

I Spy E. coli – The Leeds Way of Reducing Gram Negative Bloodstream Infection

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Looking back...

- May 2017 NHS Improvement and PHE: “Preventing healthcare associated Gram-negative bloodstream infections: an improvement resource”.
- Outlined a new ambition from Secretary of State for Health:
 - Reduce healthcare associated gram negative blood stream infections by 50% by 2021 (broken down into 10% reductions each year).
 - Starting focus is E. coli
- New 5 year strategy changed ambitions to 50% by 2024

What is E. coli?

- Gram negative bacteria
 - Does not retain crystal violet due to thinner peptidoglycan layer when stained.
- Lives in the gut of everyone, causes no problems when in there – helps with gut function.
 - Not spread by healthcare

GRAM-POSITIVE

GRAM-NEGATIVE



Fixation



Crystal Violet



Iodine Treatment



Decolorisation



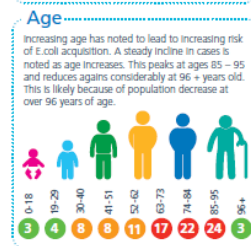
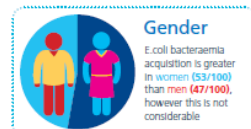
Counter stain with
Safranin

100 cases

- Proactive
- Feb - March
- Focus group 100 patients 2017 – 18 year
- Collated results to find patterns and trends throughout Leeds.
- Trends similar to those found by PHE across England.

Leeds E.coli BSI incidence 2017/18 (100 case cohort sample)

100 Leeds E. coli bacteraemia cases have undergone root cause analysis (RCA) to identify patterns and trends with the Leeds Community setting in relation to E.coli bacteraemia acquisition. The following patterns/trends have been identified. Please note 18/100 cases were noted to have GPs which do not use the SystmOne health data system and therefore information on these cases is limited.



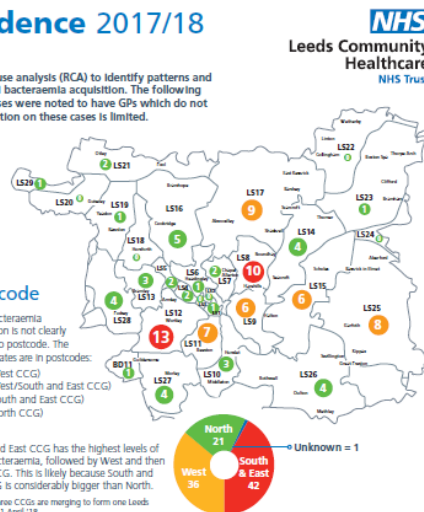
Postcode

E.coli bacteraemia acquisition is not clearly related to postcode. The highest rates are in postcodes:

- LS12 (West CCG)
- LS8 (West/South and East CCG)
- LS25 (South and East CCG)
- LS17 (North CCG)

South and East CCG has the highest levels of E.coli bacteraemia, followed by West and then North CCG. This is likely because South and East CCG is considerably bigger than North.

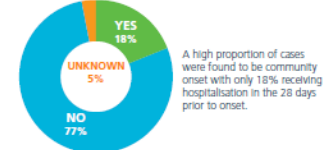
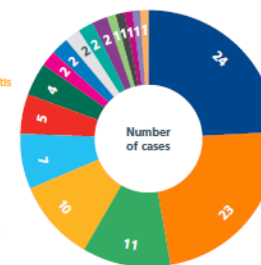
N.B. The three CCGs are merging to form one Leeds CCG as of 1 April '18



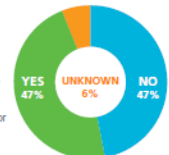
Source

24 Urinary
23 Unknown
11 Pyleonephritis
10 Biliary / Cholecystitis
7 Urinary catheter
5 Respiratory
4 Prostate biopsy
2 Gall stones
2 Line
2 Wound site
2 Urine or chest
2 Bile duct stones
1 Appendix
1 Kidney stones
1 Diabetic foot ulcer
1 ERCP
1 Cancer

Most common source of infection is noted to be urinary. Urinary causation has been found to be the most likely cause across the UK, not just Leeds.

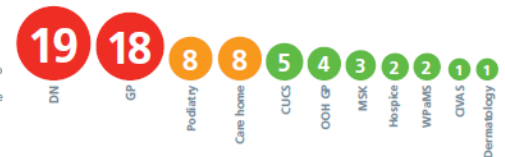


A high proportion of cases were found to be community onset with only 18% receiving hospitalisation in the 28 days prior to onset.



Community services

The different community services contacted within the 28 days prior to onset can be seen here. High numbers of patients can be seen to have accessed GP or DN care prior to onset. The number of cases who are residents of care homes is noted to be surprisingly low (B47 cases, 17%).

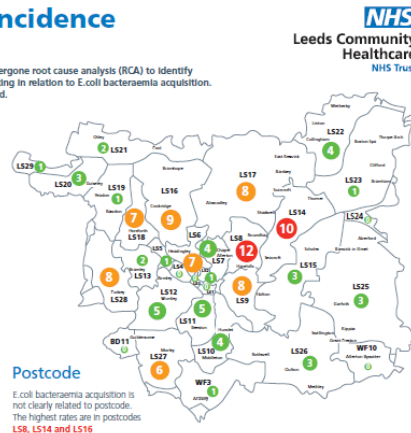
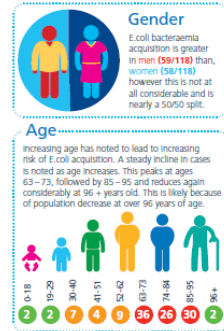


Good idea

Leeds E.coli BSI incidence

Q1 April-June 2018

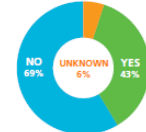
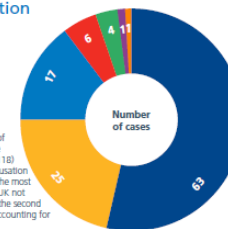
In Q1 118 Leeds E. coli bacteraemia cases have undergone root cause analysis (RCA) to identify patterns and trends with the Leeds Community setting in relation to E.coli bacteraemia acquisition. The following patterns / trends have been identified.



Likely causation

63 Urinary
25 Biliary
17 Unknown
6 Chest
4 Abdominal
1 Line
1 SSTI

Most common source of infection is noted to be urinary with 53% (63/118) of Q1 cases. Urinary causation has been found to be the most likely cause across the UK not just Leeds. Biliary was the second most common cause accounting for 21% (25/118 cases).

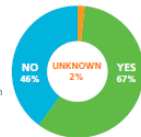


Hospital admission within 28 days

A high proportion of cases were found to be community onset with only 18% receiving hospitalisation in the 28 days prior to onset.

Community care within 28 days

57% of cases had contact with community services in the 28 days prior to onset.



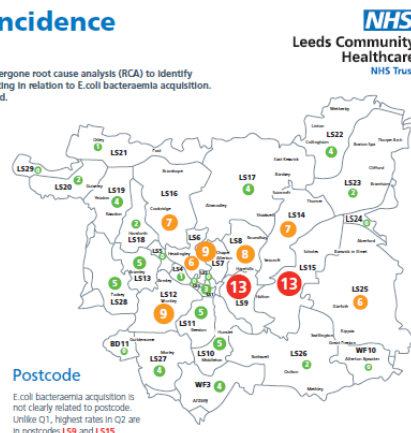
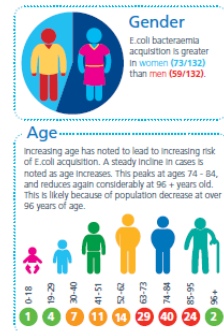
Louise Pople, Infection Prevention and Control Nurse - Project Lead for E. coli Reduction

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Leeds E.coli BSI incidence

Q2 July-August 2018

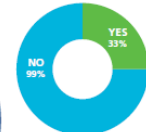
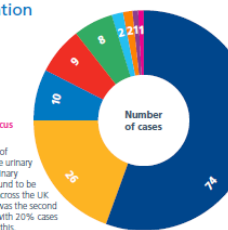
In Q2 132 Leeds E. coli bacteraemia cases have undergone root cause analysis (RCA) to identify patterns and trends with the Leeds Community setting in relation to E.coli bacteraemia acquisition. The following patterns / trends have been identified.



Likely causation

74 Urinary
26 Biliary
10 Unknown
9 Respiratory
8 Intra-abdominal
2 Genital
2 SSTI
1 Line
1 No underlying focus

Most common source of infection is noted to be urinary (56% of Q2 cases). Urinary causation has been found to be the most likely cause across the UK not just Leeds. Biliary was the second most common cause with 20% cases being likely caused by this.

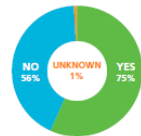


Hospital admission within 28 days

A high proportion of cases were found to be community onset with only 25% receiving hospitalisation in the 28 days prior to onset. This is a 7% increase compared to Q1.

Community care within 28 days

57% of cases had contact with community services in the 28 days prior to onset.



Community services

23% of patients with community care contact within 28 days of infection onset saw a member of the Neighbourhood team. 26% of patients saw a GP.



Louise Pople, Infection Prevention and Control Nurse - Project Lead for E. coli Reduction

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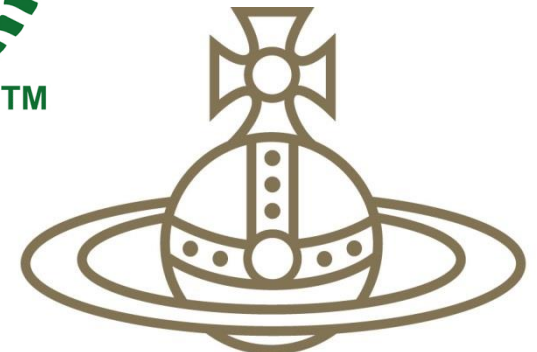
What did we do?







RAISE
AWARENESS

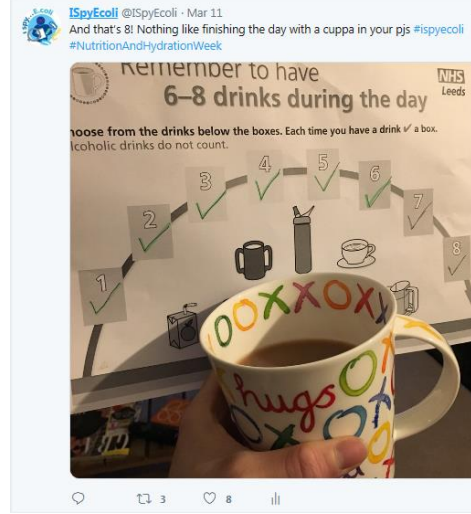




The Spy-er!



Twitter

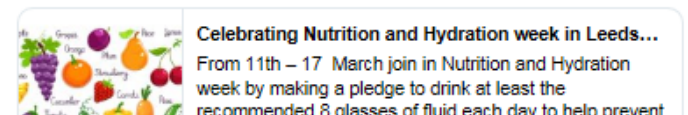
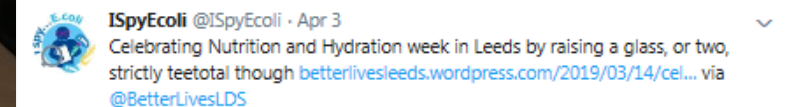


Gram negative E.coli Conference 2019

This is a one day conference collaboratively held by Leeds Community Healthcare NHS Trust, Leeds Teaching Hospitals NHS Trust, NHS Leeds ... eventbrite.co.uk

1 4 2

Show this thread



A



I spy... E.coli



E. coli can be found in your gut. It lives there without causing any problems as part of your normal bowel bugs.

E. coli becomes problematic when it is found in areas where it shouldn't be e.g. wounds, catheter sites etc.

Anyone can get an infection caused by E. coli but you are more at risk if you are:

- Diabetic
- An older person
- Have a urinary catheter
- Have an intravenous device (PICC or Hickman Line - you'll know what these are if you have one)
- Dehydrated
- Have gall bladder or kidney stones
- Have prostate problems



Not all infections are preventable, but to help reduce the risk of getting an E. coli infection you should:

- Drink plenty of fluids to keep hydrated
- ALWAYS wash your hands with soap and water:
 - after using the toilet
 - before eating or preparing food
 - before touching your catheter site or changing the bag
- Women should wipe front to back after using the toilet



If you think you have an infection it is important to see your doctor or community matron. They may take a sample from the infection site (urine sample if you have a UTI or a wound swab if you have a cut or scratch) and prescribe you a course of antibiotics.

Please remember to complete the full course of antibiotics. If you don't complete the course your infection may not be cleared and the infection will come back and could be resistant to the antibiotics you were prescribed.

Leaflet available for more info

B

E.coli



What is E.coli?

Escherichia Coli (E. coli) is a gram negative rod shaped bacteria found in the gut of most people and animals. E. coli does not usually cause any problems whilst it is living in the gut, but if the bacteria contaminates areas of vulnerability (wounds, catheter sites etc.), infection can occur.

Why does it matter?

Gram negative bacteria account for one third of all blood stream infections (BSIs) and of this third, 65% are E. coli. In the 2015/16 financial year E. coli was responsible for 5,500 NHS patient deaths and by 2018, E. coli BSI will cost the NHS around £2.3 billion. 668 cases of E. coli bacteraemia were identified in Leeds (2016/17). 68% were community onset.

What is the goal?

Goals for this quality premium are set by the health secretary:

To reduce E. coli bacteraemia rates by 10% each financial year – leading up to a 50% reduction by 2020. This equates to a reduction of 61 cases in Leeds for 2018/19.

How can E.coli bacteraemia be prevented?

As a healthcare professional, breaking the chain of infection is one of the most effective ways of preventing any bacteraemia. This includes:

- Good hand hygiene technique
- Complying with the 5 moments of hand hygiene
- Appropriate PPE usage
- Reviewing the need for invasive devices such as urinary catheters
- Timely diagnosis of infections and appropriate prescribing
- Prescribing based on sensitivities

Patients should also be encouraged to conduct effective hand hygiene:

- After toileting
- Before preparing and eating food
- Before handling invasive devices such as IV lines and urinary catheters

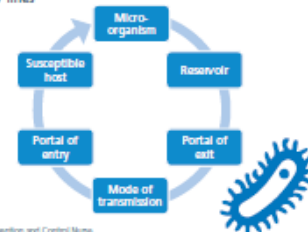
How do your patients get E.coli infections?

Because E. coli colonises the gut as part of the natural flora, it is easy for patients to infect themselves with E. coli, especially if they have open channels such as urinary and peripheral catheters, wounds, are immunosuppressed etc. and their hand hygiene is not adequate.

UTIs are the most common method of acquiring an E. coli bacteraemia, therefore, good hydration, catheter management (for those with catheters) and appropriate antibiotic therapy is paramount.

What are the risk factors?

- Urinary catheterisation
- Dehydration
- Older age
- Prostate problems (enlargement, TURP etc.)
- Gall bladder or kidney stones
- Long term conditions (COPD, bronchitis, diabetes)
- Open wounds or ulcers
- Recent hospital admission or surgical procedures
- IV lines



Further Information can be found at:

www.improvement.nhs.uk/resources/preventing-gram-negative-bloodstream-infections/
www.phe.gov.uk

E. coli



Information for patients

Urinary Tract Infections



Information for patients

Awareness Day August 2018



Hydration Awareness Day December 2018



Some other fun stuff



<https://www.chapelfm.co.uk/elfm-player/archive/> Programme #16 Business Network



<https://www.facebook.com/LSLocalTV/videos/540354829812817/>



Away from I Spy E. coli branding



Serious stuff

- RCA of all E. coli bacteraemia within community care.
- Gram Negative Collaborative Working Group
- Share with other trusts outside Leeds



Luncheon Clubs

- PDSA Cycle.
- Attended 15 lunch clubs/ coffee mornings.
- Collected data on:
 - Whether people think they drink enough,
 - Whether (following discussion) they actually do drink enough,
 - Any reasons for not drinking,
 - Can we do anything in particular to encourage you to drink more?
- Plan to re-visit in 3 months time to assess for changes in habits.



UTI Collaborative

- Cohort One: first of a series of breakthrough improvement collaborative.
- Joint venture between LTHT and LCH, CCG and two pilot care homes.
- To reduce HCAI CAUTI within the care home setting by promoting hydration through training packages tailored to the care home setting.
- Hydration awareness days.
- Data gathering around UTI's, antibiotics, laxatives, pain relief.



UTI collaborative

- Sometimes difficult to make changes to a team/ care environment you don't work in – like herding cats!
- Six months is not long enough to make a change, especially in community.
 - Outbreaks
 - Flu season
 - Lack of buy in due to no constant overseeing person
- Easier to make improvement in own team/ organisation than integrating into another area.
- More support and better connections to gather better baseline data.
 - Gather base line data for longer period of time/ earlier in the project
- Care homes need more motivation to continue.
 - Create a care home led project, provide them tools to take the lead

Did we achieve our target
10% reduction?
Not quite

What's next?

- Funded for another year
- Continue to run public health campaigns
- Focus on PDSA cycles which can be an issue in community
- Focus on AMR and health care interventions
- Continue UTI collaborative
- HUB's hydration project.
- Presenting at IPS conference 2019 "I Spy E. coli – the Leeds approach"
- Better links with GP practices and prescribing behaviours



A large graphic with the words "Thank you" in a red, cursive font. The text is surrounded by a border of teal-colored icons, including leaves and arrows pointing towards the center.

Thank
you

References

- <https://climate-adapt.eea.europa.eu/metadata/adaptation-options/awareness-campaigns-for-behavioural-change>
- <https://smallbusiness.chron.com/objectives-awareness-advertising-31418.html>
- https://improvement.nhs.uk/documents/984/Gram-negative_IPCresource_pack.pdf