

Reducing Hospital Acquired Pseudomonas transmission on the ICU at NMUH

Yannis Gourtsoyannis 1, Ngozi Walters 2, Alex Galdins, 2 Joella Lucas 2, Harriet Dugu 2, Gillan Belfon-Johnson, 3 Florence Cobbold 3, Nehal Draz 1

1 Microbiology department, 2 Infection Prevention and control, 3 Intensive care unit

Introduction

Pseudomonas aeruginosa is not an uncommonly isolated Gram Negative Bacillus which is usually a non-pathological coloniser of skin and skin lesions. It is commonly found in care environments. It can be associated with pathogenic infection in patients with burn injuries, skin grafts, line infections, hospital-acquired and ventilatory-acquired pneumonias (especially on a background of pre-existing lung diseases such as COPD), haematological malignancies and other causes of immunocompromise e.g. Cystic Fibrosis and Bronchiectasis.

In February 2017, it was noticed at NMUH, the incidence of positive isolates of Pseudomonas (regardless of site of culture) for the ICU was significantly higher than incidence observed at other ICU departments in other hospitals. This was despite the fact that NMUH is a relatively small hospital, with only a limited number of patients being significantly immunocompromised or suffering burns injuries.

Aim

An investigation was undertaken to know whether we were doing all we could to keep pseudomonal isolates and infection down to a minimum.

It was done by identifying practices on the ICU, which may be a potential risk for pseudomonas transmission.

Providing a package of interventions (in agreement with the ITU team) aiming at reducing that incidence.

We would then verify whether the package of measures was adhered to by ICU staff and whether they achieved a reduced pseudomonas incidence.

Methods

We counted the number of isolates per month. We then convened a meeting with the microbiology consultants, Infection Control team, ICU matron and ICU consultants. Our package of ten interventions comprised :

- Enforcing the concept that “hand-washing basins are for hand-washing only and nothing else”. No flushing of patient wash-water into hand wash basins. Only the sluice is to be used for waste water disposal. Signs were placed above hand wash basins advertising its appropriate use and also educated team.
- Disposable wash-cloths to be used when cleaning patients; not water unless at patient’s request.
- All nurses and doctors to have ANTT re-assessment.
- Ensure alcohol hand gel is used immediately before and after patient contact (post hand washing with liquid soap and water).
- Observe the cleaning method of contracted cleaners and ensure compliance with Trust guidelines for cleaning hand wash basins.
- Attendance at water safety meeting with the Water Safety Group to discuss pipes etc.
- Weekly review of hand hygiene audit assessment
- Continue water sampling
- All staff to challenge suboptimal infection control practice.
- Matrons to undertake infection control inspection three times weekly.

These suggestions are broadly in line with the national recommendations set out in the document “Water Systems. Health Technical Memorandum 04-01 Addendum. Pseudomonas Aeruginosa – advice for augmented care units. By the Dept. of Health. 2013.”

Results

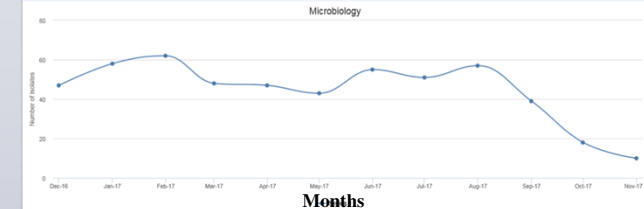
By June 2017 there was evidence that most of the interventions were adhered to with the exception of point two; for which there was insufficient evidence.

All the ten interventions were adhered to by the end of July

There was a downward trend in the number of pseudomonas isolated in each month, for the next 3 months following the interventions initiated in February 2017. The result was encouraging but not conclusive

We continued to count the number of pseudomonas isolates over the next months until October 2017. The downward trend continued and reached its minimum of 18 cases of Pseudomonas isolates in October 2017

Pseudomonas isolates



Conclusion

The downward trend in pseudomonas isolates from February to October 2017, provides plausible evidence that the high levels of pseudomonas isolates observed were due to deficiencies in practice and that a targeted set of interventions are effective in reducing transmission of pseudomonas within the unit.