BD BACTEC™ 9000 Systems
A World of Difference in Blood Culturing
The Clinical Importance of High Quality Blood Culture Systems

Safety: The Worldwide BD Commitment

BD BACTEC™ Media: The Core of the System

BD BACTEC™ 9000: Impacting Patient Care

BD EpiCenter™: A World of Flexibility in Data Management Systems

Confidence in Blood Culturing
“Bloodstream infections cause substantial morbidity and mortality. Increasing rates of antimicrobial resistance, changing patterns of antimicrobial usage and the wide application of new medical technologies may change the epidemiology and outcome of bloodstream infection.


“Rapid intervention by pharmacists when problems exist for antimicrobial therapy reduced average length of hospital stay by 2.7 days, reduced average total variable direct cost by $2,626 per patient, and reduced average variable direct pharmacy cost by $470 per patient.”


■ **Bloodstream Infections** cause substantial morbidity and mortality

■ The increase in the number of bloodstream infections is mainly caused by **Nosocomial infections**

■ **Emerging Resistances** put the efficiency of prophylaxis at risk

■ **Inadequate Empirical Treatment** causes greater patient morbidity and higher mortality rates and increased healthcare costs

"Therefore every hour of earlier detection of bloodstream infections is crucial!"

Needle stick injuries (NSI): even ONE is ONE too many

The significant human and financial impact from injuries with potentially contaminated sharps is becoming increasingly well understood. According to the UK Public Health Laboratory Service, 103 European healthcare workers have been infected with documented or possible acquired HIV over a one-year time-frame. Over 100,000 NSI occur every year, leaving many thousands of people suffering long periods of anxiety while they wait for follow-up test results to exclude potential infection.

Initial testing and treatment after NSI may cost as much as €3,500, while the long-term cost of treating HIV and HCV may exceed €700,000 per case. Fortunately, the availability and importance of safety engineered devices have been recognized by authorities and hospitals.

The successful delivery of patient care begins with your protection

BD is a pioneer in the development of safety products designed to protect healthcare workers and is actively engaged in expanding its offering with products that minimize risks from sharps injuries.

SAFETY: THE WORLDWIDE BD COMMITMENT

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80% reduction in the number of incidents involving accidental exposure to blood resulted in important cost savings and reduced healthcare worker anxiety.

From Accidental Blood exposure Surveillance in France: “an update” GERES study

Introduction of BD Safety-Lok™ blood collection sets in 1998, Libourne Hospital, France.
Integrated solutions for safety during blood collection

- Full compatibility with familiar and widely used BD Vacutainer™ Holders without the need for a special adapter when switching to other blood collection tubes:
  - Cost savings
  - Easy training and learning for nurses/phlebotomists
  - Improved workflow leads to concentration on good blood collection practices, thereby improving safety and patient results (fewer contaminants)
  - Reduced needle-stick injury (NSI) risk (no need to remove the adapter which is the case with other systems)
  - Adapter might not always be available in the wards which could lead to unsafe practices and/or leakages
- Compatible with other blood collection systems without additional costs.
- No need for special blood collection holders as with other automated blood culture systems which may not be readily available:
  - No risk that nurses will revert to unsafe blood collection practices (e.g. using needle and syringes)
  - Improved patient comfort, management and outcome
- Wide range of BD safety blood collection products:
  - Flexibility and adaptability to every situation
  - Increased healthcare worker safety
  - Increased confidence and reduced liability

Integrated solutions for safety in the lab

- Special containers for safe transportation of BACTEC vials via the pneumatic tube system:
  - Rapid transport of blood culture vials to the lab
  - Improved lab-worker safety
  - Better results (less delayed vial entry) and improved patient outcome

- Special safety devices, compatible with the long neck of the BACTEC vials for subculturing of instrument positive vials:
  - Improved lab-worker safety
  - Improved workflow
Increased flexibility with the widest range of blood culture media

- Improved patient outcome with specific media for specific patient requirements and clinical conditions
- Media-specific software algorithms for optimal performance
- Sensitive fluorescence technology offers increased confidence with different software algorithms for different bacterial growth phases. This directly impacts time to detection and recovery rates for *Pseudomonas* species for example and other more fastidious microorganisms
- Proven delayed vial entry capabilities for up to 20 hours pre-incubation at 35-37°C, or up to 48 hours storage at room temperature (*P. Shah et al, Poster P921, ECCMID 2003, Glasgow*).

**Fluorescence Technology and Sophisticated Algorithms: a Powerful Combination!**

The combination of media-specific algorithms with growth phase-specific algorithms enhances the sensitivity and time to detection, even in case of delayed vial entry, and for bacteria that only generate limited amounts of CO₂ (e.g. *P. aeruginosa*).

Other blood culture systems with more limited algorithms might not detect the presence of bacteria in such specific circumstances.
BD BACTEC™ PLUS Resin Media

- Unmatched recovery of pathogens from blood
- Proven effective neutralization of a wide variety of antimicrobials for improved recovery and shorter time to detection
- Best neutralization of widely used β-lactam drugs compared to other systems
- Unlike other (charcoal-based) antimicrobial neutralisation systems, no interference with Gram stain: improved workflow and reporting time

BD BACTEC™ Lytic Anaerobic Medium

- Incorporates lysing agent for increased detection of partially phagocytised organisms
- Faster time to detection
- Better recovery of enterics and anaerobes in combination with BACTEC™ Resin Media
  ([Mirrett et al, ASM 1999: Poster n°208])
- Lower false positivity rate than other Anaerobic Media
- Perfect companion for BACTEC™ Aerobic Resin Medium

BD BACTEC™ Myco/F Lytic Medium

- Nonselective medium for optimal recovery of yeast, fungi and mycobacteria in blood
- Simplified ordering and inventory by providing superior detection of all 3 organism groups with one medium
- No supplement addition necessary: improved workflow
- Incorporates lysing agent for increased detection of partially phagocytised organisms
- Specifically beneficial for at risk patient groups (HIV, immunocompromised, etc): improved patient outcome
BD BACTEC™ Mycosis IC/F Medium

- Optimal growth medium for a wide variety of yeast and fungi
- Significantly faster time to detection than other automated blood culture media.
  Time savings of 9 to 44 hours for most relevant Candida species

- Selective medium containing Chloramphenicol and Tobramycin which enhances detection of yeast and fungi even in the case of mixed infections with bacteria
- Recommended to be used as third vial for blood cultures of immunocompromised patients and other patients with central venous catheters who are at risk for candidemia or fungemia

BD BACTEC™ PEDS PLUS™/F Medium

- Specifically designed for pediatric and other low volume blood culture samples
- Lower SPS concentration for improved recovery of specific pediatric pathogens (Neisseria, etc.)
- Excellent recovery from other normally sterile body fluids (e.g. synovial fluid)

Fastidious Organism Supplement (FOS™)

- Special growth supplement for improved performance with normally sterile body fluids other than blood
- Contains essential growth requirements for Haemophilus etc.
- Neutralizes potential toxic effect of SPS
BD BACTEC™ 9000: IMPACTING PATIENT CARE

Time to detection: highest percentage recovery in the first 24 hours

- Faster diagnosis dramatically reduces the occurrence of septic shock and significantly increases survival rates (Endimiani et al, Microbiologica 25, 2002)
  - Dedicated BD BACTEC™ Media for each specific clinical situation
  - Optimal antimicrobial neutralization (prophylaxis) with proven resin technology
  - Media-specific software algorithms
  - Specific software algorithms for every bacterial growth phase (including delayed vial entry)

- 25% more positives in day 1 than other automated blood culture systems (Endimiani et al, Microbiologica 25, 2002)

- Direct inoculation of BD Phoenix™ panels from a positive BACTEC vial has been demonstrated in evaluations to reduce time to identification and susceptibility testing for Gram-negative organisms (De Beenouwer et al ECCMID 2004, Poster n° 1648) (Funke et al, J. Clin. Microbiol. 42-4, 2004)
Data concentrator for BD BACTEC™ 9000 and 9000MB

The BD EpiCenter™ system is the ideal clinical data management solution, tailored to meet the every day operational needs of the microbiology laboratory. It is designed for simultaneously handling data from several BACTEC 9000 Blood Culture, BACTEC 9000MB Mycobacterial detection systems, other BD systems and other test results performed by the microbiology laboratory.

Enhanced Laboratory Workflow Using Windows™-Based Software

- Easy to learn, simple to use
- System is configurable to any laboratory workflow
- Barcode scanning capabilities, eliminating mistakes when entering data
- Automatic patient data download from the Laboratory Information System (LIS)

Enhanced Patient Care and Follow-Up

- Extensive patient demographic capabilities
- Long-term data storage: immediate access to current and historical patient results
- Gram stain, isolate results and other relevant information (e.g. contaminant) can be entered for each blood culture vial

Enhanced Control and Result Validation

- Immediate notification of positives with audible alerts and real-time system instrument status displays
- Growth curves and detailed result review in just “one-click”
- Analytical reports (organism incidence, time-to-detection, contamination rates etc.)
- Epidemiological information to assist management decisions
- Automated detection and alerts for nosocomial infections
More than 35 years of experience in automated blood culturing

Robust instruments: actual average mean time between breakdown of more than 1000 days

More than 50 years experience in microbiology

Continuous innovations in blood culture media and technologies

Leader in safety devices

Record of continuous commitment in Blood Culture Technology

CONFIDENCE IN BLOOD CULTURING

BD AND BACTEC™ SYSTEMS: A TRUSTWORTHY COMBINATION!