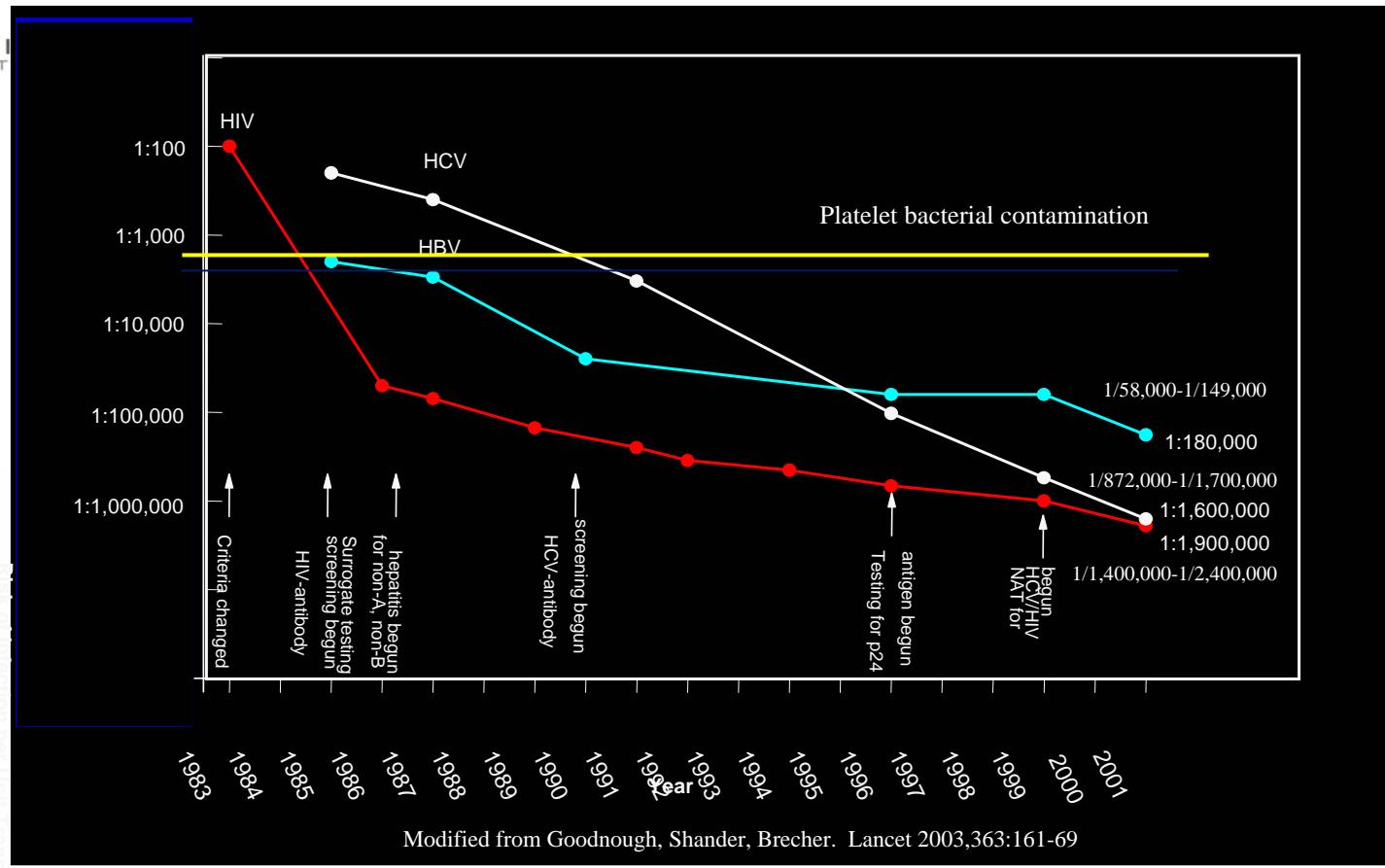




BacT/ALERT Microbial Detection System

A.C. Marchionne, BS, MS
National Sales and Marketing Manager
Blood Bank / Tissue Bank



Platelet transfusions in the United States

4 million platelet bags transfused/year

**1:1000 - 1:2000 bacterially contaminated
(N = 2000 - 4000 bags)**

**1/10 to 2/5 result in clinical sepsis
(N = 200 - 1600 cases)**

**Perhaps 1/5 to 1/3 result in fatalities
(N = 40 - 533 deaths)**

or

(1:7,500 to 1:100,000 fatalities/unit)

BIOMÉRIEUX
INDUSTRY



Bact/Alert 3D



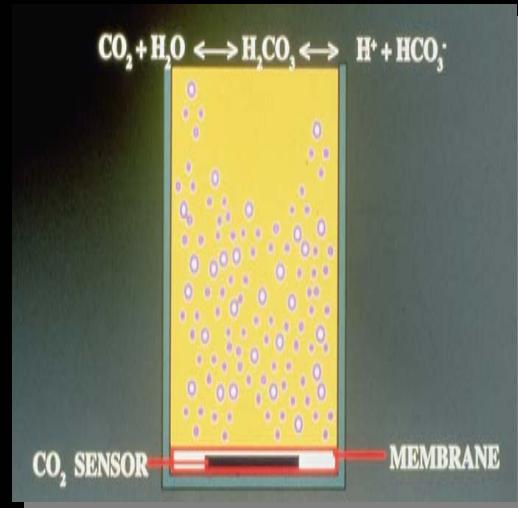
Colorimetric Technology

Growth chemistry

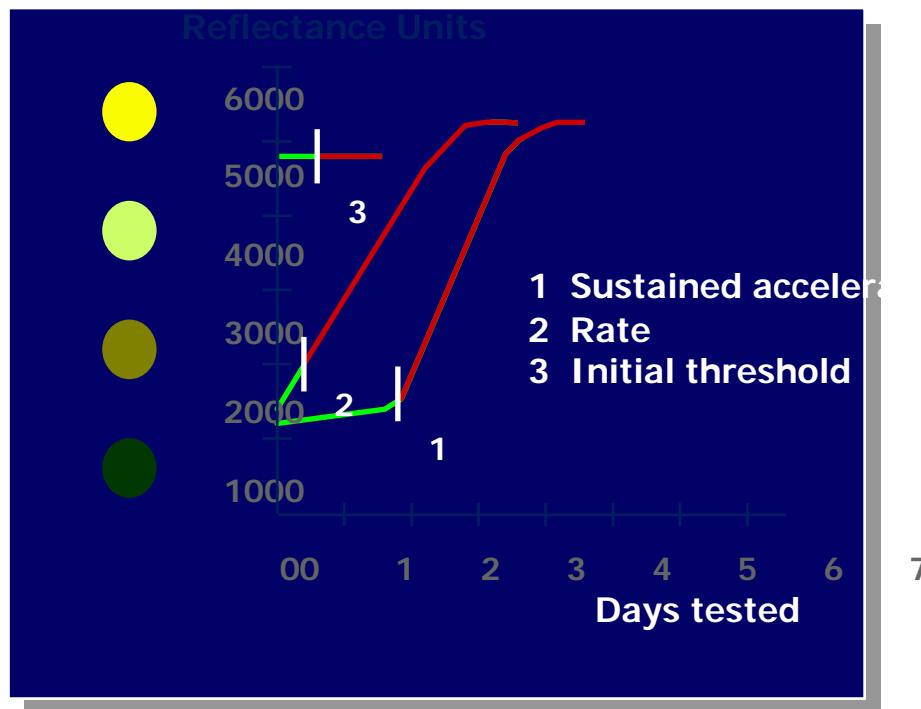
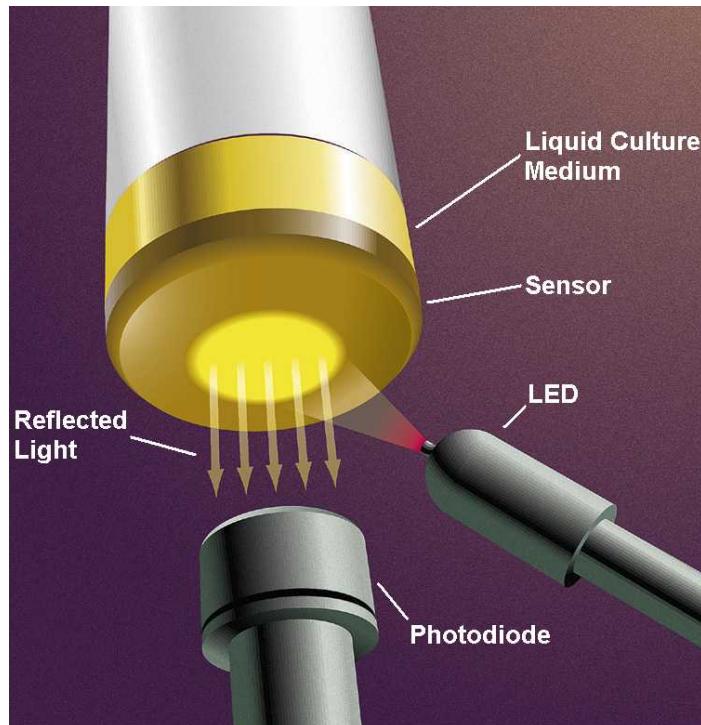
Organisms grow in media and produce CO₂

CO₂ traverses semi-permeable membrane

Sensor changes from
green to yellow



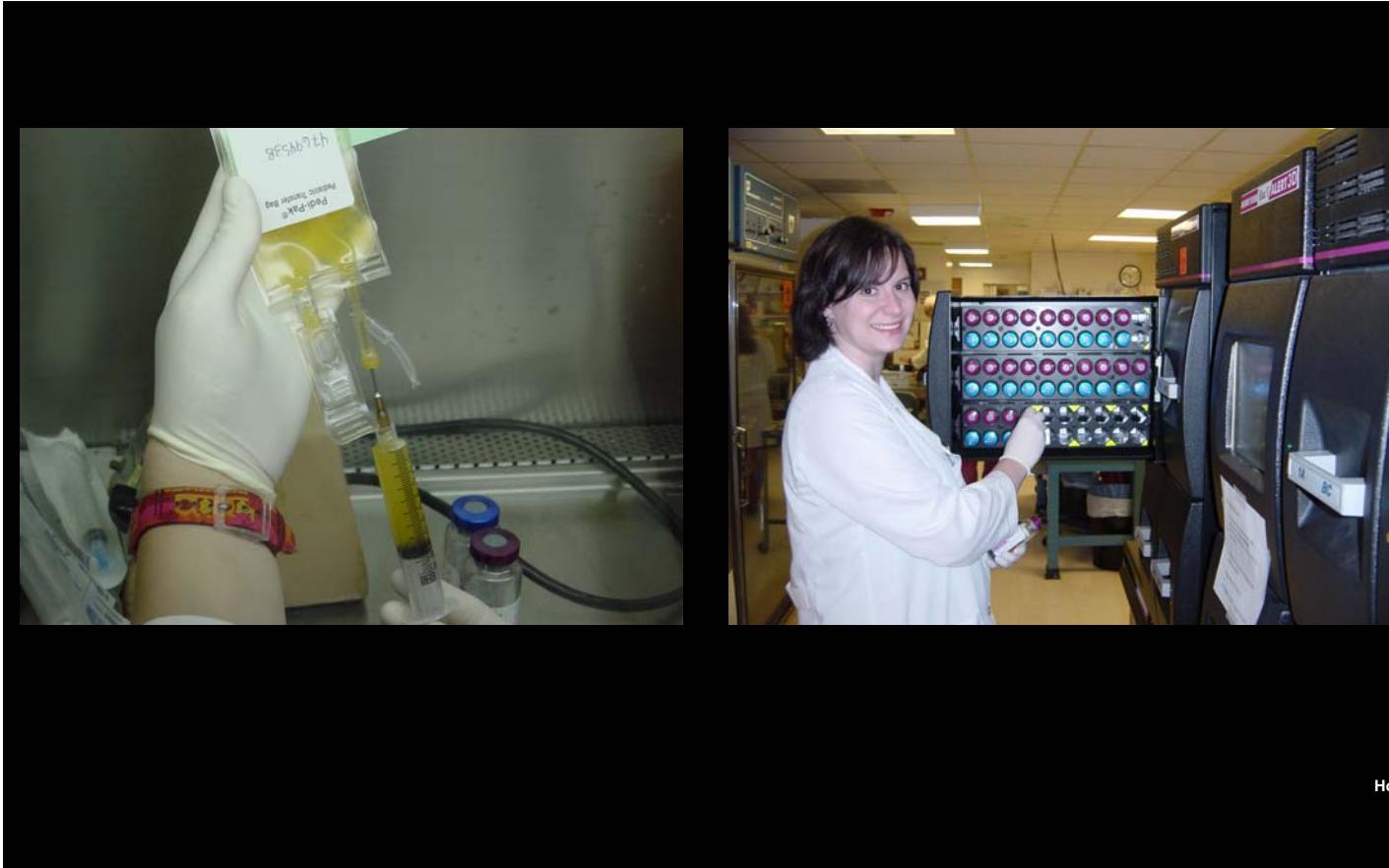
Schematic View of Detection



Sampling Devices

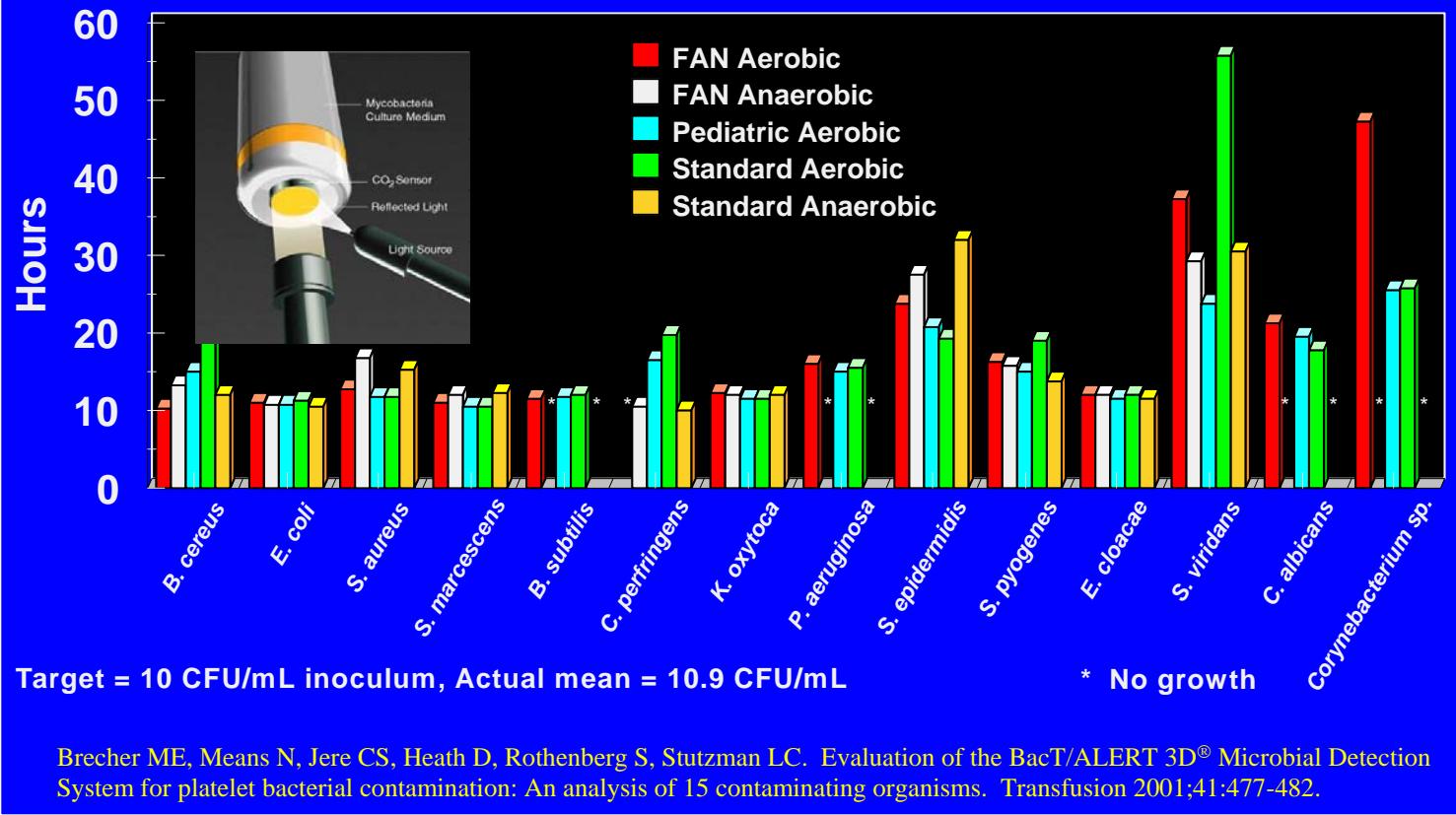


Sampling & Loading



Hos

Automated Culture (BacT/ 3D Alert)





Bact/Alert 3D

TRANSFUSION COMPLICATIONS

Evaluation of an automated culture system for detecting bacterial contamination of platelets

Mark E. Brecher, Steven M. Hey, David Hertz,
Steve Rothenberg and Lee C. Sumanan

BACKGROUND: Approximately 1 in 1000 platelet products are contaminated with bacteria, and the most common source of these organisms is from the donor or storage conditions rather than the product itself. To date, no systematic study has been conducted in the United States since 1982. This study evaluated the performance of a new automated microbial detection system for platelets in clinical platelet components. **METHODS:** Platelets were obtained from 50 healthy donors and 50 patients with a variety of medical conditions. Bacteria were inoculated at concentrations of 10⁴ CFU/mL to 10⁷ CFU/mL in a variety of media. Samples were also inoculated with 10⁷ CFU/mL of *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Candida albicans*, *Aspergillus fumigatus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Enterococcus faecalis* and *Enterococcus faecium*. These cultures were analyzed by the Bact/Alert 3D automated microbial detection system and a standard plate count method. Inoculated cultures were incubated at 37°C for 14 days and examined at days 2 and 14. **RESULTS:** At day 2, all inoculated cultures showed growth. At day 14, 48 of 50 (96%) of platelet components showed growth compared to 10 (20%) of glass bottles. Growth was compared to time (20 days) required for a standard plate count method. The growth times were similar for all strains except *Candida albicans* (48 h). *Candida albicans* had a longer growth time (10 days) compared to 3–5 days for the other strains. **CONCLUSION:** Bacterial contamination of platelets can be detected in 48 h to 56 hours, which is earlier than previously described methods for detection of any type of bacteria.

Keywords: Hemotherapy; platelets; contamination

ACKNOWLEDGMENTS: American Type Culture Collection (ATCC) plates were used in this study. From the University of North Carolina Chapel Hill, Dept. of Laboratory and Clinical Trials, Dr. Charles P. Smith, Dr. Robert D. Schreiber, Dr. Mark L. Hanes, Dr. James A. Bell and Dr. John R. Nichols. From the Department of Transfusion Medicine, Carolinas Medical Center, Dr. Michael A. Popp. We thank Dr. Kristin Gosselin, Dr. Diane C. Hart, Dr. Daniel T. Farmer, Dr. William T. Kaats, Dr. Michael L. Harrington, Dr. William D. Pugh, Dr. Ronald J. Denney and Dr. Robert L. Briner for their support and assistance. This study was supported by the North Carolina Department of Health and Senior Services and the National Institutes of Health.

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DOI: 10.1111/j.1545-102X.2004.00952.x

Address reprint requests to: M.E. Brecher, MD, Transfusion Medicine Service, CB 7500 University of North Carolina Hospitals, 111 Mining Dr., Chapel Hill, NC 27599. e-mail: brecher@med.unc.edu

Funding: This work was funded by the North Carolina Department of Health and Senior Services and the National Institutes of Health.

Conflict of interest: No conflict exists for drugs or devices used in a study if they are not being evaluated as part of investigation. For a detailed description, or if none exist, see the Instructions to Authors.

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Volume 44, March 2004

0301

DOI 10.1111/j.1545-102X.2004.00952.x

TRANSFUSION COMPLICATIONS

Evaluation of a new generation of culture bottle using an automated bacterial culture system for detecting nine common contaminating organisms found in platelet components

Mark E. Brecher, D.G. Heath, S.N. Hey, S.J. Rothenberg, and L.C. Sumanan

BACKGROUND: An automatic bacterial detection system (Bact/Alert 3D; BioMérieux USA Inc.) can identify a variety of bacterial species in liquid media. Previous studies have demonstrated that this system is comparable to standard plate count methods in identifying bacteria. The objective of this study was to determine the effectiveness of this automated microbial detection system for the detection of common contaminants found in platelet components.

METHODS: Bact/Alert 3D (bioMérieux USA Inc., Durham, NC) was used to evaluate platelet components containing *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Candida albicans*, *Aspergillus fumigatus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Enterococcus faecalis*, and *Enterococcus faecium*. These cultures were incubated at 37°C for 14 days and examined at days 2 and 14. Standard plate count methods were used to compare growth times.

RESULTS: At day 2, all inoculated cultures showed growth. At day 14, 48 of 50 (96%) of platelet components showed growth compared to 10 (20%) of glass bottles. Growth was compared to time (20 days) required for a standard plate count method. The growth times were similar for all strains except *Candida albicans* (48 h).

CONCLUSION: The Bact/Alert 3D detection time between the culture and reference standard plate count was demonstrated.

The new plastic bottles had a small but significant advantage.

Keywords: Hemotherapy; platelets; contamination

ACKNOWLEDGMENTS: American Type Culture Collection (ATCC) plates were used in this study.

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Address reprint requests to: M.E. Brecher, MD, Transfusion Medicine Service, CB 7500 University of North Carolina Hospitals, 111 Mining Dr., Chapel Hill, NC 27599. e-mail: brecher@med.unc.edu

Funding: This work was funded by the North Carolina Department of Health and Senior Services and the National Institutes of Health.

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Volume 44, March 2004

0301

DOI 10.1111/j.1545-102X.2004.00953.x

TRANSFUSION PRACTICE

Evaluation of a new generation of plastic culture bottles with an automated microbial detection system for nine common contaminating organisms found in PLT components

Mark E. Brecher, S.N. Hey, and S.A. Rothenberg

BACKGROUND: A microbial detection system (Bact/Alert 3D; BioMérieux USA Inc.) can identify a variety of bacterial species in liquid media. Previous studies have demonstrated that this system is comparable to standard plate count methods in identifying bacteria. The objective of this study was to determine the effectiveness of this automated microbial detection system for the detection of common contaminants found in platelet components.

METHODS: Bact/Alert 3D (bioMérieux USA Inc., Durham, NC) was used to evaluate platelet components containing *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Candida albicans*, *Aspergillus fumigatus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Enterococcus faecalis*, and *Enterococcus faecium*. These cultures were incubated at 37°C for 14 days and examined at days 2 and 14. Standard plate count methods were used to compare growth times.

RESULTS: At day 2, all inoculated cultures showed growth. At day 14, 48 of 50 (96%) of platelet components showed growth compared to 10 (20%) of glass bottles. Growth was compared to time (20 days) required for a standard plate count method. The growth times were similar for all strains except *Candida albicans* (48 h).

CONCLUSION: The new plastic bottles had a small but significant advantage.

Keywords: Hemotherapy; platelets; contamination

ACKNOWLEDGMENTS: American Type Culture Collection (ATCC) plates were used in this study.

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Address reprint requests to: M.E. Brecher, MD, Transfusion Medicine Service, CB 7500 University of North Carolina Hospitals, 111 Mining Dr., Chapel Hill, NC 27599. e-mail: brecher@med.unc.edu

Funding: This work was funded by the North Carolina Department of Health and Senior Services and the National Institutes of Health.

Conflict of interest: No conflict exists for drugs or devices used in a study if they are not being evaluated as part of investigation. For a detailed description, or if none exist, see the Instructions to Authors.

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What does one generally expect a microbial detection system (BioMérieux 3D, BioMérieux USA Inc., Durham, NC) with a variety of bacterial species to do in plastic culture bottles versus glass bottles? In this study, we evaluated the performance of this new generation of plastic culture bottles in comparison to the current glass bottles. The use of plasticized glass bottles will be expected to reduce the cost of culture bottles.

STUDY DESIGN AND METHODS: Institute of Public Health, Environmental Health Directorate, Khyber Pakhtunkhwa, Pakistan; St. Paul's Hospital, Khyber Pakhtunkhwa, Pakistan; University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; and Division of Hematology, Carolinas Medical Center, Charlotte, NC, USA

STUDY DESIGN AND METHODS: Bact/Alert 3D; bioMérieux USA Inc., Durham, NC, USA. **MATERIALS AND METHODS:** Bact/Alert 3D (bioMérieux USA Inc., Durham, NC, USA) was used to evaluate the performance of this new generation of plastic culture bottles in comparison to the current glass bottles. The new plasticized glass bottles were compared with standard plastic bottles in a variety of media.

RESULTS: All organisms (with the exception of *Pseudomonas aeruginosa*) showed growth at 93 h to 160 hours (10–14 days). The time of growth in the plastic bottles was significantly shorter than that in the glass bottles. The growth times were similar for all strains except *Candida albicans*.

CONCLUSION: Plastic bottles can detect most organisms faster than glass bottles. This study suggests that this new generation of plastic bottles is comparable to the current glass bottles and may be a better alternative for the production of culture bottles. The future goal is to make these plastic bottles more durable in repeated use.

Keywords: Hemotherapy; platelets; contamination

ACKNOWLEDGMENT: We would like to thank the BioMérieux USA Inc. for their support in this study.

Address reprint requests to: Dr. Salma, Division of Hematology, Khyber Pakhtunkhwa, Pakistan; Dr. Saeed, St. Paul's Hospital, Khyber Pakhtunkhwa, Pakistan; Dr. Abid, Division of Hematology, Carolinas Medical Center, Charlotte, NC, USA

Financial support: National Research Fund, Pakistan (Dr. Salma); National Research Fund, Pakistan (Dr. Saeed); National Research Fund, Pakistan (Dr. Abid).

Conflict of interest: No conflict exists for drugs or devices used in a study if they are not being evaluated as part of investigation. For a detailed description, or if none exist, see the Instructions to Authors.

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ORIGINAL PAPER

Evaluation of the Bact/Alert automated blood culture system for detecting bacteria and measuring their growth kinetics in leucodepleted and non-leucodepleted platelet concentrates

C. F. WILKINSON,¹ J. M. P. LANE,² S. RODRIGUEZ,³ R. HUMPHREY,¹ E. L. LEONARD¹
¹ Biomerieux, Marlow, Buckinghamshire, UK; ² Biomerieux, North London, Colindale, London, UK

Vox Sanguinis

Background and Objectives To evaluate the Bact/Alert automated blood culture system for the detection of bacteria in platelet concentrates, and to determine the specific growth kinetics in leucodepleted and non-leucodepleted platelets.

Materials and Methods A Bact/Alert® Automated Blood Culture System (Becton Dickinson) was used to monitor the growth of *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Corynebacterium parvum*, *Bacillus cereus*, Group B streptococci, *Enterococcus faecalis*, *Enterococcus faecium* and *Enterococcus* spp. at different initial inoculae (CFU/ml), dilutions 0.2 and 5, in 20 mL standard media and controls for the non-inoculated and 0.2 and 5 dilution and background concentrations.

Results The Bact/Alert system detected all 10 bacterial species at all dilutions and concentrations, with all positive detections with an average detection time of 16 h. Growth curves, as the inoculum concentration increased, reflected the increase in the rate of growth, with a corresponding increase in the detection time, which took up to 24 h to occur. The end dilutions in all 10 samples were 10^{-2} CFU/ml and the range from 10^0 to 10^4 CFU/ml. No false positives were detected.

Conclusion The evidence demonstrates that the Bact/Alert automated blood culture system is able to detect bacterial growth in platelet concentrates, with an acceptable detection time. The Bact/Alert automated blood culture system is a rapid, reliable and cost-effective method for monitoring platelet concentrates, and it may be considered as an alternative to the current methods, using an automated blood culture system as there is a potential option.

Key words: automated, bacteria, culture, platelets, platelet, platelet concentrate.

Introduction Bacterial contamination remains the major component of mortality and morbidity associated with transfusion-transmitted infections.

Assessments C. F. Wilkinson, Biomerieux, Marlow, Buckinghamshire, UK; J. M. P. Lane, Biomerieux, North London, Colindale, London, UK; S. Rodriguez, R. Humphrey, E. L. Leonard, Biomerieux, Marlow, Buckinghamshire, UK. E-mail: c.wilkinson@biomerieux.com

Received 17 January 2002; accepted 27 May 2002

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Transfusion Medicine, 2003, 13, 189–190**ORIGINAL ARTICLE****Operational feasibility of routine bacterial monitoring of platelets**A. Macauley,¹ A. Chandrasekar,¹ G. Geddis,² K. G. Morris³ and W. M. McClelland¹ *Northern Ireland Blood Transfusion Service, Belfast, Northern Ireland, UK*

Received 9 December 2002; accepted 26 February 2003

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In the United States during the 1990s, *HAEMOPHILUS INFLUENZAE* T:4b was the most common bacterium isolated from 1144 cases of haemophiliac-associated bleeding [1]. Between 1994 and 1997, the French National Reference Laboratory for Haemophilus isolated 11 deaths (or covering a 1997) in which no pathogen was isolated via culture [2]. Several outbreaks of *HAEMOPHILUS INFLUENZAE* T:4b infection have been reported in the most frequently identified cause of death [3].

Objectives The aim of this study was to evaluate the operational feasibility of routine bacterial monitoring of platelets.

Methods All platelet units were collected between 1993–2002. Donor consented platelet units (n = 40) or all donor components used for manufacture (platelet concentrates (PCs)) were taken to monitor platelet transfusions.

Results Bacterial contamination of platelets poses the greatest risk of mortality and morbidity to platelet transfusion recipients. Some European countries have recommended the use of leukoreduced platelets to reduce the risk of transmission of bacteria. A pilot study was carried out at the Northern Ireland Blood Transfusion Service (NIBTS) using the Bact/Alert automated culture system, to assess the operational feasibility of routine bacterial monitoring of platelets.

Although the Bact/Alert system was not available in a 1-year period, the NIBTS automated culture system was used to monitor PCs. The results showed that 10% of PCs had positive cultures removed at day 2 after storage.

Routine bacterial testing will at day 2 using an automated culture system (Bact/Alert) is a reasonable safety solution would improve product safety. Implementation of 100% testing would be operationally feasible, although it would require the staff to take unacceptable wages if no to avoid.

Conclusion Bacterial contamination of the initial sample was reduced on day 2. Although time-restricted units were subjected to routine quality assessment and more than 85% were found to contain no bacteria, the Bact/Alert system can detect bacteria in 24 h.

The Bact/Alert system (Becton Dickinson)

is a rapid, reliable and cost-effective method for monitoring platelet concentrates.

Key words: bacteria, culture, platelets, screening.

Introduction The incidence of transfusion-transmitted infections (TTIs) has increased over the last decade, particularly in the UK, between 1993 and 2001, the National Hemophilia Foundation (NHF) surveillance system recorded 35 notifications of TTIs per year, with 10 notifications of bacteria (Averill et al., 2002). Bacterial contamination of platelets accounted for 17 of 21 cases resulting in the fatalities. Strategies to reduce transfusion-transmissions include improvements like cleaning methods,

refrigeration, sampling by dimension of the initial sample, and the use of leukoreduced platelets and bacterial screening of blood components.

Evaluation studies of the automated culture system (Bact/Alert) (Becton Dickinson) have shown the ability to detect a wide variety of microorganisms (PCs cultured on day 2) (day 0 being the day of collection) [1]. The Bact/Alert system has been used to culture various types of bacteria, e.g. *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Corynebacterium parvum*, *Bacillus cereus*, Group B streptococci, *Enterococcus faecalis*, *Enterococcus faecium* and *Enterococcus* spp. Based on this model, we carried out a pilot study to evaluate the Bact/Alert system for monitoring PCs.

Materials and Methods Collection and processing

Approximately 60% of the platelet inventory was prepared from pooling of fully units derived from whole blood donations and 40% from single-donor

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Transfusion Medicine, 2003, 13, 191–192

ORIGINAL ARTICLE

Evaluation of the 3D Bact/ALERT automated culture system for the detection of microbial contamination of platelet concentrates

C. P. McDONALD,¹ A. ROZON,² M. COX,² R. SMITH,² A. REY,² S. ROBINSON,² S. HARVEY,² J. A. J. BURTON,² S. RODERICK,³ J. L. SHARPE⁴ and G. WHITFIELD⁵, *¹ School of Biological Sciences, ² School of Veterinary Dentistry, ³ Veterinary Pathology Department, ⁴ UCL and ⁵ Institute of Animal Health, London, UK*

Received 20 September 2002; accepted 26 October 2002; first published online 21 March 2003

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Introduction Bacterial contamination remains the major component of mortality and morbidity associated with transfusion-transmitted infections. Platelets are the most vulnerable source of bacterial contamination.

The Bact/ALERT 3D automated culture system was developed to overcome the limitations of the original Bact/ALERT system for screening platelets.

Objectives The aim of this study was to evaluate the Bact/ALERT 3D automated culture system for screening platelets.

Materials and Methods The Bact/ALERT 3D automated culture system for screening platelets was used for the culture of *Lactococcus*. Evaluation of the system was performed using 4.5 g of platelets in 10 mL of Bact/ALERT 3D media. The final inoculation of 10 and 300 colony-forming units (CFU) of *Lactococcus* were applied to the Bact/ALERT 3D media. Bact/ALERT 3D media is similar to Bact/ALERT media, with the exception that the pH is 7.0. Bact/ALERT 3D media contains 10% v/v glycerol, which is added to the media to prevent bacterial contamination.

Results The Bact/ALERT 3D automated culture system for screening platelets detected 100% of *Lactococcus* isolates.

Conclusion The Bact/ALERT 3D automated culture system for screening platelets is effective for rapidly screening platelet donations for present bacterial contamination.

Key words: bacteria, culture, platelets, screening.

Introduction In the 2000 survey, considerable concern has been addressed in relation to bacterial contamination of platelet donations [1]. The use of automated culture systems for platelet donations has provided clear evidence and peace of mind to the safety of donations.

Objectives C. P. McDonald, Biomerieux, International, Marlow, UK; A. Rozon, M. Cox, R. Smith, A. Rey, S. Robinson, S. Harvey, J. A. J. Burton, School of Biological Sciences, University of East Anglia, Norwich, Norfolk, NR4 7TJ, UK; J. L. Sharpe, Institute of Animal Health, London, UK; G. Whitfield, Institute of Animal Health, London, UK. E-mail: c.mcdonald@biomerieux.com

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BacT/ALERT BPA culture bottles are used with the BacT/ALERT Microbial Detection Systems for quality control testing of leukocyte reduced

apheresis platelet (LRAP) units

single units of whole blood platelet concentrates (WBPC).

BPA culture bottles – aerobic bacteria



BacT/ALERT BPN culture bottles are used with the BacT/ALERT Microbial Detection Systems for quality control testing of leukocyte reduced

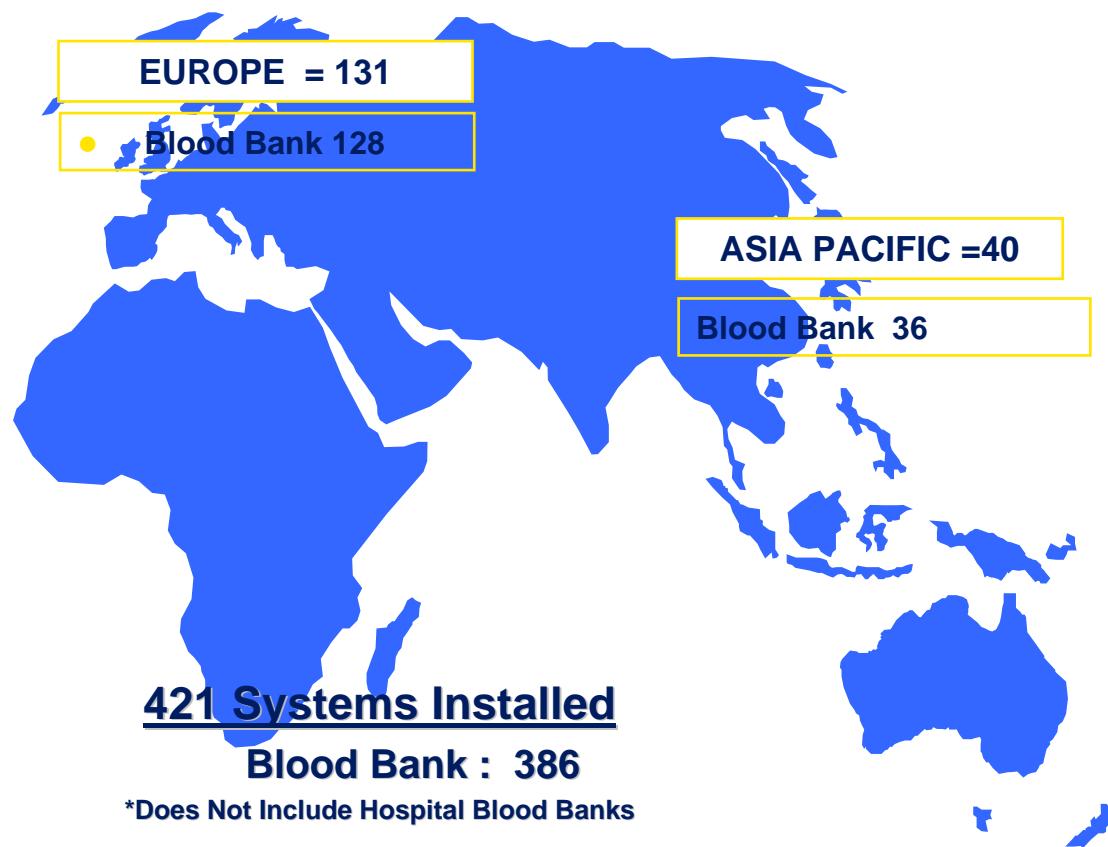
apheresis platelet (LRAP) units

single units of whole blood platelet concentrates (WBPC).

BPN culture bottles - anaerobic & facultative anaerobic bacteria.

BacT/ALERT Worldwide Placements for Platelet Testing

BIOMÉRIEUX
INDUSTRY





TRANSFUSION COMPLICATIONS

Monitoring of apheresis platelet bacterial contamination with an automated liquid culture system: a university experience

M.C. Strain, S.H. Lee, and S.J. Rothberg

BACKGROUND: With 2 million platelet transfusions per year in the United States and with the current estimate of bacteria contamination in PLT units, it would be expected that 2000 to 4000 bacterially contaminated units are transfused and associated with 333 to 1000 cases of clinical infection.¹

STUDY DESIGN: In-hospital apheresis platelets were collected in Day 2 of storage (whole bag – Day 0) and assayed (or following outside Day 2–5) using a sternal connection device (SCD) to which a sampling bag (using weight, length, and a hammer) was tied. Both bags were inoculated and placed onto an automated liquid culture system (Bact/Alert 3D Microbial Detection System) for 7 days.

RESULTS: A total of 2397 apheresis PLT units were sampled. A triple apheresis collection was reached within 14 hours (1 hr Lay + Sampling [product contact] and the bag was removed from inventory). A single aerobic organism was identified in all three contaminated bags. Two double apheresis collections were found to be contaminated with *Pseudomonas aeruginosa*, and one triple apheresis collection was found in four patients who developed clinical sequelae. There was one non-pathogenic aerobic culture and one non-pathogenic anaerobic result that is inadvertent contamination of a bottle. Thus, the overall true-positive rate was 7 of 2397 apheresis units (0.29%) with a false-positive rate for aerobic organisms (0.13%) as in an analysis reported by other.² The false-positive rate was 2 of 474 sampling (0.4%) or 2 out of 2320 bottles (0.09%).

CONCLUSION: The preliminary data suggests that the use of a SCD, aseptic technique, and a hammer to hold is associated with a low rate of contamination. In no case did an issue of contamination affect administration. The use of a SCD on the Day 1 collection. Additional surveillance is necessary before we can conclude that a Day 2 bag to culture may produce an issue of PLTs would be expected to occur. This unit may become an extension in PLT storage.

Previously, 1 in 1000 to 1 in 200 PLT units are bacterially contaminated.³ Deaths after PLT transfusion is the most common cause of death associated with transfusion-transmitted disease. With 1 million PLT units transfused annually in the United States at a cost of \$1000, it would be expected that 2000 to 4000 bacterially contaminated units would be transfused.¹ Of these contaminated units, perhaps 1 in 1000 to 1 in 2000 would be expected to result in clinical signs (333–1000 cases) and perhaps one-fifth to one-fifth could result in death (5–333 deaths/year).⁴ This translates to a risk of death from bacterially contaminated PLT transfusions to 1 in 10,000 and 1 in 60,000. The utility of these estimates is compromised from little observation from university hospitals. Ness et al,⁵ from Johns Hopkins reported a mortality rate of 1 in 17,000 with pooled whole-blood-derived PLT and 1 in 6,000 with single-donor apheresis PLT. Similarly, the University Hospital of North Carolina has observed a mortality risk of approximately 1 in 39,000 aPLT units. At the University of South Carolina, an anonymous continual bactericidal test from a contaminated apheresis PLT in the last 10 years, resulted in approximately 20,000 aPLT units.

We have previously utilized an automated liquid culture system (Bact/Alert 3D, BioMérieux, Durham, NC, USA) with a wide range of organisms known to contaminate PLT units.

ACKNOWLEDGMENT

From the University of North Carolina, Chapel Hill and BioMérieux (formerly Organon Teknica), Durham, North Carolina.

Address reprint requests to Mark E. Rothberg, MD, Transfusion Medicine Service, CH750, University of North Carolina Hospitals, 311 Manning Drive, Chapel Hill, NC 27599-6608 (e-mail: Rothberg@email.unc.edu).

Funded by a grant from BioMérieux (formerly Organon Teknica).

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TRANSFUSION 2013;53:974–977.

The true positive rate for aerobic organisms was 3/2397 (0.13% or 1/799 units) and 4/2397 (0.17% or 1/599 units) for anaerobic organisms. No positives detected with late culture alone.

Anaerobic Bacteria and Platelets

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McDonald, Hartley, Orchard, Hughes, Brett, Hewitt,
Barbara. Fatal *Clostridium perfringens* sepsis from a
pooled platelet transfusion. Transfusion Medicine
1998;8:19-22

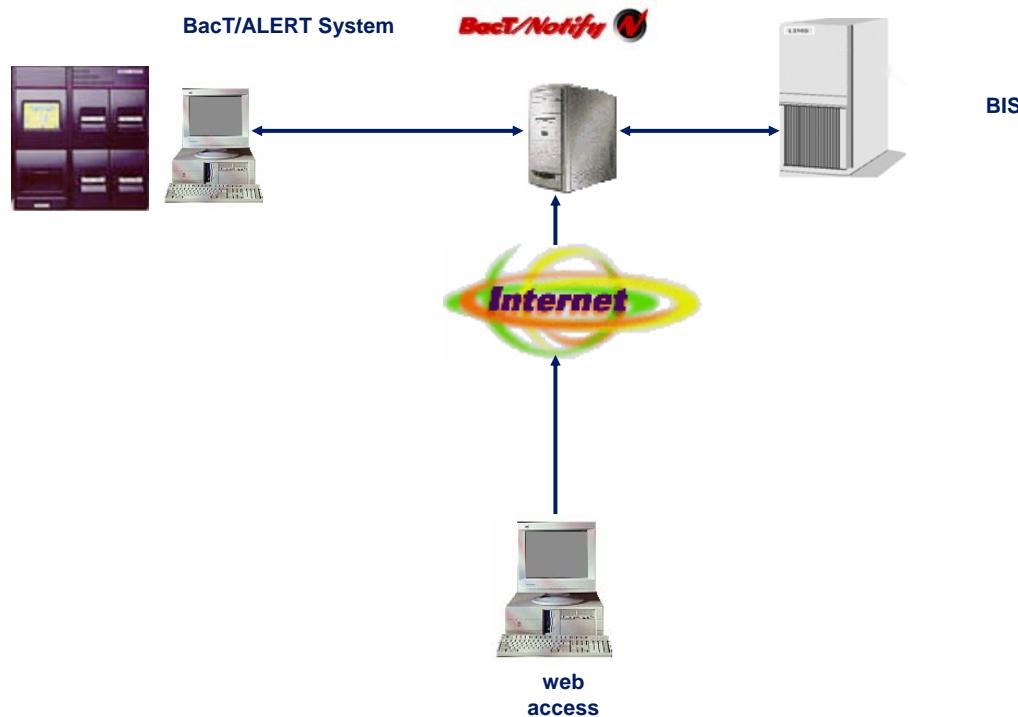


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BacT/Notify 

View Latest Available Culture Status Just Before Transfusion!

Transfusion centers will be able to access specific culture results by accessing a webpage.





BacT/Notify - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail Options

Address https://172.31.2.92:8443/brns/home

Google



UNC Hospitals Transfusion Service Laboratory
For Investigation Use Only. The Performance of this Product has not been
Established.

Notification Report

Product Number: 3/26/04E
Determined: 03/26/2004 12:16

Result: Positive

Bottle type: BacT/ALERT SN
Days to detection: 0.0

Bottle status: Positive
Bottle ID: SNB4C3C4

Bottle type: BacT/ALERT SA
Days to detection: 0.0

Bottle status: Positive
Bottle ID: SAB48D0V

Return

Done



12:56 PM

