

COMPARISON OF COMPLIANCE VS INCIDENCE OF LINE RELATED BACTERAEMIA

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(On behalf of the Infection Prevention & Control Team)



OVERVIEW

- Why were we interested in Curo
- Pre Curo Intervention
- Curo Intervention
- Impact of Curo



WHY WERE WE INTERESTED IN CUROS?

- Knowing that we had higher than average BSI's
- Aware that there was non compliance of scrub the hub
- Liked the concept of Curoos
- Engineers out human variation
- History of partnership working with Vygon



WHY DID WE CONDUCT A CUROS STUDY?

- Only British evidence for Curoc was home parenteral nutrition outpatients (Mia Small)
- Wanted to know if using Curoc would improve compliance with port cleaning
- Would there be a positive / negative affect on line related bacteraemia rates with improved port decontamination



WHO DID WAS INVOLVED IN THE PROCESS?

- Infection Prevention & Control Team
- Infection Prevention & Control Group
- Evidence based Practice Committee
- Divisional Nurses
- Matrons
- Ward managers and their staff
- Procurement
- Vygon



WHAT CHALLENGES DID WE FACE?

- EPIC 3 Guidelines recommend CHG
- Motivating colleagues – initially seen as not part of Aseptic Non Touch Technique (ANTT) and potential for confusing staff
- Procurement – cost



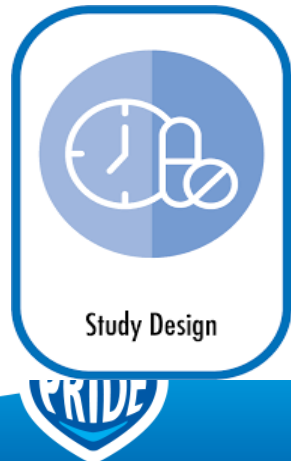
HOW DID VYGON SUPPORT WITH THESE CHALLENGES?



- Provided the product free for the trial
- Spoke to Stephen Rowley who owns the ANTT idea/concept and had Curoc recognised as part of the ANTT process
- Updated our trust ANTT vascular access posters to incorporate Curoc
- Provided benchmarking audits, staff training and monthly audits for the duration of the trial

DESIGN OF THE STUDY?

- Cross site study utilising 4 wards – all contained patients who had medium to high use of Intravascular lines
- Retrospective review of the wards BSI data for 6 months prior to study
- Port cleaning survey pre study
- Training of staff in Curoc use prior to study
- Procurement re removal of wipes for duration of study
- Monthly audits whilst study underway



Pre Cueros Intervention



PORT CLEANING SURVEY

This survey had 104 responses from a variety of different departments:

- Women's and Children's Services
- Medical
- Surgical
- Renal
- Cancer Services
- Emergency Medicine
- Critical Care and Anaesthetics
- Diagnostics

The National guidelines show that the requirement for effective device disinfection relies on three key factors:



PORT CLEANING SURVEY

- Cleaning technique of the clinician
(scrubbing or twisting action required)
- **The duration of the physical cleaning**
(min of 15 sec)
- **The duration of the disinfectant drying /
Kill time**
(min of 30 sec)



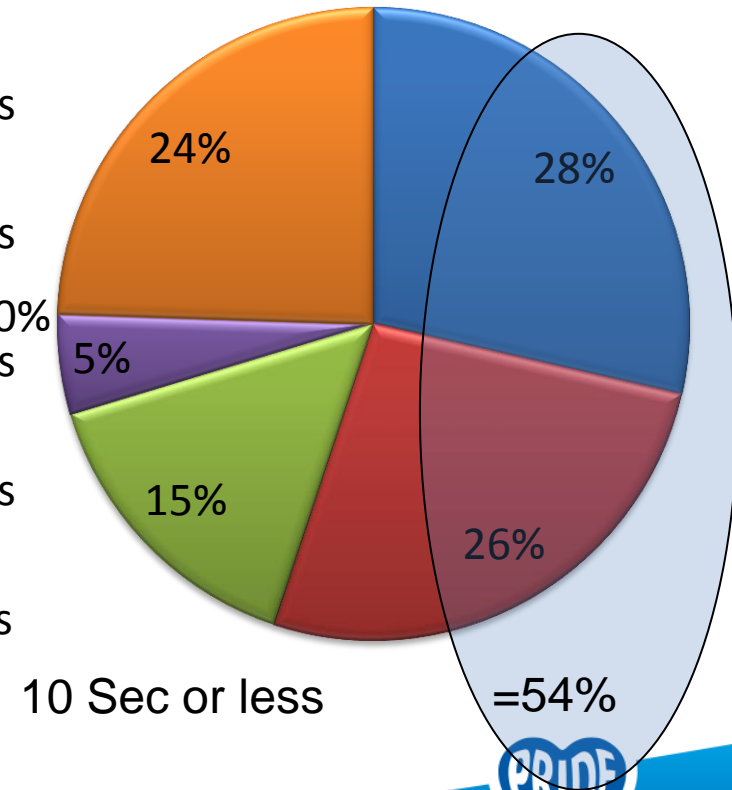
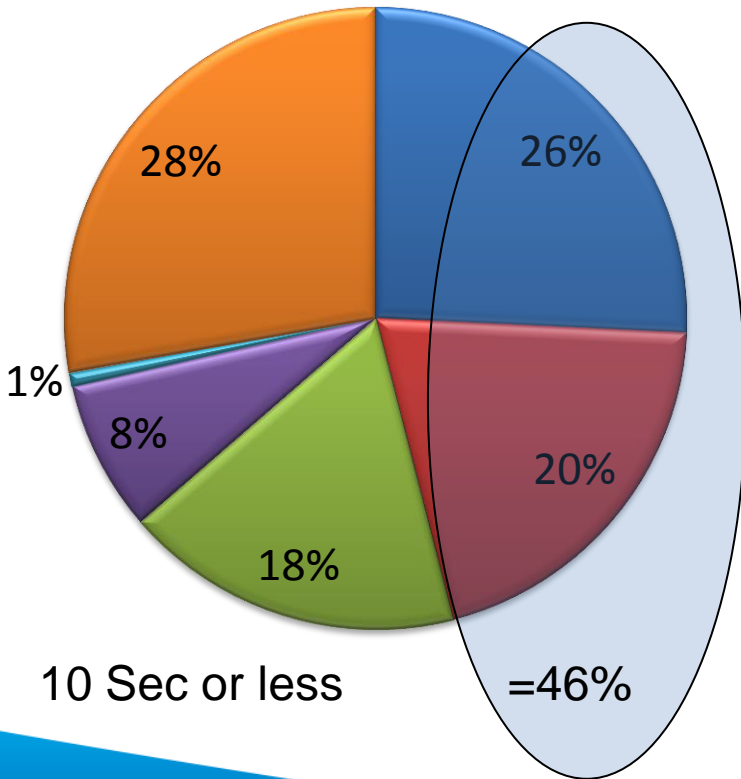
CLEANING TIME



National

BHR

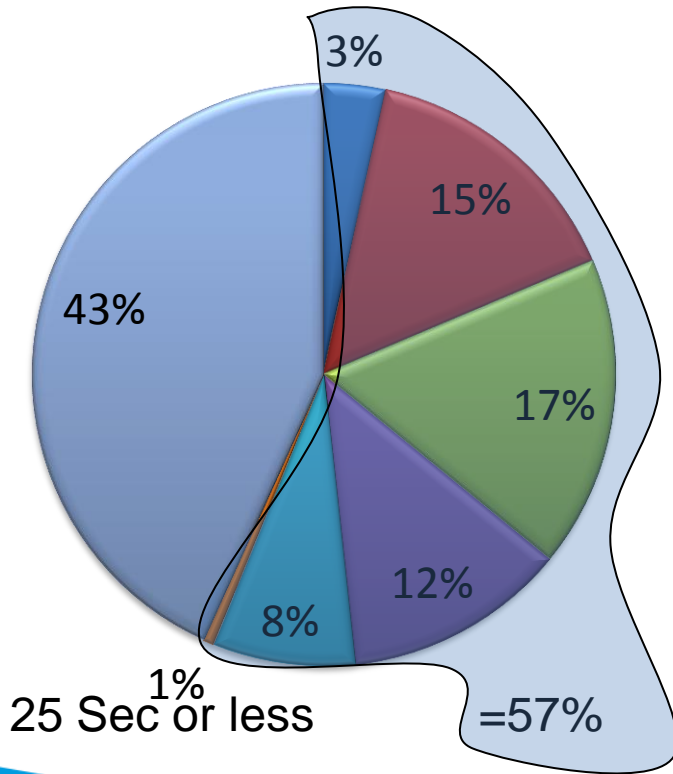
- 5 Seconds or Less
- 10 Seconds or Less
- 15 Seconds or Less
- 20 Seconds or Less
- 25 Seconds or Less
- 30 seconds or Less



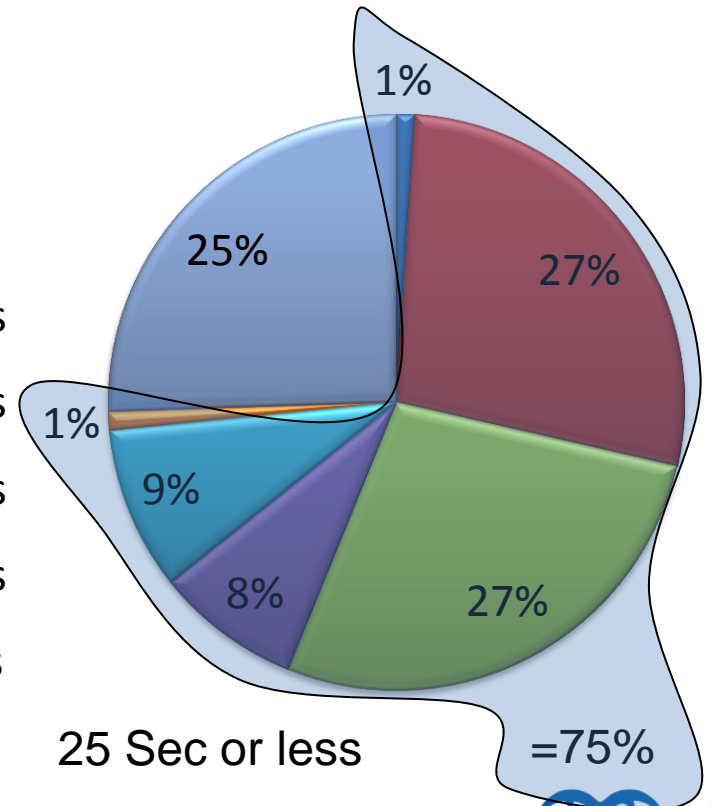
DRYING TIME



National



BHR



CUROS INTERVENTION PERIOD

- 4 Wards across 2 hospital sites
 - Oncology
 - Acute Care of the elderly
 - Adult Intensive care
 - Surgical Ward
- Curoos was used for 6 months
- Compliance for Curoos was audited monthly



CUROS INTERVENTION PERIOD

- CRBSI's were audited monthly by ward
- Users completed a questionnaire on usability
- BSI rates audited for 6 months post Curois Intervention
- Business case raised



STUDY RESULTS

- Clinical practice compliance rates
- Infection rates
- Financials (Tangible/non-tangible)
- User experience
- Patient experience



CLINICAL PRACTICE COMPLIANCE RATES

The compliance rates recorded during the 6 month clinical evaluation for the use of the Curot verses current cleaning survey compliance were:

Department	Compliance to current cleaning practice	Compliance to Curot cleaning practice
Madarin B (Queens)	No Data available	81%
Harvet A (Queens)	No Data available	79%
ICU (KG)	No Data available	80%
Heather (KG)	No Data available	81%
Total	Clinical survey revealed 27%	80%

Curot has demonstrated a higher rate of compliance (80%) for the disinfection of needle free IV access devices compared to current cleaning practice (27%) of scrub the hub.



CRBSI'S RECORDED ON 4 WARDS AT BHR

Prior to the implementation of the Curoso disinfection cap in 2014, BHR analysed existing rates of catheter related blood stream infection on the 4 departments for 6 months (Oct-March). This revealed:

Department	Total number of CRBSI for 6 months	Calculated number of blocked bed days (Infections X11)	Cost to treat peripheral line infections (£6,209)	Cost to treat central line infections (£16,000)
Madarin B (Queens)	14	154	£86,926	£224,000
Harvet A (Queens)	0	0	£0	£0
ICU (KG)	9	99	£55,881	£144,000
Heather (KG)	3	33	£18,627	£48,000
Total	26	286	£161,434	£416,000



INFECTION RATE AND COSTINGS DATA

To allow for clinicians to get familiar with the use of Curo, the first month results have been isolated and demonstrated separately. The costings below are based on the proceeding 6 months data.

Department	Total number of CRBSI for the first month	Total number of CRBSI for the proceeding 6 months	Calculated number of blocked bed days (Infections X11)	Cost to treat peripheral line infections (£6,209)	Cost to treat central line infections (£16,000)
Madarin B (Queens)	3	2	22	£12,418	£32,000
Harvet A (Queens)	0	0	0	£0	£0
ICU (KG)	0	2	22	£12,418	£32,000
Heather (KG)	0	0	0	£0	£0
Total	3	4	44	£24,836	£64,000

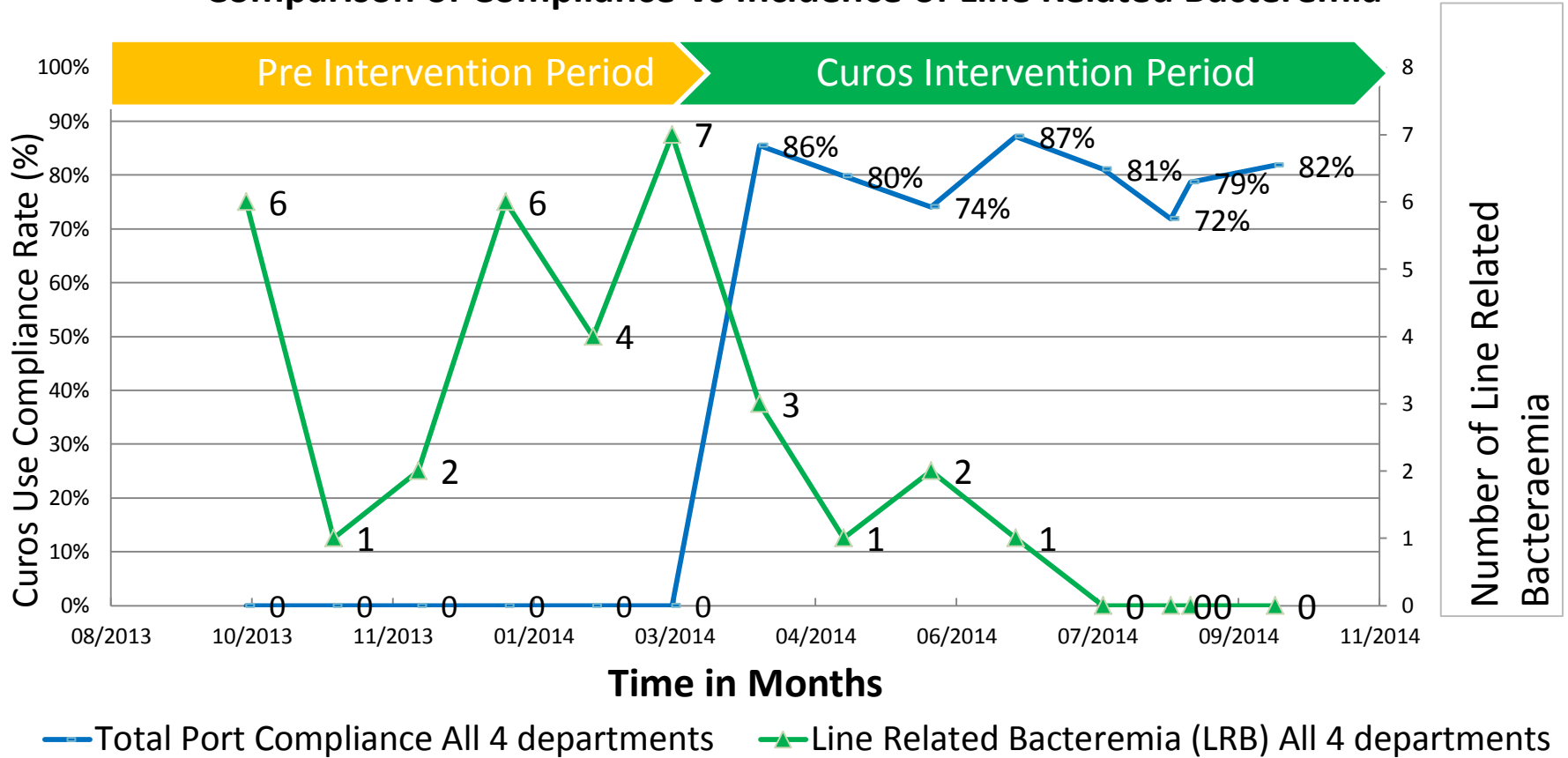
The most significant output from this clinical product evaluation was the noticeable decrease Curo had on CRBSI's, from a pre intervention rate of 26 CRBSI's down to a Curo intervention rate of 7 CRBSI's. Curo delivered a reduction in CRBSI's of 69. %



RESULTS

CRBSI'S VS COMPLIANCE

Comparison of Compliance Vs Incidence of Line Related Bacteremia

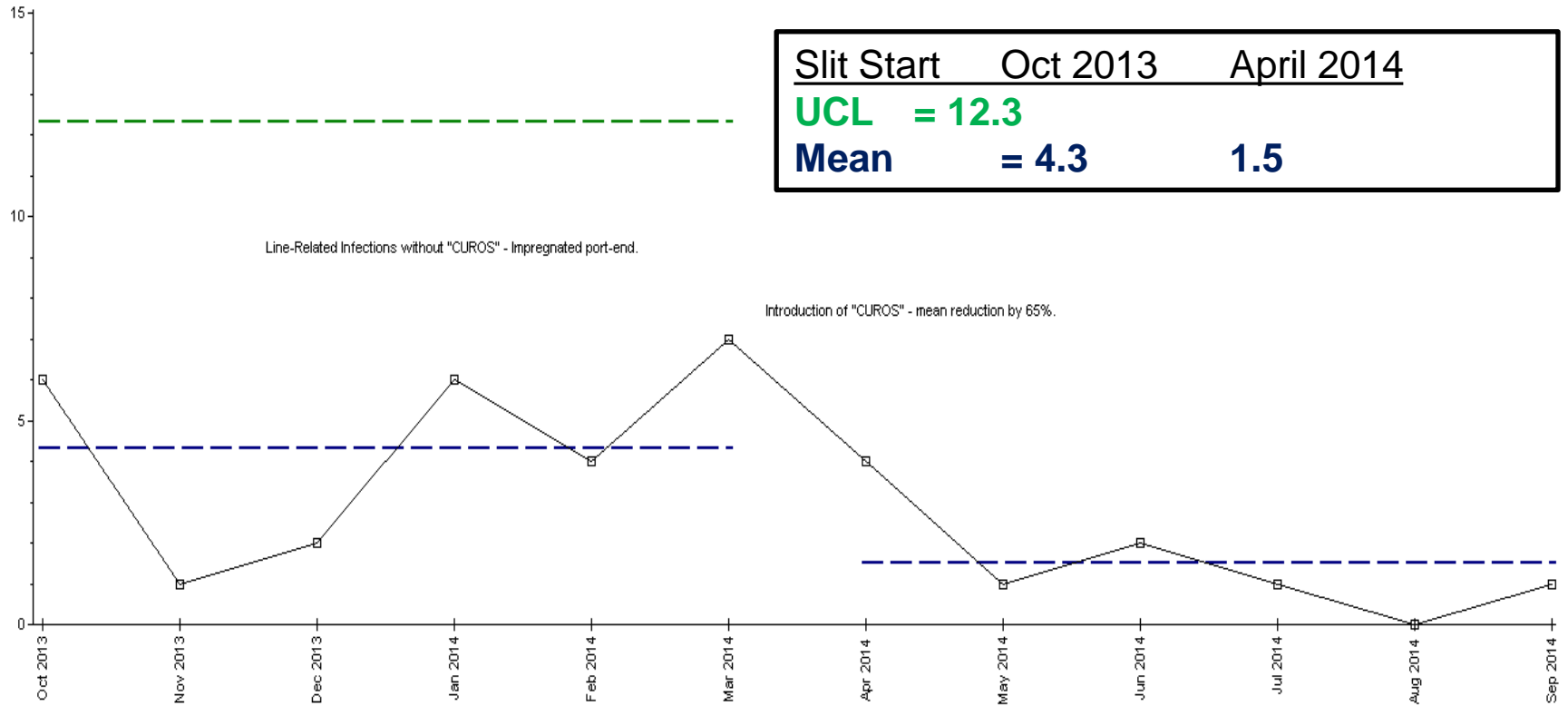


STATISTICAL ANALYSIS

VARIABLES ACCOUNTED FOR

Statistical Process Control on "CUROS"

Slit Start	Oct 2013	April 2014
UCL	= 12.3	
Mean	= 4.3	1.5

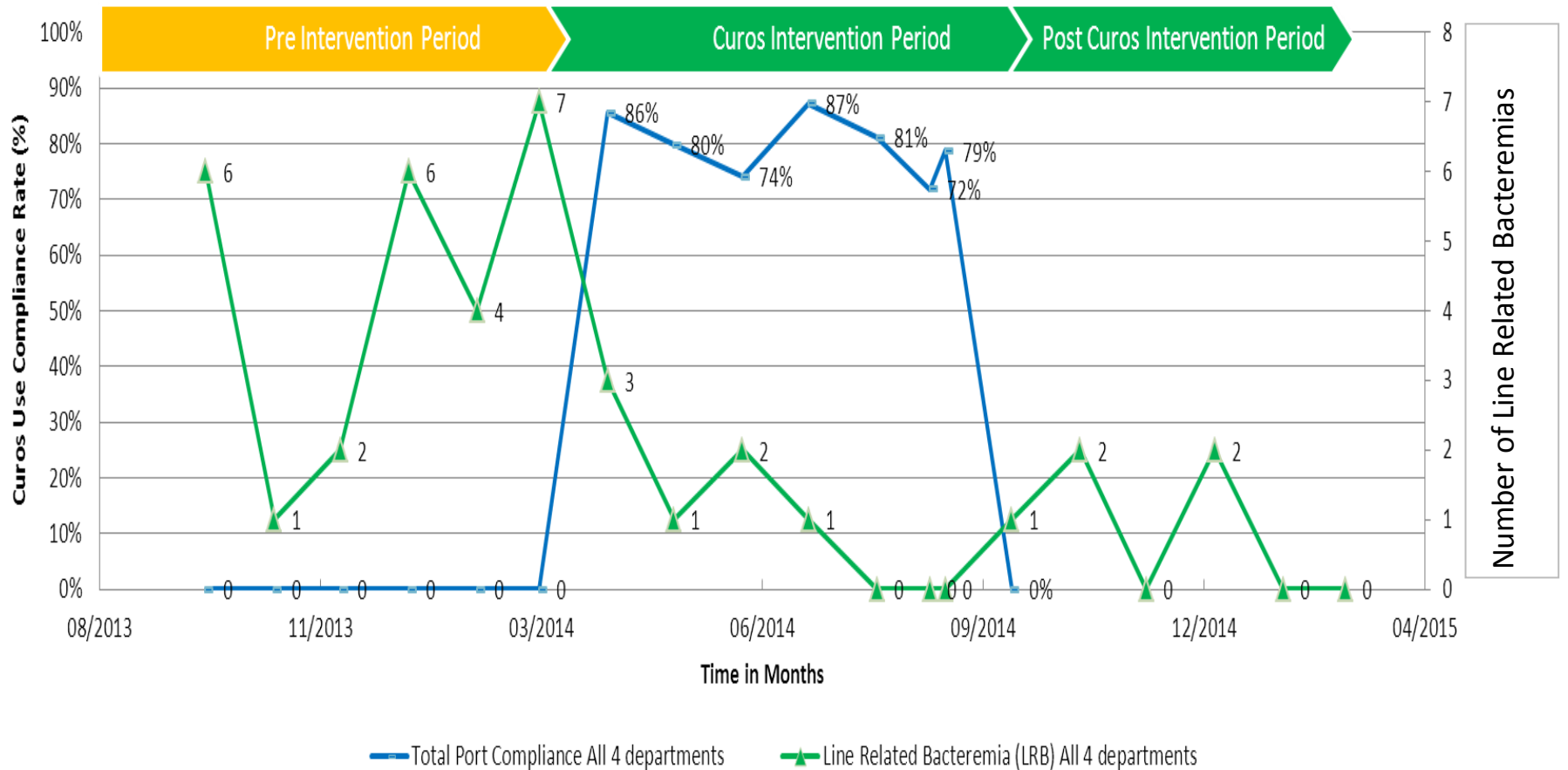


Split Start	Oct 2013	Apr 2014
U.C.L.	=12.3	
Mean	=4.3	1.5
L.C.L.	=N/A	



DATA WITH WASH OUT PHASE

Comparison of Compliance Vs Incidence of Line Related Bacteremia



CUROS TRIAL COSTS

If the trust would have paid for the CuroS product for the 6 months over the four mentioned wards, the cost to the trust verses current cleaning wipe in use would have been:

Volume of product used	Cost of Current Cleaning pad NHSSC Price (Excl. VAT)	Total Spend (Excl. VAT)	CuroS NHSSC Price (Excl. VAT)	Total Spend (Excl. VAT)
26,374	0.025	£659.35	£0.26	£6,857.24

This works out to a product cost of £3,098.95 per department per year for adopting CuroS.



TIME RELEASE

The time saved by not needing to scrub the hub and let it dry before every access is 45 seconds per Curoso used. This has equated to a time releasing opportunity during the 6 month intervention on the four wards of:

Volume of product used	Time Saving per Curoso	Total Time Released to Care	Clinical Days Released to Care (8hr Day)
26,374	45 seconds	329.7 Hours	41.2 Days

The time released by using Curoso instead of a wipe, enabled clinicians to care for patients for an average of 164.8 hours per year more, per department



RESULTS DATA SUMMARY

Taking into account the savings from not having to treat avoidable catheter related bloodstream infections and the cost of the product for disinfecting needle-free devices on the four wards for a period of 6 months, the departments saved a minimum of £130,400 (peripheral line infections) up to £345,802.11 (central line infections), whilst saving 242 blocked bed days.

Metrics	6 months pre Curois Intervention	6 months during Curois Intervention	Improvement Achieved with Curois
Infection Rates	26	7	19 Less (69%)
Compliance Rate	27%	80%	53% More
Blocked bed Days	286	44	242 Less (84.6%)
Cost to treat PIV -CRBSI's	£161,434	£24,836	£136,598 Less
Cost to treat CLA -CRBSI's	£416,000	£64,000	£352,000 Less
Cost of Product	£659.35	£6,857.24	(£6,197.89) Cost
Total Cost to treat PIV -CRBSI's	£162,093.35	£31,693.24	£130,400.11 Saving
Total Cost to treat CLA -CRBSI's	£416,659.35	£70,857.24	£345,802.11 Saving



USER FEEDBACK ON CUROS

18 nurses from across the four wards were randomly selected to complete anonymous feedback on CuroS

Question	Yes	No
Easy to use	100%	0%
More effective than scrub the hub	100%	0%
Improves patient outcomes	100%	0%
Visually auditable	100%	0%
Received training	100%	0%
Will continue to use	100%	0%



Results - Patient experience

1094 patients

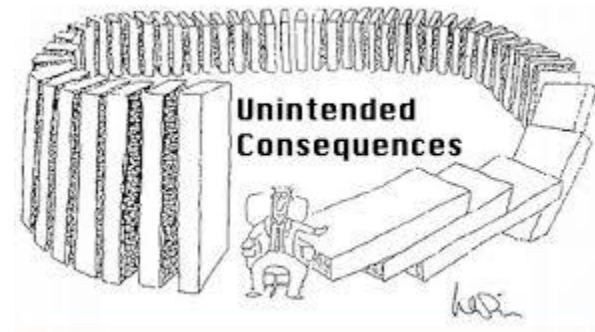
Patients liked the visibility of Curoc and knew when the device had to be changed

Made them feel safe and they felt in partnership with their care



WHAT ARE THE CONSEQUENCES OF CONTRACTING AN INFECTION?

PEOPLE WILL FORGET
WHAT YOU SAID.
PEOPLE WILL FORGET
WHAT YOU DID. BUT
PEOPLE WILL NEVER
FORGET HOW YOU MADE
THEM FEEL.



QUESTIONS?

