A system wide improvement programme to support the ambition to reduce healthcare associated Gramnegative bloodstream infections (GNBSI) in



England Linda Dempster, Gaynor Evans, Ranvir Virk, David Charlesworth, Helen Wilkinson, Gavin Eyres (all NHS Improvement)

Background to the GNBSI programme

Gram-negative bloodstream infections (GNBSI) contribute significantly to mortality in the United Kingdom. In response to the O'Neill independent review of Antimicrobial Resistance (AMR) in May 2016, the Secretary of State for Health launched an ambition to halve healthcare-associated GNBSIs and inappropriate antimicrobial prescribing. Previous successful strategies to address national infection concerns such as Clostridium difficile and Methicillin-resistant Staphylococcus aureus (MRSA) focussed primarily on the management of hospitalised patients. A significant majority of GNBSIs occur before people are admitted to hospital, thus reduction requires a whole health economy approach with 54% estimated to be non healthcare associated. The programme initial focus has been to reduce *Escherichia coli* blood stream infections followed by Pseudomonas aeruginosa and Klebsiella spp.

A national multi-modal programme was co-designed with other NHS arms-length bodies and after national consultation with over 1000 healthcare professionals. This included developing a point of on-line access for GNBSI resources to support education and training, enrolling cohorts of trust-led health systems on quality improvement collaboratives, and a development programme for new or aspiring Directors of Infection Prevention and Control (DIPC). The programme also focuses on developing systemwide improvement plans, clinical and board assurance, and work to understand how robust executive leadership supporting infection prevention and AMR would contribute to developing Sustainability and Transformation Partnerships and Integrated Care Systems.

Monthly counts of E. coli BSI by CCG for April 2015 – January 2018 (published) against Monthly trajectory of *E. coli* BSI by CCG predicted count and seasonally adjusted target count (unpublished)





What is the data telling us?



UTI (including CAUTI) Collaborative with NHS England.

Directors of Infection, Prevention and Control Executive Development Programme.

Evaluation of GNBSI programme.

Focused clinically led work streams on the highest known risk patients/interventions.

Focused work stream linking with GIRFT and hepatobiliary sepsis.

CQC regulation and the well led domain.

Quality Improvement v's Performance Management of NHS Providers and CCGs.

Seek further advice from Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection (APRHAI).

Pilot review of DIPC leadership roles across health systems.

Feedback from UTI Collaborative delegates

• *'My biggest learning need was around suitable* data for collection and that has been answered. I feel now that I can measure different things (process, outcome) etc and not get too bogged

Developed economic modelling tool



Sample Hospital with 464 patients in previous year: Excess costs = £605,000 Excess deaths = 60

https://improvement.nhs.uk/documents/1653/Trust and CCG level impact of E.coli BSIs 21sep.xlsx

1. National Policy

Develop and roll out national hand hygiene and PPE policies. National group established.

Clinical Fellow Workstream

Guidance / evidence 2.

Collate evidence, guidance and best practice. National survey underway.

Catheter passport 3.

Develop and roll out national pathway and passport. National group established.

Quality Improvement and Clinical Support work

UTI collaborative

- Top 30 acute trusts with highest rates were invited to cohort 1
- Top 18 acute trusts with high rate / highest numbers and deteriorating position were invited to cohort 2, teams to include CCG representation.
- Top 30 CCGs by rate / number invited to cohort 2

Cancer centre workstream

Definition of healthcare associated GNBSI



- down about this but just to get on and make some changes'.
- 'Using the driver diagram to look at the key staff groups to engage'
- Using the driver diagram helped us to populate our journey/vision - becomes tangible'.
- 'QI methodology sessions have been used for collaborative project to deliver work streams'.
- I have thought about it with regards to our intervention to reduce antibiotics use'.
- We're using the PDSA cycle for testing on our new IPC one bundle – including catheters'.
- 'I have started to use this to engage with microbiologists'

- Focus on 6 trusts initially.
- Supported by Darzi Fellow and NHSI GNBSI Quality Improvement Advisors.

Bespoke support offers

- 6 acute trusts with high hospital-onset numbers have been offered improvement support.
- Bespoke support is being offered to deliver GNBSI improvement plans across health and social care in another 15 – 20 CCGs, ICOs and STPs
- DIPC pilot working with three local health economies;
- Cornwall, Cumbria and North East, Kent and Medway
- Care homes UK AMR Diagnostics Collaborative programme focusing on discouraging diagnostic tests that yield misleading results.

DIPC executive leadership development



Two cohorts of 25 senior leaders developing executive skills to become the next generation of Directors of Infection Prevention and Control.

	Area	Name	Estimated number of <i>E. coli</i> , <i>P. aeruginosa</i> and <i>Klebsiella</i> spp. BSIs (2016/17)	% of total
	A+B+C	All infections	53,920	100%
	А	Hospital onset	15,687	29%
	B+C	Community onset	38,233	71%
	В	Community onset, healthcare-associated*	16,351	30%
	С	Community onset, non-healthcare-associated*	21,882	41%
	A+B	Healthcare-associated	32,038	59%

Community onset, healthcare associated cases only include *E. coli* as we do not have the data for Klebsiella spp. or P. aeruginosa to calculate the community onset proportion (which is likely to be healthcare associated at this time)