

A CASE REPORT: BACILLUS OUTBREAK IN NEONATAL INTENSIVE CARE UNIT (NICU), HOSPITAL SUNGAI BULOH, WHAT HAVE WE OVERLOOKED?

Nur Amalina Yusoff, Yasmin Mohamed Gani, Amira Amir, Saadiah Hashim, Nor Azlina Rosely, Padmani A/P Govindasamy, Noor Hasani Hassan
 Infection Prevention & Control (IPC) Unit, Hospital Sungai Buloh

INTRODUCTION

Bacillus species are rod-shaped, endospore-forming aerobic or facultatively anaerobic, gram-positive bacteria. Many species exhibit a wide range of physiologic abilities that allow them to live in every natural environment.

CASE DESCRIPTION

In November 2022, the IPC team was alerted by our Clinical Microbiologist regarding the increasing number of blood cultures with Bacillus spp isolated from NICU with a total of 7 cases. We divided our investigations into 3 phases:

1 Observation and site visit

For blood culture-taking practices among doctors, majority did not clean the blood-taking trolley before the procedure and did not comply with contact time of skin antisepsis. The linen racks in NICU were also dusty as it was not being cleaned as per schedule.

2 System workflow and environmental sampling

During second phase of investigation, we looked into the clean linen delivery flow chart and environmental sampling. Our sampling includes linen rack, cabinets, baby clothes and equipment being shared such as steriprep solution, sterile water for injection, ultrasound gel and fresh clean linen. 15 out of 22 samples were positive for Bacillus spp. All investigation results were updated to relevant teams; Clinical microbiologist, Infectious diseases, Pediatrics, Engineering, Hospital Cleaning Consensus and Administration for further action.

3 Corrective action taken

Our corrective action includes CMEs and hands-on training on blood culture taking for every house officer and medical officer in NICU, terminal cleaning of hospital and NICU linen stores and cabinets, and also replacing all NICU linen with new linen. IPC Unit also created a linen checklist to be used as part of continuous monitoring.

CONCLUSION

The root cause of the Bacillus outbreak in NICU were found to be substandard practice of blood culture aseptic technique and poor linen environmental hygiene. What we have learned in this outbreak, regular monitoring and surveillance by IPC unit as well as good cooperation from the respective departments are prudent to prevent such outbreak in the future.

SENARAI SEMAK BAGI PENGURUSAN LINEN

TARIKH LAWATAN:

SENARAI SEMAK BAGI PENGURUSAN LINEN	YA	TIDAK	CATATAN
1 VENTILASI			
1.1 Exhaust fan berfungsi			
1.2 Pencabangan yang mencukupi			
1.3 Keadaan udara berhabuk			
2 RAK LINEN			
2.1 Permukaan mudah dicitu			
2.2 Paras ketinggian 8 inci dari bumbung			
2.3 Paras ketinggian 10 inci dari lantai			
2.4 Jarak 2 inci dari dinding			
2.5 Rak tidak diperbuat daripada kayu			
2.6 Pintu almari sentiasa tertutup			
3 LANTAI			
3.1 Permukaan mudah dicitu/epoxy			
3.2 Keadaan tidak berdebu			
4 KEBERSIHAN STOR/BILIK LINEN			
4.1 Bebas daripada habuk			
4.2 Tidak serangga kelihatan			
4.3 Jadual kebersihan/pencucian			
4.4 Linen bersih dan kotor diasingkan			
4.5 Suhu 20-25 degree Celsius (in the air-conditioned area)			
4.6 Linen bag yang telah diikat perlu diletak di atas SL 4 dalam bilik utility kotor			
5 LINEN			
5.1 Bersih dan tidak berhabuk			
5.2 Linen dibalut dengan plastik			
5.3 Sistem FIFO dipraktikkan			
6 KAKITANGAN YANG MENIAGA			
6.1 Staf terlatih- ada bukti latihan			
6.2 Memakai PPE (handling clean and dirty linen)			
6.3 Self-hand hygiene (handling clean and dirty linen)			
6.4 Pastikan bilangan staf terhad			
7 PENGANGKUTAN			
7.1 TROLI STAINLESS STEEL			
a) Troli dibersihkan selepas digunakan			
b) Troli dalam keadaan bersih			
c) Troli kotor tidak dibawa masuk ke stor			
d) Troli perlu ditutup			
7.2 LORI			
a) Pencucian menggunakan disinfektan			
b) Lori linen bersih dicitu selepas digunakan			

Tangan anggota yang memantau

Tangan staf yang bertugas