Central Line Associated Blood Stream Infection

Prof Peter Wilson
University College London Hospitals
Blood stream infections from central venous catheters

- Increase mortality risk 25% $16550/case
- Michigan keystone 103 ICU 7.7 to 1.4 CVC-BSI/1000 CVC-patient-days
- Sustained at 3 years
- NPSA Matching Michigan 2009-11

BMJ QS 20/9/12 10.1136
Basic Principles

• Reduce urinary catheterisation, intubation
• Enhanced cleaning
• Pre-emptive isolation
• Hospital transfer handover
• Outbreak control + root cause analyses
Interventions

• Hand hygiene, gown, gloves, hat, mask.
• 2% chlorhexidine in alcohol
• Maximal sterile precautions including full barrier drapes
• Avoid the femoral route
• Aseptic access technique, daily site review, early removal
• Education
Screening

- Admissions to unit / ICU
- Pre emptively isolate and screen admissions from high incidence units or known carriers
- Weekly screens
- Do not screen staff unless implicated
Survey 127 UK ICUs

• Microbiology ward round daily 44%, never 13%
• Chlorhexidine bed baths routine 15%
• Antimicrobial CVC 28%, antiseptic 29%
• Chlorhexidine patch 17%
• Chlorhexidine mouthwash 20%

BMJ QS 20/9/12 10.1136
Matching Michigan

- **BSI**: $\geq 1$ pathogens from blood culture or if commensal $\geq 2$ cultures and fever/chill/hypotension
- **CABSI**: BSI + $\geq 1$ CVP within 48h, no other primary site
- **CRBSI**: BSI + $\geq 1$ CVP within 48h, one of + tip and blood culture or simultaneous quantitative blood culture
Matching Michigan: 147 ICUs

![Graph showing Adult ICU CVC-BSI rates by Cluster]
Neonatal / Paediatric

• Neonatal Data Analysis Unit, National Neonatal Audit Program, PICANet collect data already
• Neonatal and paediatric community agree single system
• Single indicator and numerator
Infection in Critical Care Quality Improvement Programme

• Voluntary – all professional groups
• Faculty of ICM, ICS, PICS, ICNARC, NDAU, NNAP, PICAnet, BACCN, BAPM, HIS, IPS, HPA
• Central venous Catheter associated infection
ICCQIP Survey Feb 2013

- All UK ICU, PICU, NNU
- HIS, IPS, BIA
- General 591, cardiac 68, neurosurgery 38, trauma 10
- Adult 554, neonatal 88, paediatric 76
- Unit beds 11 (7-16)
Survey Response

• 763 replies – 80% ICU physicians, 8% nurses, 5% microbiologists
• 94% agree surveillance required
• 89% agree antimicrobial use data
• 79% agree link to NHS Information systems
• 64% agree should be mandatory
Actions

• Group working on infection definitions
• Group working on system specification
• Using the PHE Data Capture System
• Process itself monitored as a project with professional collaboration