Setting Up Line Surveillance to Drive Improvement

Central venous catheter related blood stream infections (CRBSI) cause increased mortality and morbidity in patients; many of these are preventable using evidence based care. Matching Michigan, a national project focused on critical care units to reduce central line infection rates using a quality improvement programme. It was agreed to spread this work across all areas of the Trust including neonatal and oncology patient outpatients.

CVAD Steering Group

A CVAD (central venous access devices) steering group was set up to develop CRBSI surveillance and drive improvement
- Representatives from all areas involved with CVAD; critical care, neonatal unit, oncology and haematology unit, community and OPAT service and radiology
- A lead clinician
- A Microbiologist
- Terms of reference set

Methodology

It was important from the outset to establish an outcome measure to demonstrate improvements in practice with the obvious measure being CRBSI.
- Numerator data - Potential CRBSI were identified by the microbiologists following laboratory confirmation of bacteraemia and clinical review for potential source
- Denominator data - a process to collect the number of line days was developed with all the different teams managing the care of CVAD.
- A CVAD Dashboard was produced monthly
- Internal ceiling target set at 1.5/1000 line days and reset at 1/1000 line days following improvement.

Root Cause Analysis

- All cases of CRBSI are investigated using standardised root cause analysis (RCA)
- Learning shared with the Steering Group to action changes to practice
- Changes in practice included
  - MRSA/MSSA screening twice weekly
  - Daily chlorhexidine washes extended to all CVAD patients (excluding neonates)
  - Cases reported on Datix system
  - Standardised CVAD pathway to include evidence-based bundles
  - Audit of compliance with documentation of the CVAD pathway
  - Standardised training package with competency assessments for staff accessing CVAD
  - Change of dressing to chlorhexidine island dressing
  - Promotion of subclavian insertion of short term CVAD opposed to internal jugular insertion

CVAD Care Pathway

- Training shared with the Steering Group to action changes to practice
- Changes in practice included
  - Promotion of subclavian insertion of short term CVAD opposed to internal jugular insertion

Measures of Success

- Attendance at the CVAD steering group and willingness to improve
- Good quality RCA investigations providing opportunities for learning
- Reduced CRBSI rates falling from 5/1000 line days in 2011 to 0.6/1000 line days in 2016

Conclusions

During the last five years, learning from CRBSI has allowed improvements. We are able to monitor the rate of CRBSI for each department with patients with CVAD and we can accurately assess problems and spot trends at an early stage to implement effective change as required. Further work includes the development of a patient held record and training package for patients in community with their CVAD in place.