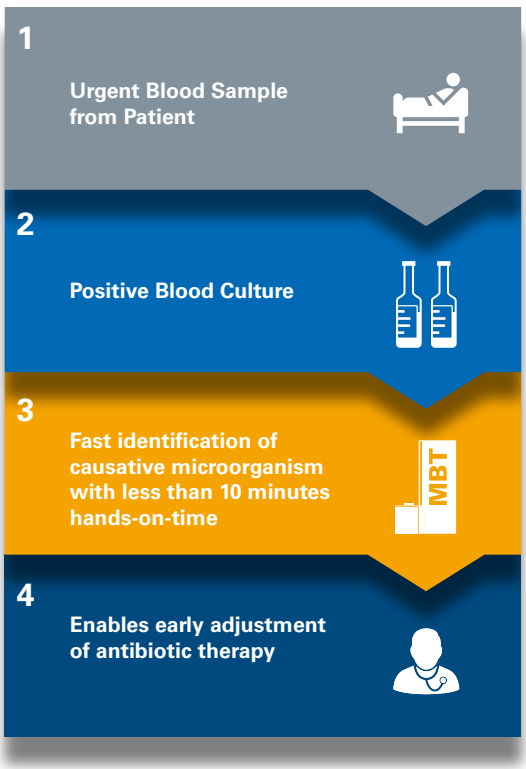
Pathogen identification, based on the extensive IVD MALDI Biotyper library covering ~4,200 species of bacteria and yeast, yields actionable results – all in one run.

Improving patient care and supporting antimicrobial stewardship

Fast pathogen identification enables early adjustment of antibiotic therapy in sepsis patients.

Cost-effective

Earlier therapy change enables cost savings for the hospital by improved patient management.



Have your patient in focus

Be smart - be faster

The Sepsityper solution helps identifying microorganisms from positive blood cultures considerably faster than the traditional workflows based on short subculture.

Saving hours can make the difference when a patient is facing bacteraemia, sepsis and other conditions related to the presence of microorganisms in the bloodstream.

For more details on the data shown, have a look at our Application Note:

App-Note 1889554
MBT Sepsityper® IVD Kit

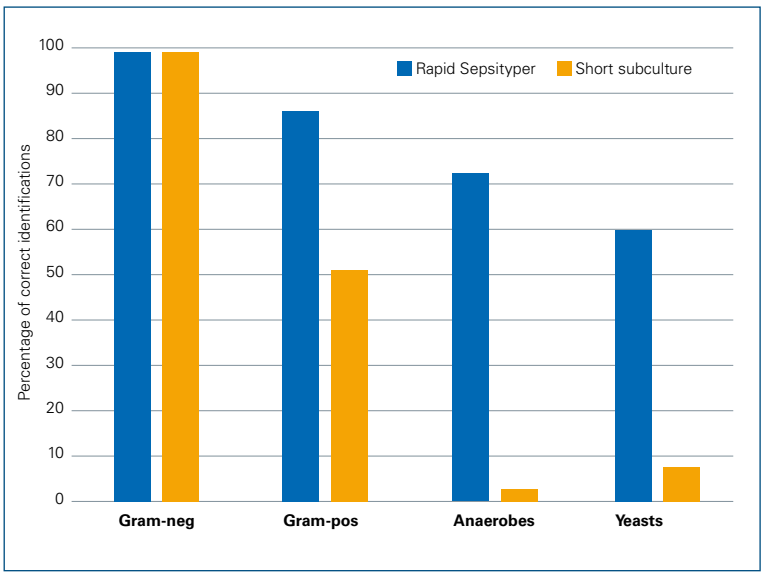
Be smart - be better

Implementing the Sepsityper workflow is not only resulting in saving valuable time, but also offers a higher identification success rate, leading to a better informed decision making when it comes to adjusting patient therapy.

The Rapid Sepsityper Workflow was compared to short subculturing methods which represented the routine standard of three different clinical microbiology laboratories. In this study, the Rapid workflow proved to be superior to the subculturing methods, while additionally benefiting from a significantly shorter time-to-report. A higher rate of correct identifications was observed, both in terms of total identifications as well as for each different microbial group.

Whereas the short subculture methods require just a minimal sample handling, they are slower than the Rapid Sepsityper Workflow, and are not suitable for slow-growing and fastidious species.

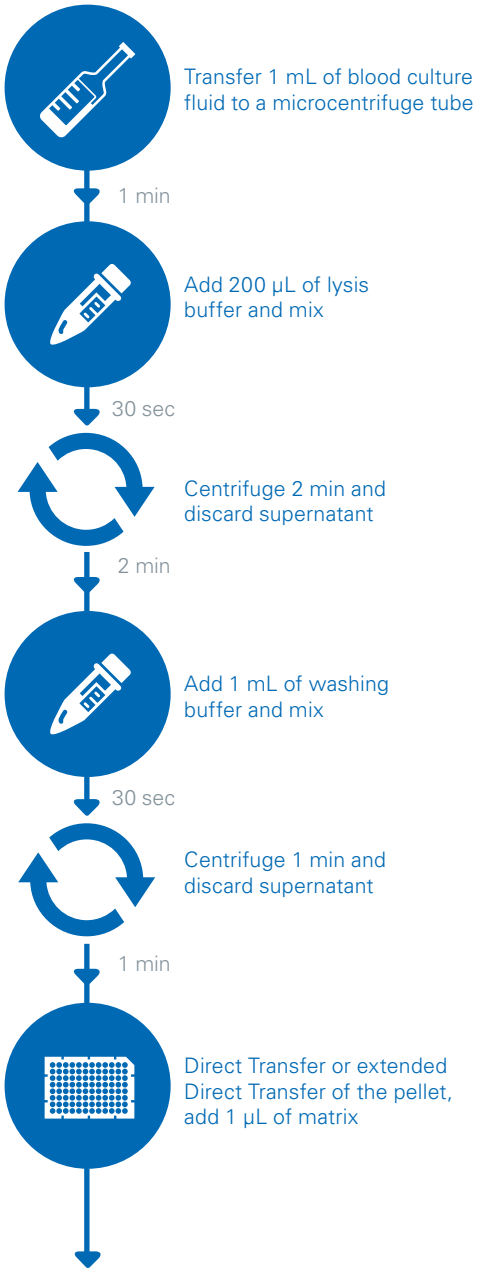
With an investment of less than 10 minutes hands-on-time, the Rapid Sepsityper Workflow enables the identification of virtually every species included in the MALDI Biotyper IVD-CE reference library. Moreover, the samples can be processed in batches, speeding up the workflow even more.



Comparison of Rapid Sepsityper Workflow results with those of short subculture for gram- negatives, gram-positives, anaerobes and yeasts (% of correct ID)

Arthur B. Pranada et al., Journal of Medical Microbiology 2022, Vol. 71, Issue 8.
https://doi.org/10.1099/jmm.0.001571

Fast and easy workflow



"Rapid Sepsityper Workflow"
ID on IVD MALDI Biotyper equipped with MBT HT Sepsityper IVD Module, covering ~4,200 species in one go

If no ID:
"Sepsityper Extraction Workflow", spot 1 µL of extract onto the MALDI target, add 1 µL of matrix

ID on IVD MALDI Biotyper®
"Total Sepsityper Workflow"

MBT Sepsityper IVD Kit – enabling fast answers for your patients

The implementation of the Rapid Sepsityper Workflow in the laboratory routine is highly justified by the benefit of successfully identifying microorganisms only 15-20 minutes after a positive blood culture alert. Acting fast may change the patient's outcome. Moreover, the samples can be processed in batches, speeding up the workflow even more.

The dedicated kit design and optimized formulation enable the handling of slimy clots (e.g. *Bacteroides fragilis*), leading to a higher identification success rate.

MBT HT Sepsityper IVD Module – increasing the identification success rate

Microorganism identification from PBC does not only require special sample preparation, but also a dedicated software providing adapted data processing taking the complexity of a blood-derived sample into account.

Additionally, the software will provide a warning in case a mixed culture is detected, with an indication of the detected species.

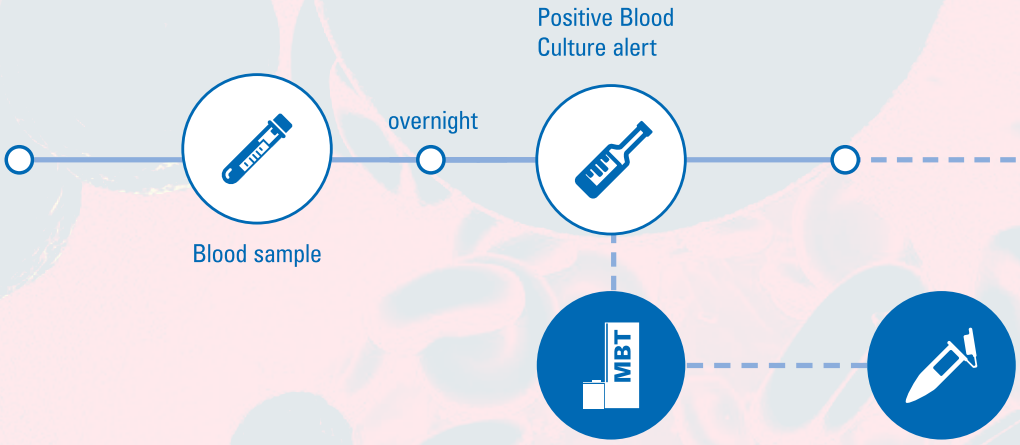
Get even more out of your PBC sample

An early resistance warning system - aiding antimicrobial stewardship

Whenever the MALDI Biotyper routine identification workflow results in successful identification of *Klebsiella pneumoniae*, *Escherichia coli* or *Bacteroides fragilis*, the optional MBT HT Subtyping IVD Module automatically looks for specific resistance marker peaks in the identified mass spectrum. As a result, the MBT HT Subtyping IVD Module quickly detects bla_{KPC} expressing *K. pneumoniae* and *E. coli*, and distinguishes *cfiA* positive/ negative *B. fragilis* strains, giving an early resistance warning to the clinical microbiologist - without any additional work.

Fast phenotypic detection of beta-lactamase activity - aiding antimicrobial stewardship

The bacterial pellet resulting from the Sepsityper workflow can subsequently be used for phenotypic detection of carbapenemase and cephalosporinase activity, within 60-90 minutes of the PBC alert, by using the MBT STAR®-Carba IVD Kit, respectively MBT STAR®-Cepha IVD Kit. The use of both kits is supported by the dedicated MBT HT STAR®-BL IVD Module. Contact us for more information!



IVD MALDI Biotyper® with Rapid Sepsityper® Workflow
ID 15-20 min from PBC

MBT HT Subtyping IVD Module
e.g. KPC detection at the same time as ID

MBT STAR®
Resistance testing

15 - 20 min

Identification and resistance marker detection

MBT Sepsityper®
same day microorganism ID from blood culture in critically ill patients

IVD MALDI Biotyper®
Covering thousands of species

MBT HT Subtyping IVD Module
Resistance marker detection at the same time as ID

30 - 60 min

Resistance Testing

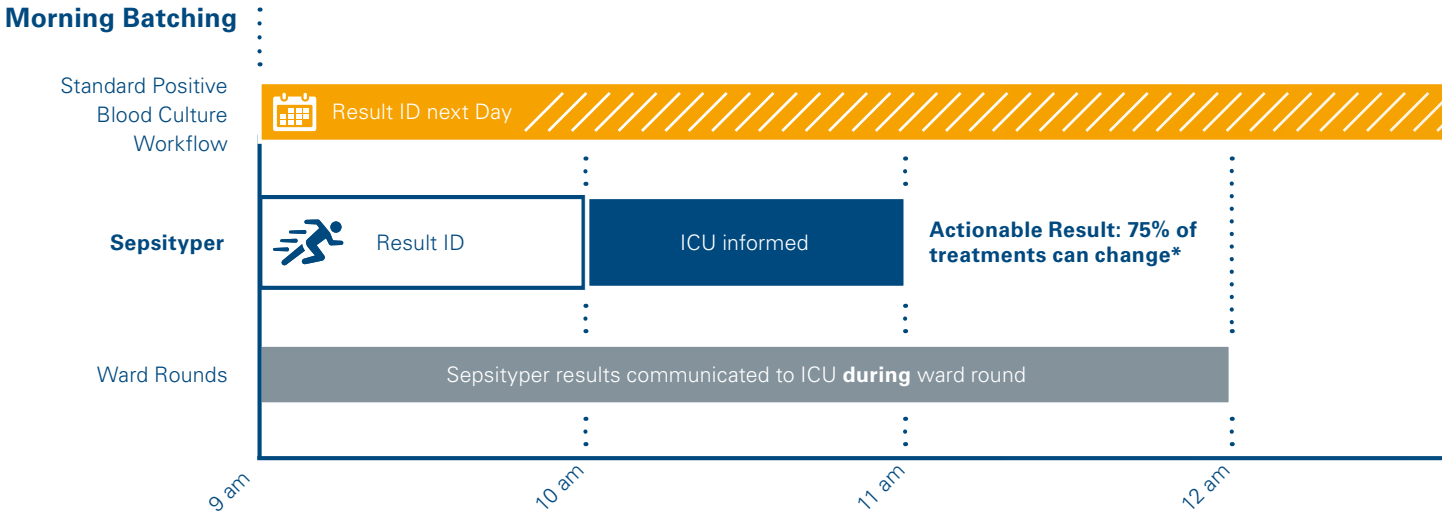
MBT STAR®-Carba / MBT STAR®-Cepha
Phenotypic detection of carbapenemase and cephalosporinase activity

Clinical impact of a fast workflow

Improving patient outcomes

The Sepsityper solution shortens the identification time after a positive blood culture alert by up to 48 hours, by eliminating the time-consuming step of culturing the microorganisms followed by fast identification using MALDI-TOF mass spectrometry.

In combination with antibiotic stewardship programs, this rapid identification allows a much faster optimization of antibiotic therapy in patients with sepsis, compared to conventional workflows. Early results, which physicians can act upon to manage bloodstream infections, enforce the fight against resistance, and improve patient outcomes.



* Stoneking LR, The Journal of Emergency Medicine, Vol. 44, No. 1, pp. 1–8, 2013

Mr. Martin McGill

MSc, Lead specialist in Microbiology, University Hospital Crosshouse, Scotland

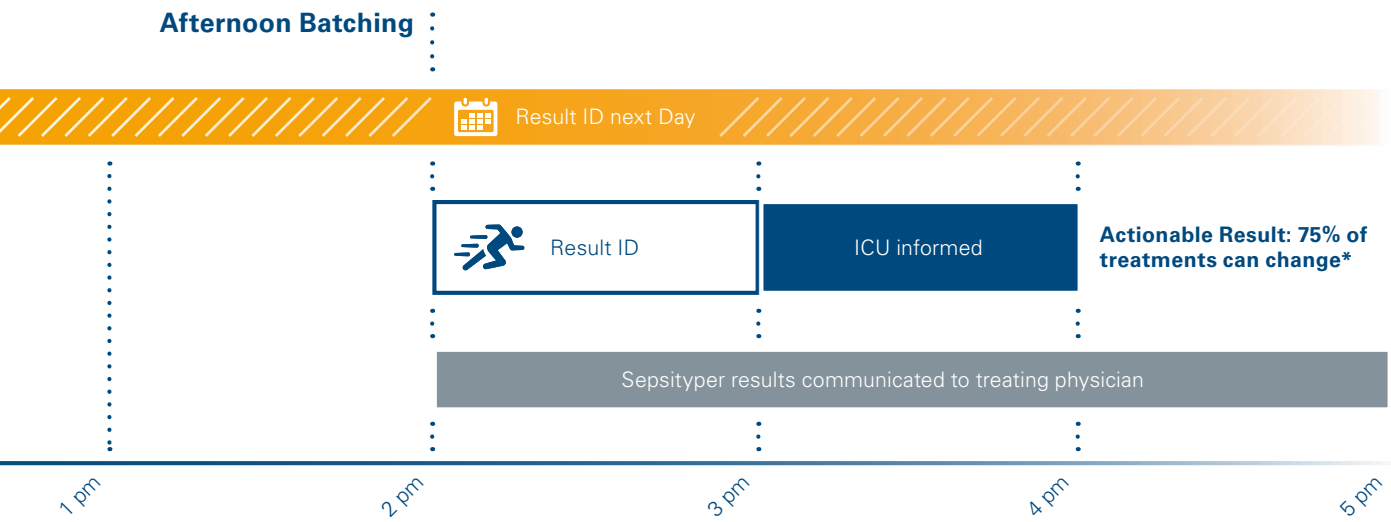
"Blood cultures are far more important to patients than other samples. In the case of a positive blood culture, time is freed up for the Sepsityper Kit, all staff are fully trained and provided protected time to run the Sepsityper test without interruptions. Fast identification helps our biomedical scientists focus on important samples and move only clinically significant samples to AST"

"As for the Sepsityper, I think 4 hours is a long time to wait to see if the patient has a *Staphylococcus aureus* or Group A strep; an *E. coli* or *Pseudomonas aeruginosa* sepsis. For seriously ill patients, every second counts."

Overall impact

Benefits of an early pathogen identification directly from positive blood cultures

- Earlier de-escalation and/or administration of targeted antimicrobial treatment helps improving the patient outcome and supports antimicrobial stewardship
- Improving patient outcome may reduce the length of hospital stays and associated costs
- Early detection of contaminations avoids unnecessary antibiotic susceptibility testing, saving time and costs
- Early detection of alert organisms helps improving overall hospital hygiene
- Clear identification results allow more efficient communication between microbiologists and treating physicians



Prof. Dr. Alexia Verroken

University Hospital Saint-Luc, Brussels, Belgium

"Reducing turn-around-times of positive blood cultures with MALDI-TOF MS ID accelerated prescription of targeted antimicrobial treatment thereby potentially improving the patient's clinical outcome."

Ms. Rushana A. Hussain

Section Manager Microbiology Dept., Royal Bolton Hospital Foundation Trust, England

"The implementation of Sepsityper has resulted in a positive impact on the direct management and treatment for patients. Although it is difficult to calculate all the savings across the patient pathway, the data clearly show that there are significant financial benefits being achieved by the reduced length of hospitalisation and reduction in antibiotics."

Order information

MBT Sepsityper IVD Kit
Part No. 1834338
Containing all reagents and consumables required for microorganism isolation from 50 positive blood culture samples.

MBT HT Sepsityper IVD Module
Part No. 1877011
The MBT HT Sepsityper IVD Module allows the definition of appropriate samples as blood culture samples in the MBT Compass HT IVD software (Part No 1877017).

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Please contact your local representative for availability in your country.
Not for sale in the USA.

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