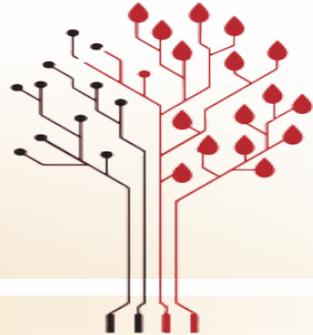




The impact of Infection Prevention and Control (IPC) on the rate of bacterial contamination of Apheresis Platelets



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BACKGROUND

- The residual risk of bacterial contamination of platelets remains a global problem.
- Platelets are susceptible to bacterial contamination as they are stored at 20 to 24°C, which is conducive for bacterial growth.
- In countries where standardised bacterial screening procedures are in place, the risk of bacterial contamination of platelets is reported as 1 / 1 000 to 1 / 3 000.
- A recent publication on bacterial surveillance of apheresis platelets (AP) at SANBS has shown that the average bacterial contamination between 2011 and 2016 was 2.7% with a peak in 2015 and 2016.
- Basic IPC measures focussing on hand and environmental hygiene are important cost effective measures to address bacterial contamination of blood product.

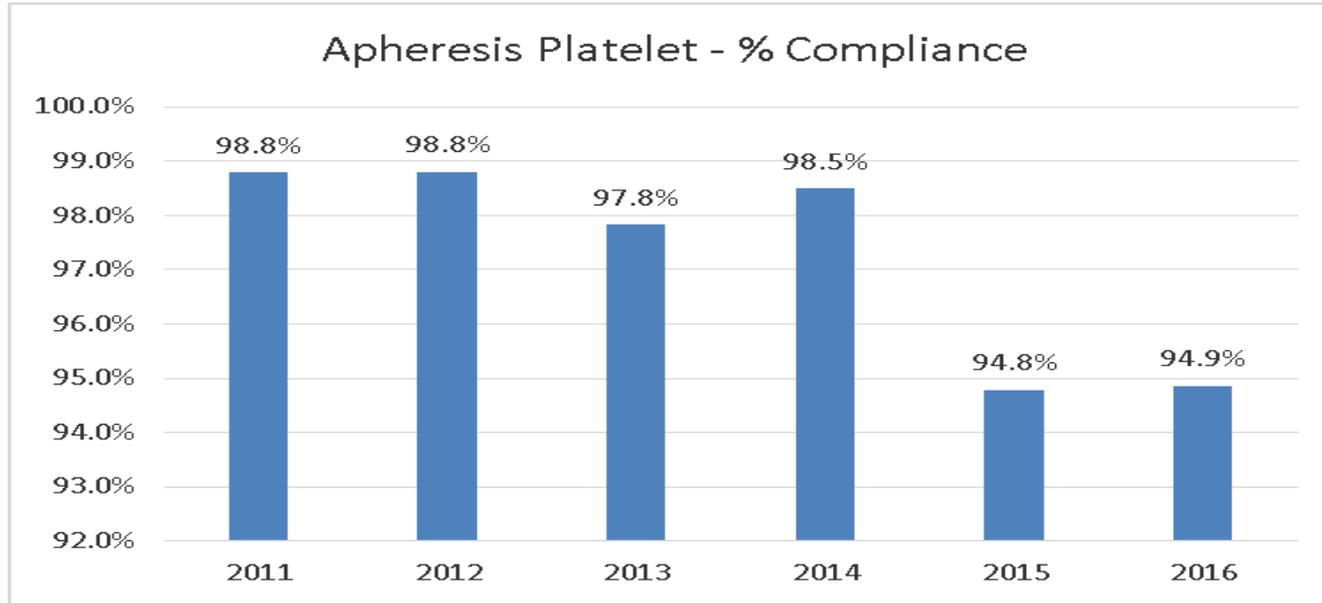
Ref: ISBT Science Series Oct 2018

Bacterial surveillance of apheresis platelets in South Africa (January 2011 to December 2016) Ute Jentsch & Ronel Swanevelder





Bacterial Surveillance Pre-IPC



Aim of the study

- The aim of the study was to assess if IPC interventions and improvements in microbiological processes implemented in 2017 reduced the rate of bacterial contamination of apheresis platelets.

Laboratory interventions	Donor interventions
Installation of a dedicated clean area	Improved donor skin cleaning
Re training on hand washing techniques and use of more effective hand sanitizer: 0.5% chlorhexidine (CHX) / 70% isopropyl alcohol (IPA) as a hand sanitizer.	
Improved environmental hygiene, (use of different disinfectants: detergent, sporicidal and alcohol wipes)	
IPC training and IPC audits.	



METHODS

- A retrospective laboratory data review was performed comparing the rate of bacterial contamination of AP previously documented with the period January 2017 to December 2018 after the implementation of enhanced IPC measures.
- Collected AP samples from 14 SANBS apheresis clinics across South Africa.
- Transported at room temperature and processed 24 to 48 hours after collection.
- Gram stain performed on positive sterilities, culture and identification was done using standard microbiological procedures.
- Microbiological culture improvements from 2017 included increasing the culture volume to 4 ml in an aerobic medium only and reducing the incubation time to 7 days.



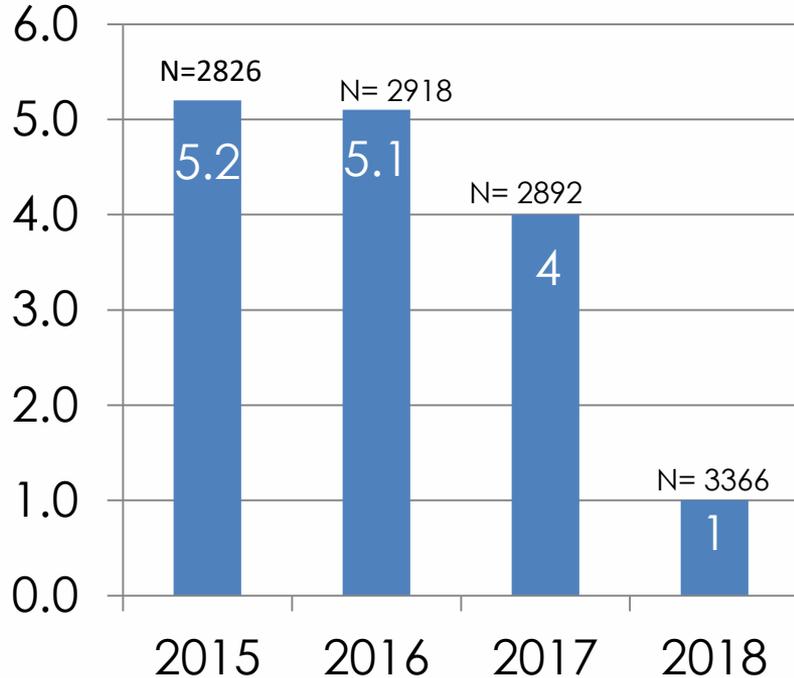


METHODS



Results

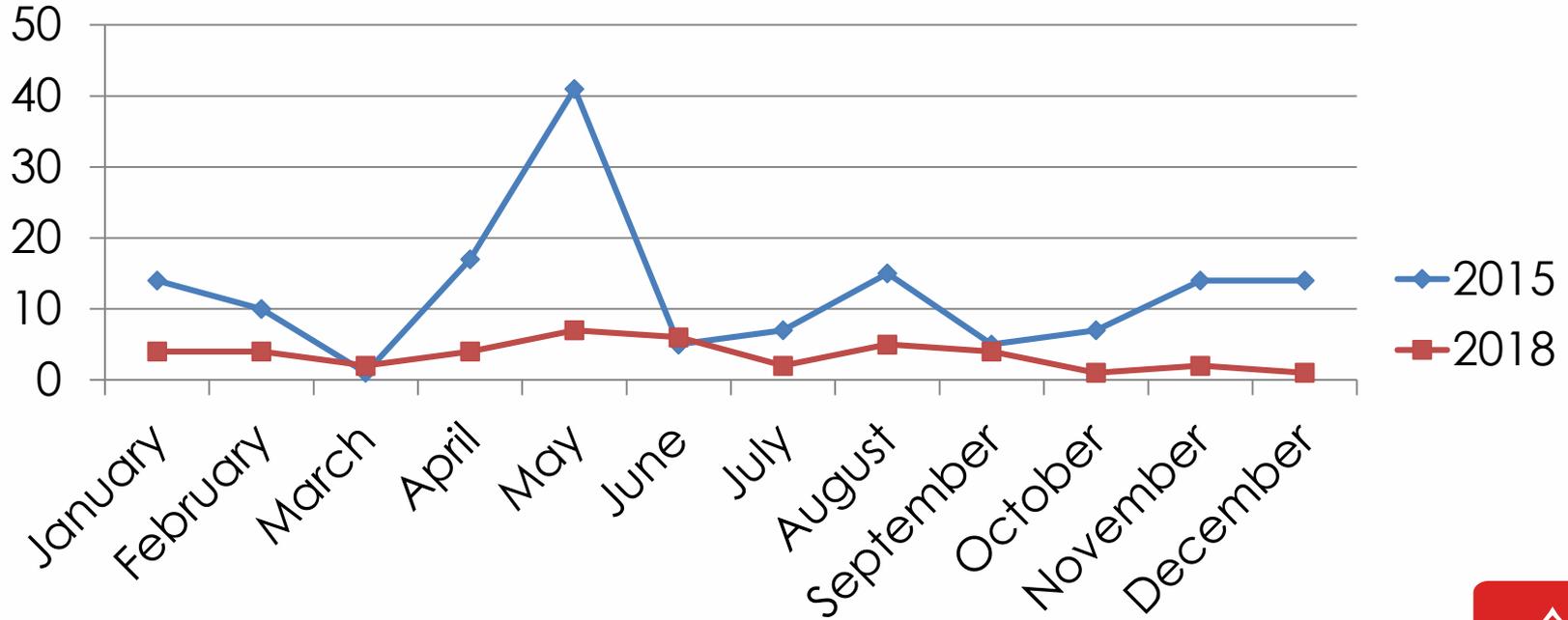
AP % non-compliance



- In 2015 and 2016 a non-compliance of 5% was obtained, (n=150 and n= 152).
- In 2017, the bacterial contamination rate reduced to 4% (n=116).
- The reduction from 5% to 4% was significant (p=0.003).
- In 2018, a further significant decline in positive results was 1% (n=42) (p<0.003).



Positive Sterilities Pre-IPC (2015) vs Post-IPC (2018)





Results:

Bacteria identified

- A total of 440 bacteria were cultured between 2015 and 2018
- The most common bacteria identified before and after implementation of the IPC measures were the same : Coagulase Negative *Staphylococci*, *Cutibacterium acnes*, and *Micrococcus species*.

Organism	Coagulase negative staphylococcus	Cutibacterium acnes	Micrococcus species
Number	131	129	63
%	29%	28%	14%





DISCUSSION

- Implementation of IPC processes have reduced the rate of bacterial contamination significantly from 5% to 1%.
- The majority of bacteria identified were common skin commensals indicating that the skin flora remains the source
- Improved microbiological processes have also enhanced this screening process.
- Despite the reduction of bacterial contamination, our rate still exceeds the international norm.





CONCLUSION

- IPC implementation has reduced the rate of bacterial contamination significantly between 2015 and 2018.

Further measures to reduce the residual risk:

- Optimizing donor skin disinfection with a dual one step disinfectant (2%CHX/70%IPA) is being validated
- The introduction of additional interventions such as pathogen inactivation should be explored to further reduce the residual risk of bacterial contamination.



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Thank you