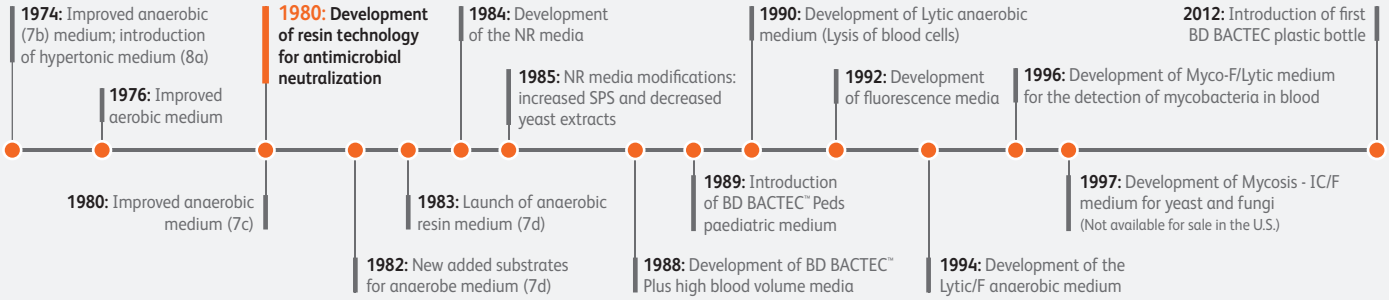
BD BACTEC™ Automated Blood Culture Systems

Still the trusted solution for accuracy, efficiency and quality of care

BD

Over 30 years of experience in resin technology for antibiotic neutralization

For over 30 years, BD BACTEC™ blood culture media have incorporated resins into their formulation, enabling the fast and sensitive detection of bacteria and yeast. During these 30 years, BD has continually refined its media formulations and resin technology, such that today BD is able to offer exceptional performance, which has been demonstrated in several clinical studies.[1,2]



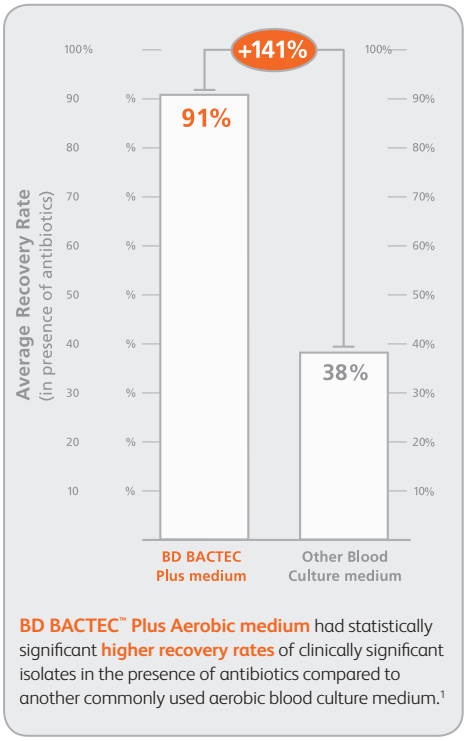
Over 40 years of experience in blood culture instrument development

Optimal patient care demands the highest quality blood culture media

Study findings suggest using sensitive and rapid-to-detect blood culture media to aid in the diagnosis of sepsis may improve patient care and outcomes[1]

Best practice guidelines for treatment of septic patients include early initiation of antimicrobial therapy.[3,4] However, early initiation of antimicrobial therapy can complicate pathogen detection by causing blood cultures taken following antimicrobial administration to be artificially sterile, which can jeopardize organism recovery. The importance of antimicrobial removal systems in blood culture testing has been confirmed to aid in the rapid and accurate diagnosis of sepsis.[1,5]

Additionally, the choice of blood culture media can significantly impact antibiotic prescribing practices.[6] Because the BD BACTEC blood culture system recovered significantly more organisms, it enabled clinicians to more frequently alter antibiotic therapies to a more appropriate antibiotic or de-escalate therapy altogether.[6]



BD BACTEC™ Plus Aerobic medium had statistically significant **higher recovery rates** of clinically significant isolates in the presence of antibiotics compared to another commonly used aerobic blood culture medium.[1]

51% of patients in the General Wards, and **82%** of patients in the Medical ICU were already on antimicrobials within four hours prior to blood culture collection.[1]

....and a **faster time to detection** by an average of **4.4 hours**[1]

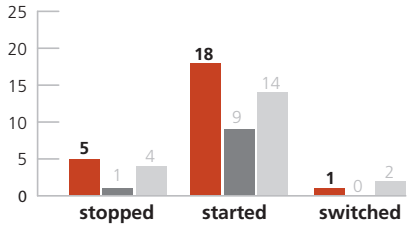
Across all time points, BD BACTEC Plus Aerobic medium was **4.53** to **6.58** times more likely to recover organisms in the presence of active antibiotics.[1]

≤ 2 hrs from Gram Stain Reporting[6]

2x

as many antibiotic decisions were made after Gram stain notification because of isolation exclusively in the BD BACTEC™ System (p <0.0001)

Facilities initiation of new antibiotics

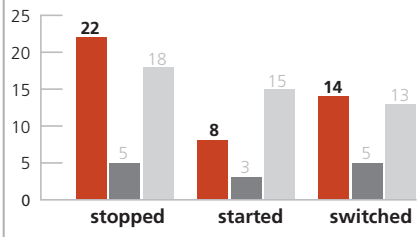


≤ 8 hrs from ID/Susceptibility Reporting[6]

3x

as many antibiotic decisions were made after speciation because of isolation exclusively in the BD BACTEC™ System (p <0.0001)

Allows for antibiotic de-escalation



Growth in BD BACTEC only | Growth in other blood culture medium | Growth in both media

BD BACTEC™ Plus media resin technology

Not all resins are created equal

BD BACTEC™ Plus media incorporate multiple resins, which have been shown to effectively neutralize a wide variety of antimicrobials, thereby improving recovery and shortening time to detection.[1,2,6] BD offers two resins in its Plus media: a dark brown cationic exchange resin which binds positively charged antimicrobics, and a light gold hydrophobic resin that binds hydrophobic antimicrobics.

It is not just the addition of resins to its media that makes the difference.

BD has invested significantly to ensure that its media formulations contain just the right mix of nutrients, amino acids and peptones for optimal performance over the full shelf life of the media. The BD BACTEC system provides advanced algorithms for individual bottle types, for special circumstances such as low blood volume, pediatric specimens, or to detect slow growing organisms such as *Haemophilus* and *Neisseria*. These algorithms enable rapid detection of pathogens in blood cultures.

BD BACTEC™ Lytic/10 Anaerobic/F Medium

For recovery of clinically relevant anaerobes

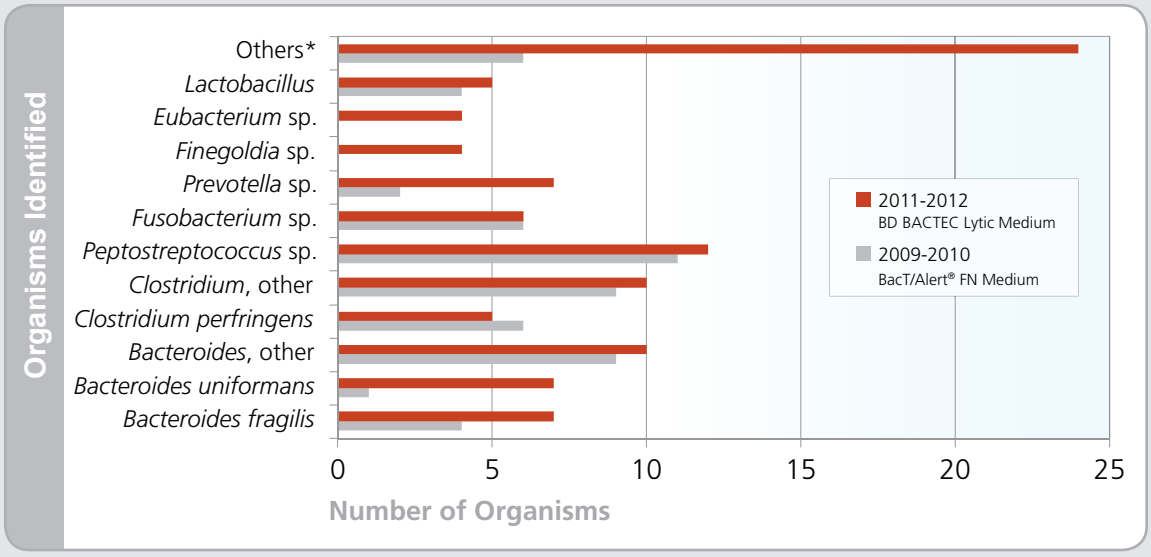
There have been reports that the incidence of anaerobic bacteremia is increasing significantly,[7] most likely due to the increase in patients with complex underlying diseases, as well as to an increase in the amount of heavy surgical interventions. However, not all hospitals are seeing this rise in anaerobic bacteremia. It is possible that this is due to the use of automated blood culture systems that are sub-optimal for the recovery of obligate anaerobes.

How sure are you that your anaerobic bottle is maintaining a true anaerobic atmosphere?

One study found that by switching from BacT/ALERT FN Anaerobic Medium to the BD BACTEC System and BD BACTEC Lytic/10 Anaerobic/F Medium, the isolation rate of clinically relevant anaerobes nearly doubled (1.8% to 3.2%). This was not at the expense of increased contaminant recovery; this rate remained flat.[8]

Improved isolation rate of clinically relevant anaerobes

Anaerobic organisms isolated over the two study periods[8]



***Other organisms identified:** *Brevindumonas diminuta*, *Eggerthella lenta*, *Anaerococcus prevotti*, *Veionella* sp. *Bifidobacterium* sp. Anaerobic Gram + Rods NOS, Anaerobic Gram + Cocci NOS, not otherwise identified anaerobes

BD BACTEC™ FX40 Instrument

Added flexibility and convenience

The BD BACTEC FX40 instrument with a capacity of 40 vials enables access to the state-of-the-art workflow and performance of the BD BACTEC FX System in a smaller package.

Its smaller size makes the BD BACTEC FX40 instrument more accessible to smaller volume laboratories, as well as more remote testing locations. The system is also modular, allowing for additional systems to be easily added on as an institution's blood culture volume grows.

For larger institutions, its small footprint and full connectivity features allow the BD BACTEC FX40 instrument to be easily placed in wards for satellite blood culturing.

Similar to the BD BACTEC FX instrument, the BD BACTEC FX40 instrument has LIS interface capability and a touch screen controller.

The BD BACTEC FX40 instruments connect to the BD EpiCenter™ Data Management System. By using the power of the BD EpiCenter client-server network system, multiple BD BACTEC FX40 instruments can be controlled via a high speed Local Area Network (LAN), no matter where they are located within a hospital. This allows the BD BACTEC FX40 System to reside in multiple locations (e.g., ICUs and micro labs) within a medical center, while the data can be accessed from any connected BD EpiCenter client (satellite blood culturing).

Immediate incubation of blood cultures outside of laboratory hours reduces turnaround times and may accelerate antibiotic de-escalation. A recent study shows that the median time from specimen collection until growth detection was reduced by 10.1 hours with a satellite blood culture set up. The median time until the first change in the antibiotic regimen was 42.8 hours in satellite setting, compared to 64.0 hours in the centralized setting.[9]

A modular system with LIS interface capability

The BD BACTEC™ Safety Bottle

A truly safe choice for blood culture specimen collection and transport

As a worldwide leader in safety engineered medical devices, BD has designed its BD BACTEC blood culture bottles with a unique safety neck.

This thoughtful design means that the BD BACTEC blood culture bottles are fully compatible with the widely available BD Vacutainer® safety adapters. Not only does this contribute to efficiency of the blood specimen collection process, it may also reduce costs, potential contamination of the specimen, as well as the risk of accidental needle-stick injuries during blood collection and sub-culturing.

The BD plastic blood culture bottles are also smaller and lighter, to facilitate easy and safe handling during collection, transport and disposal.

BD BACTEC™ Family of Products

BD BACTEC™ Blood Culture Media, Plastic Bottles

Cat. No.	Description	Quantity
442027	BD BACTEC™ Standard Aerobic Medium	50 bottles
442024	BD BACTEC™ Standard Anaerobic Medium	50 bottles
442020	BD BACTEC™ Peds Plus™ Medium	50 bottles
442023	BD BACTEC™ Plus Aerobic Medium	50 bottles
442022	BD BACTEC™ Plus Anaerobic Medium	50 bottles
442021	BD BACTEC™ Lytic Anaerobic Medium	50 bottles

BD BACTEC™ Blood Culture Media, Glass Bottle

Cat. No.	Description	Quantity
442288	BD BACTEC™ Myco F/Lytic Medium	50 bottles

BD BACTEC™ Blood Culture Instruments

Cat. No.	Description	Quantity
441385	BD BACTEC™ FX Instrument (top unit)	200 bottles
441386	BD BACTEC™ FX Instrument (bottom unit)	200 bottles
442296	BD BACTEC™ FX40 Instrument	40 bottles

References
1. Zadroga R, et al. Comparison of 2 blood culture media shows significant differences in bacterial recovery for patients on antimicrobial therapy. *Clin Infect Dis.* 2013 Mar 56(6):790-7.
2. Inuzuka K, et al. Comparison of vial combinations of BACTEC™ and BacT/ALERT® Blood Culture Systems for detection of organisms from patients' blood. Poster presented at the 109th General Meeting of the American Society for Microbiology, Philadelphia, PA, May 2009.
3. Dellinger RP, et al. Surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock: 2012. *Crit Care Med.* 2013 Feb 45(2):580-632.
4. Kumar A, et al. Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med.* 2006: 34: 1589-96.
5. Flayhart D, et al. Comparison of BACTEC Plus blood culture media to BacT/ALERT FA blood culture media for detection of bacterial pathogens in samples containing therapeutic levels of antibiotics. *J Clin Microbiol.* 2007 Mar 45(3):816-21.
6. Zadroga R, et al. Selection of blood culture media matters - BACTEC use in the critically ill facilitates earlier organism detection and antibiotic decision making. Poster presented at the World Federation of Societies of Intensive & Critical Care Medicine Meeting, Durban, South Africa, August, 2013.
7. Lassmann B, et al. Reemergence of anaerobic bacteremia. *Clin Infect Dis.* 2007 Apr 1;44(7):895-900.
8. Zadroga R, et al. Anaerobic blood culture media change increases isolation of anaerobic blood stream infections. Poster presented at the IDSA Annual Meeting - IDWeek 2013, San Francisco, CA, October 2013.
9. Kerremans J, et al. Immediate incubation of blood cultures outside routine laboratory hours of operation accelerates antibiotic switching. *J Clin Microbiol.* 2009 Nov 47(11):3520-3523.

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