0:0:11.836 --> 0:0:12.636
Hanna Squire
Welcome everybody.

0:1:19.844 --> 0:1:26.564
Hanna Squire
Great to see everyone joining. We'll just give it sort of 30 more seconds to let a couple more people join and then we'll begin. Thanks.

0:1:47.484 --> 0:2:9.244
Hanna Squire
Right, welcome everyone. Good morning, I'm Hanna Squire. I'm A principal scientist and I lead the mandatory section here at the UKHSA and I'll be chairing today. I'm really pleased to welcome you all to today's webinar, which is on the Mandatory Surveillance of Bacteraemia and CDI Annual Epidemiology Commentary, or what we call the AEC.

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Hanna Squire
A special thank you for all joining. We've had a really good interest in this session today. It's fantastic to see there's so much huge interest in this topic. And I'm hoping it will be a really valuable session for you.

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Hanna Squire
So I've just got a few slides to go through before we start the talks. Firstly, I want to introduce you to the Mandatory Surveillance Team. So, we're responsible for producing the annual EP commentary on Gramme negative MRSA and MRSA Bacteraemia and C. difficile Infections. Ahmed on the side is away today, but

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Hanna Squire
Everyone else on this slide is here today and either speaking or helping with the Q&A. So a huge thanks to the team to putting the report together and doing such a great job.

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Hanna Squire
So in just looking at the agenda now, in the first half we have 3 mandatory team members presenting the key findings of this year's AEC, so Lucy, Jake and Tim. And in the second-half, we have our guest speakers who will take the floor. We have Finn

Brown from Mersey in West Lancashire, John Otter from Guy's in St Thomas, and they're both speaking on their perspectives of

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Hanna Squire
reducing and preventing MRSA bloodstream infections. And finally, ending with our final speaker, Stephanie Evans, a modeller at UKHSA, and she's speaking on recent work on modelling bloodstream infections. So I think our guest speakers are all have really useful perspectives for our work to help control these infections.

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Hanna Squire
Just to say, we have a Q&A chat function available, so please feel free to raise any questions you have in there, and we'll look at answering the questions directly in the chat as we go through. But we'll also have 5 minutes at the end of each session to bring in the relevant speakers to answer some of the questions verbally as well.

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Hanna Squire
So we'll endeavour to answer all the questions raised on the key AEC highlights, which is the first half of this webinar. However, if we don't get to your question, then please do feel free to e-mail our team at mandatory.surveillance at UKHSA.gov.uk and we'll get back to you as soon as we can.

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Hanna Squire
Just to say, we're recording the Webinar and we can share slides at the end as well.

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Hanna Squire
I just have two more slides to quickly go through to set the scene of the work that our team does. So firstly, a quick overview of the timeline of mandatory surveillance of Bacteraemia and Cdi. You probably noticed in the report that the time periods differ across pathogens for some of the data that we report in the AEC, and this comes down to when they were each mandated. So mandatory surveillance has been running for

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Hanna Squire
over 20 years now, starting with MRSA in 2021, which was introduced in response, sorry, in 2001, which was introduced in response to rising rates, followed by Cdi in

2004. And since 2011, the Gramme negative organisms, E. coli, Klebsiella, and Pseudomonas have also been added.

0:5:17.444 --> 0:5:19.284
Hanna Squire
So quite different time scales.

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Hanna Squire
Finally, for me, just to highlight the wider work that the Mandatory team does, whilst the AEC is our largest output, it's by no means the only thing that we produce. So our main kind of bread and butter are a suite of routine reports that you can see on the slide. So we publish 3 accredited

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Hanna Squire
statistics reports, monthly, quarterly and the AEC, as well as publishing monthly data on Fingertips and the public UKHSA Dashboard. And we produce an annual epi, an annual independent sector report as well.

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Hanna Squire
In addition, we have research projects on the go, which enable us to further explore the rich data that we hold, that we get through the data capture system, including studying the drivers of Bacteraemia and Cdi to identify modifiable risk factors, as well as conducting deep dives into things like

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Hanna Squire
rising rates and health inequalities.

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Hanna Squire
And, in addition to our individual projects, we regularly get involved in research collaborations with academic partners as well, and other public health groups, or UKHSA, and Teams.

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Hanna Squire
We also report progress data against the government's HCAIDCS target and the National Action Plan. We conduct surveillance trainings, so this includes running data

capture system training webinars and in-person seminars as well. And finally, we work

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Hanna Squire
really closely with NHS and Dhsc colleagues to ensure that our data informs policy and interventions for controlling these really severe infections.

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Hanna Squire
So that's all from me. I'm now going to hand over to Lucy Findlater and she's going to give you initially an overview of the AEC. So take it away, Lucy.

0:7:13.684 --> 0:7:32.564
Lucy Findlater
Great, thanks Hanna and hi everyone, thank you for joining. I'll first talk through the take home messages of this year's AEC and what the AEC is. So the AEC is our comprehensive annual report on the six data collections. So as Hanna said, that's

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Lucy Findlater
E. coli, Klebsiella, Pseudomonas, MRSA, MRSA, and C. difficile. And the report uses data that's provided from the HCII Data Capture System, which trusts and independent sector providers report into. So thanks to everyone who contributes to that data.

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Lucy Findlater
and it is recognised as an official accredited statistic on Gov. UK. And this year's annual report goes up to the end of the financial year 2025-2026, so it goes up to the end of March this year.

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Lucy Findlater
And here's what the AEC looks like when you go to the landing page, and Tim's put the link in the chat if anyone wants to have a look. So the report is now split into four separate web pages, but the structure is otherwise the same as it's always been. And this just splits it into the main points, a report for Bacteraemia,

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Lucy Findlater

a report for CDI or C diff and further information. And we also provide all of the data that we use to generate the report in the accompanying tables. And we provide the organisational tables which show the counts and rates of each infection by acute trust and by Sub Icb.

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Lucy Findlater
if you're interested in this rates at your organisation.

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Lucy Findlater
And we use the organisational structures that were present for the last financial year, as well as any changes that have been made since April when there was a reorganisation. So you can see rates using both organisational structures if you're interested. And we also provide infographics which show

0:9:13.44 --> 0:9:26.404
Lucy Findlater
the key findings for each organism. And importantly, we have a feedback survey as well on the webpage, which we would love for you to fill in to let us know what you do and don't like about the report so we can improve it for next year.

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Lucy Findlater
And this slide is just to give an overview of what we cover within the report. So we describe the overall rates of each infection by onset status. I've just put a reminder there of what that means. So hospital onset cases are those for which a specimen was taken at least three days after hospital admission.

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Lucy Findlater
and community onset is all other cases and we'll use those terms throughout the presentation. We describe cases by demographics such as age, sex, ethnicity. We look at mortality and we also provide context of the testing rates overall for blood cultures and stool specimens.

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Lucy Findlater
and sample positivity. And for C diff, we describe the most common circulating ribotypes as well from the Cdi ribotyping network. So lots of information in the report.

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Lucy Findlater
And now I'll cover the take home messages from this year's report. So what we found this year, the highlights. So we saw increases in all of the five bloodstream infections that we monitor. So for the Gramme negative infections, so E. coli, Klebsiella, Pseudomonas,

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Lucy Findlater
and MRSA, we saw these increases were driven by rising community onset rates. For MRSA Bacteraemia, we saw increases in community and hospital onset rates. But the good news is that we saw a decrease in CDI of 10% compared to the last financial year.

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Lucy Findlater
And this was after four years of sustained increases. So finally, a small decline. And we also saw decreasing case fatality rates across all of our organisms that we monitor. And the other speakers will go into more detail on these trends shortly.

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Lucy Findlater
So, I'll start by talking through the highlights for the Gramme negative organisms.

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Lucy Findlater
And starting with E. coli, so of all of the organisms that we monitor in mandatory surveillance, E. coli Bacteraemia has the highest incidence. And we've seen increases in rates of E. coli Bacteraemia since 2020. And this year marked a 3% increase compared to last year in the overall rate.

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Lucy Findlater
And this was driven by community onset cases with a 4% increase compared to last year, while the hospital onset rate remained stable. And overall, 82% of E. coli Bacteraemia cases were community onset.

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Lucy Findlater
We describe all of the infections by ethnicity and also by deprivation using age-sex standardised incidence rates to more accurately account for the age and sex

distribution of the population. So by ethnicity, we found that the Asian and black ethnic groups

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Lucy Findlater
had the highest rates of E. coli bloodstream infections most recently and over time. And we see this same pattern for Klebsiella and Pseudomonas as well.

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Lucy Findlater
Moving on to the deprivation, there were higher rates of E. coli, Bacteraemia in the most deprived areas, with the 20% most deprived areas having the highest incidence and the least deprived areas having the lowest incidence. And this trend is observed for all of the organisms that we monitor in mandatory surveillance.

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Lucy Findlater
where the most deprived groups have the highest incidence rates.

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Lucy Findlater
We look at age, sex, standardised incidence rates by region as well across England. So I've just shown E. coli here. And we observe regional variation in the rates of each infection. So for E. coli, the highest rates are observed in London, in northern regions and in the Midlands.

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Lucy Findlater
and lowest rates were observed in the southwest. And we see quite similar trends for Klebsiella and Pseudomonas. So Klebsiella also has high rates in London and the north and lowest in the southwest. And Pseudomonas is also highest in London and lowest in the southwest. So some not exactly the same, but some similarities there in the regional distribution of the Gramme negative.

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Lucy Findlater
Bacteraemia.

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Lucy Findlater
And we describe the source of infection for each organism. For the Gramme negative

BSIs, so E. coli, Klebsiella and Pseudomonas, the most common source of infection remains the urinary tract. And you can find the diagrams for all of

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Lucy Findlater
these organisms in the infographics if you want to see the breakdown of the other sources of infection.

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Lucy Findlater
And moving on to mortality, we describe both the mortality rate, which is deaths within 30 days, and the case fatality rate, which is deaths as a percentage of cases for each organism. For E. coli, the mortality rate has remained fairly stable with a slight decline.

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Lucy Findlater
this year. And this was observed across the other organisms that we monitor as well. So mortality rate either remaining stable or slightly declining. But the case fatality rate decreased for all of the organisms that we monitor. So for E. coli had decreased by 14% compared to last year.

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Lucy Findlater
And we saw the same for the other organisms as well.

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Lucy Findlater
Moving on now to overall trends for Klebsiella. So for Klebsiella Bacteraemia, there have been year on year increases in the overall rate since the start of surveillance, with increases since last year, and like E. coli, it was driven by rising community onset cases, which increased by 7%.

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Lucy Findlater
compared to last year, and with 71% of cases overall being community onset.

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Lucy Findlater
And finally, for Pseudomonas aeruginosa Bacteraemia, the rate had remained fairly stable since the start of surveillance, but for the most recent year, there was a slight

increase of 6% in the overall rate. But it's worth noting that the numbers for Pseudomonas are relatively small.

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Lucy Findlater
The changes in the absolute rate are relatively small compared to the other Gramme negative infections, but still interesting that we've seen a slight change in the trend. Unlike the other Gramme negatives, it was driven by community onset cases, which rose by 10%, the rate increased by 10% since last year.

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Lucy Findlater
with 64% of cases overall being community onset. So that wraps up the Gramme negative main points and I will now hand over to Jake, who'll go through Gramme positives. Thanks, Jake.

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Jake Soley
Thank you, Lucy.

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Jake Soley
Yes, so I'm going to talk about the Staphylococcus vicillin resistant and vicillin sensitive infections and recent trends observed in this year's AC. So starting with MRSA.

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Jake Soley
And much like the Gramme negative, there was an increase in the overall incidence rate this year compared to the last year, with the incidence rising by 7% compared to last year's AEC. This continues a trend of sustained annual increases that we're seeing in both community and hospital onset cases in recent years.

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Jake Soley
following a period of relatively stable case numbers in the 2010s.

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Jake Soley
From the start of this rising trend, the rate of all MRSA bloodstream infections has increased by 35 percent.

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Jake Soley
The rate of community onset cases has increased by 33% and the rate of hospital onset cases has increased by 41%. So this year we are seeing the highest overall rate since 2011-2012 financial year.

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Jake Soley
On to MRSA and the rates of MRSA Bacteraemia have risen consistently every year from the start of surveillance, unlike MRSA rates. This year was no exception with the overall rate now 23.8 cases per 100,000 population and the highest instance

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Jake Soley
Right, since the beginning of surveillance.

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Jake Soley
Unlike with MRSA, where we see increases in hospital onset cases, the recent increases in MRSA cases are largely driven by community onset cases, with hospital onset cases remaining stable over the last five years or so.

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Jake Soley
Much like the Gramme negative, we see a higher regional variation in age checked standardised rates, which is what this map is showing here. The rates of MRSA Bacteraemia are highest in parts of London and the South West, while we see low rates observed in

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Jake Soley
East Anglia, Lincolnshire, and parts of the West Midlands.

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Jake Soley
MRSA looks very different, however, there appears to be no similarities in the geographical distribution with the age-sex standardised rates of MRSA highest in northern, northeast, northwest, parts of Yorkshire and Nottinghamshire, with lowest rates observed across the Midlands and southwest.

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Jake Soley
Similarly, we see the trends by ethnicity also vary between MRSA and MRSA. So MRSA on the left plot, the age sex standardised rates are highest in the black and Asian ethnic groups. And the white ethnic group appears to be the difference, sorry, between the black and Asian ethnic groups and the white.

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Jake Soley
ethnic group appears to be increasing in recent years. Meanwhile, for MRSA, which is on the right here, rates the highest among the white and black ethnic groups.

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Jake Soley
So I'll hand over to Tim now and talk us through some trends in C. difficile infections.

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Tim Pollington
Thank you, Jake. Hi everyone, I'm Tim. I'll be showing you the highlights for Cdi.

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Tim Pollington
So first up, since the financial year 2018 for hospital onset rates and since 2020 for community onset rates, we've seen a steady increase in their incidence rates up until last year, financial year 2024. Following that for both of hospital onset

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Tim Pollington
community onset rates, we've seen falls. It's not shown here, but that fall isn't is seen across all of the age and sex groups. And also, there's no evidence that ribotype changes are associated with this instance fall.

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Tim Pollington
Also be aware of in the graph here is that the community onset rate shown here is lower in absolute terms than the hospital onset rates. However, community onset cases do dominate and make up 57% in the most recent financial year.

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Tim Pollington

as for mortality and case fatality rate, as you can see, drops in the most recent financial year, as Lucy was alluding to.

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Tim Pollington
which is encouraging. Mortality rate is at 3.5 deaths per 100,000 population and can be expected to decrease since we saw that decrease in the Cdi incidence rate. So, however, on top of that, though, for the case fatality rate, it's great to see to see it fall there as well.

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Tim Pollington
You can see declined falls in the case fatality rate ever since the case surveillance started in 2007. And now we're seeing that those who get Cdi in the most recent financial year, 11.6% of those may then go on to die from it.

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Tim Pollington
which is a hard thing of what it used to be.

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Tim Pollington
Now looking at the geography and looking at the age, sex, standardised incidence rate of Cdi at the Icb level.

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Tim Pollington
The North West continues to be the highest. There weren't any rank changes in the top three highest Icb. So namely, we still have Greater Manchester here at 42.5 cases per 100,000 population, Birmingham and Soley Hall at 40.7, and Lancashire and South Cumbria

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Tim Pollington
At 40.5.

0:22:38.804 --> 0:22:47.444
Tim Pollington
The 3 lowest rates were found in North East London, Icb, South East London and Coventry and Warwickshire Icb.

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Tim Pollington
For ethnicity, so Lucy and Jacob have shown you the previous organisms presented except MRSA, the black and Asian ethnic groups are found in the top two highest age, sex, standardised instances. However, it's contrasted here for the CTI where the white ethnic group had the highest

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Tim Pollington
Consistently throughout the years.

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Tim Pollington
And the AEC standardised rate, that means that if all the ethnic groups in England had the same age sex distribution, then the white ethnic group would have the highest disease risk.

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Tim Pollington
All ethnic groups showed falls in the latest year, except for the other ethnic group.

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Tim Pollington
On to testing rates at the national level, the testing rates for stools examined for Cdi on the left here has fallen a little from its all time high.

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Tim Pollington
On the right shows the CDI test positivity. That's defined as taking the total number of CDI cases reported via the DCS divided by the total number of stool specimens examined for CDI diagnosis, and then multiplying that by 100, so that becomes the y-axis here.

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Tim Pollington
Cdi test positivity has been relatively stable in recent years, indicating that on a national level, the testing rate is keeping up with the increase in Cdi instance.

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Tim Pollington
Note that the trends in stored specimens examined, which is the input to both of

these graphs, may be influenced by variations in delayed reporting by different trusts. So for example, in the last financial quarter of 2025, 22% of NHS QEC trusts, that's 29.

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Tim Pollington
had not reported their quarterly mandatory laboratory return data by the time that we had extracted it. So the Qmlr data, quarterly mandatory lab return data, that provides a snapshot for the testing measurement. And it's very useful for us when we're trying to validate

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Tim Pollington
the DCS surveillance outputs at, say, a time of Cdi outbreak, when we want to make sure that it's not the testing which is causing the changes in the surveillance outputs that we're seeing. So as you can see, sort of the cumuli missingness is quite important there. And we always understand that some trusts might delegate the

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Tim Pollington
the data collection and inputting to their laboratories. But still a reminder, though, that the trust is still responsible for submitting that date on a quarterly basis. And also as an FYI, the NHS standard contract published in 2026 now requires the Qmlr completion.

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Tim Pollington
on a quarterly basis by trusts. So just a reminder, the deadline is middle of this month, 15th of November, for data up until 2026, financial quarter two, and any previous quarters that you might be missing.

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Tim Pollington
In terms of CDRN, good news is that the percentage of DCS cases that were referred for ribotyping, labelled here as the CDRN samples referred, the proportion of those has increased to 46.6%, even though as you see here, the absolute number did fall. So that's great. So

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Tim Pollington
Please do continue to ensure that many Cdi cases that meet the eligibility criteria for

ribotyping have samples submitted to help us understand those ribotyping trends. And there's much more information on ribotyping and the ribotypes specifically in the annual reports.

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Tim Pollington
So, Cdi risk factors, we've added some new ones on the 17th of September, and that followed a comprehensive review of existing risk factor questions. We now have a new revised minimum set of risk factor fields that focus on

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Tim Pollington
the patient and their episode of care. We hope that these will better identify emerging trends, helping to sort of target Ipc and improving the evaluation of stewardship programmes. So currently, there is now one question which is mandatory to answer, but do note that

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Tim Pollington
There is no unknown option for that if the information for you is unavailable. And when it does come available, you can always go back in and edit it later. Some more will become mandatory in April 2017, sorry, April 2027. There's guidance documents available on the DCS own page, and of course, always reach out if you've got questions about it.

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Tim Pollington
We recommend that you start to familiarise yourself with these new questions, discuss it with your team, to see how you plan to collect them prior to April 2027 so it's not comes as a big surprise.

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Tim Pollington
So, that's Cdi. Finally, I also want to focus on looking at something new and future work which kind of goes across the six organisms.

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Tim Pollington
So our forthcoming data outputs and analysis is always targeted to provide data for action. So the ways that we're going to be doing that is through our deep dives. We

take the DCS data and we enrich it with other data sets, such as hospital episode statistics,

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Tim Pollington
And that helps us understand the factors driving infection.

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Tim Pollington
trends and ultimately help inform public health actions, interventions and policies.

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Tim Pollington
The risk factor completion percentage was quite low for specifically MRSA, MRSA, and sort of those historically have been. The completion rate of those is about 27 percent, which is much lower than the Gramme negative Bacteraemia. So just making an appeal here.

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Tim Pollington
for to for their completion, but then also like appreciate just how the time involved to submit those and also appreciating the fact that sometimes the information is always available, that it sometimes is necessary to go in again into the same record to add information as it becomes available.

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Tim Pollington
So, on that theme, and like we have done already for the Cdi, we are considering reviewing existing risk factors for other organisms too, so that they better align with the needs of current clinical practise, surveillance, and also Ipc.

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Tim Pollington
On prior trust exposure, so the current prior trust exposure definition, it's based on certain inpatient healthcare exposures that are happening in the same reporting trust that reports the case. Already,

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Tim Pollington
behind the scenes, we have been able to link it to additional data sets that enables us to start to compute a healthcare exposure metric, which is across all trusts.

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Tim Pollington
Furthermore, we'd like to extend that and look at experimenting with outpatient exposures too. So this would in essence redefine how the COHA and COCA, so that's the community onset healthcare associated and community associated cases are classified.

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Tim Pollington
that could be important for deep dive purposes and might then go into national routine surveillance possibly.

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Tim Pollington
Also, virtual ward usage, if you weren't already aware, that's been recorded on the DCS since 2024. And Ahmed and our team has done some descriptive analysis this year, looking at its use over the past two financial years for E. coli cases. This will soon be shared with NHS England and results published.

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Tim Pollington
and hoping to sort of inform how virtual ward cases are considered as part of the current prior trust exposure algorithm in the future.

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Tim Pollington
Thanks, of course, to our team and especially to the NHS acute trusts and also the independent sector providers, which through your budget and cheers, you submit monthly and quarterly data onto the DCS. So thank you again for that. It's, of course, without that data, we couldn't do any surveillance.

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Tim Pollington
Handing over to Hanna now.

0:31:33.4 --> 0:31:54.244
Hanna Squire
Hi, Tim. Thank you. Thanks to Lucy, Jake and Tim. They were wonderful presentations. Really interesting. So we'll just move into 5 minutes of Q&A. So we've got questions in the chat that I can see. So I'm going to bring in a few of our speakers to

0:31:55.124 --> 0:31:58.244
Hanna Squire
Respond firstly, I was...

0:31:59.524 --> 0:32:6.804
Hanna Squire
The first question I thought we would bring in Zahin, if you're there, Zahin, just on

0:32:8.604 --> 0:32:15.884
Hanna Squire
Avita's question, are these trends in adult data or are there any specific changes in children and neonates?

0:32:17.884 --> 0:32:18.324
Hanna Squire
PHE.

0:32:18.44 --> 0:32:39.4
Zahin Amin-Chowdhury
Hi, thanks, Kavita, for your question. So I guess I'm not sure if it was related to all of the data collections, but in terms of what we see, we tend to report within our report at the under one year, although we are going to look at in more depth the sort of more granular breakdown from unit 8.

0:32:19.444 --> 0:32:19.564
Hanna Squire
Yeah.

0:32:39.124 --> 0:32:59.644
Zahin Amin-Chowdhury
the neonatal age and then sort of the 28 to 59 and the remaining. But what we do see, and I'm just going to quickly share if I can, to show that with MRSA, we have seen a kind of a signal of increasing rates in neonatal

0:32:59.724 --> 0:33:18.404
Zahin Amin-Chowdhury
male and female cases in recent years. When you break it down by the neonatal age group for MRSA, you are seeing that half of those cases are neonatal cases. And I'm sure we'll hear more about MRSA in the talks coming up by Ben and John.

0:33:19.524 --> 0:33:38.84
Zahin Amin-Chowdhury

But for the other data collections, the under one group doesn't appear to have that kind of increasing trend. But we are interested to look at that breakdown further. So hopefully in the next couple of months, we'll have more insight into whether there's a neonatal trend increase of interest.

0:33:32.924 --> 0:33:33.124
Hanna Squire
It.

0:33:38.684 --> 0:33:43.124
Zahin Amin-Chowdhury
but MRSA certainly does appear to have an increase in recent years.

0:33:46.804 --> 0:34:4.924
Hanna Squire
Thank you, Zahin. That's great. Another question. So with urinary, this is from Amanda, with urinary tract being the highest cause of E. coli, Bacteraemia, was this higher in males or females? Do either

0:34:7.124 --> 0:34:8.324
Hanna Squire
Lucy or Zahin?

0:34:10.244 --> 0:34:11.924
Hanna Squire
Want to come in on this question?

0:34:12.884 --> 0:34:31.604
Zahin Amin-Chowdhury
I can quickly come in. So I don't have the numbers to hand, but the with the E. coli urine tracked source, we tend to see the kind of higher numbers in older male cases versus female, but then in the kind of

0:34:31.644 --> 0:34:47.684
Zahin Amin-Chowdhury
women are in the sort of 15 to 44 age group, you see that slightly higher in females. And yeah, that's sort of the trends we tend to see with UTI as a source. Yeah.

0:34:50.804 --> 0:34:51.684
Hanna Squire
Thank you.

0:34:52.964 --> 0:34:56.164
Hanna Squire
Just now looking. Oh, sorry, Lucy, do you want to jump in?

0:34:56.564 --> 0:35:10.84
Lucy Findlater
Yeah, I was just going to say if you did want more information on a urinary tract, you can find more information on source of infection in the accompanying data with the report as well. If you wanted to see it broken down a bit more. Thanks.

0:35:12.884 --> 0:35:13.924
Hanna Squire
Right, thank you.

0:35:15.524 --> 0:35:28.724
Hanna Squire
Now looking at Elizabeth Beth's question, so do deprivation and ethnicity trends hold to England trend pattern when reported by 7 NHS regions? Just to say, Elizabeth, do you want to jump in, Tim?

0:35:29.604 --> 0:35:53.524
Tim Pollington
Yeah, sure. Hi, Elizabeth. So I was just actually posting a message, so I'm just going to read it out here. I was just about to send it. So yes, so at the moment, as you see, we do ethnicity and deprivation analysis at the England level. We are planning to share with our UKHSA region team soon data stratified at, say, an HSE region level and can also be at other region levels too.

0:35:54.164 --> 0:36:14.644
Tim Pollington
both at the observed also crude level, which we didn't show here but is in the report, and age sex standardised rate level, age sex standardised rates, which was that you did see present here. One caveat to be aware of is that due to the calculation of our age sex standardised rates, in order so that they're sufficiently precise,

0:36:15.524 --> 0:36:35.364
Tim Pollington
We can't compute them if the region for a given organism, for a given financial year has 10 or fewer case counts, which you may have seen in Jake's slides where some of the ICBs were hashed because we just didn't, we couldn't compute that rate. So that's

just one caveat. When you go down to a certain level, you can't get those HCAIDCS standardised rates.

0:36:35.484 --> 0:36:49.324
Tim Pollington
I'm also going to have a quick look at our ethnicity and deprivation work that Andrea previously in our teams published to see if he did regional level. And if I can find that, I'll also add the link for that.

0:36:54.4 --> 0:37:13.524
Hanna Squire
Thank you very much, Tim. That's really helpful. We have sort of four more minutes. So Finn will be beginning her talk at 10.40. So I'll just do a few more questions. So from Kerry Roulston, does the CDRN referral rate include those samples which are seen as part of the Sentinel Surveillance Scheme?

0:37:14.4 --> 0:37:28.84
Hanna Squire
As far as I'm aware, yes, they are included currently. I think from next year, we're looking at splitting out the CDRN Sentinel Surveillance.

0:37:29.44 --> 0:37:31.524
Hanna Squire
Uh, sites from the...

0:37:32.844 --> 0:37:44.84
Hanna Squire
from the rest of the from the data and putting out a separate report with just the Sentinel sites. Just correct me if I'm wrong on that, Zahin.

0:37:48.564 --> 0:37:49.524
Hanna Squire
Just having a look.

0:37:53.444 --> 0:38:14.164
Hanna Squire
Oh yes, someone has asked how accurate the data captured is and Lucy has helpfully, just for information, has highlighted in the chat that you can find information on the accuracy outlined in the quality and methodology information report, which we publish separately. So we call that the QMI report and there's a link being put in the Q&A in case anyone is interested.

0:38:17.124 --> 0:38:36.204
Hanna Squire
Someone has asked, would it be possible to have the presentations sent to you? Yes, so we can share the presentations and I think we will look at sending round the slides to the attendance of the Webinar at the end.

0:38:36.324 --> 0:38:39.124
Hanna Squire
or after the Webinar. So yeah, thank you for your question.

0:38:44.84 --> 0:38:46.684
Hanna Squire
I can't see any more.

0:38:47.924 --> 0:38:52.884
Hanna Squire
Oh, sorry. Do you monitor all escape pathogens? This is from Tivka.

0:38:54.484 --> 0:38:54.884
Hanna Squire
Um...

0:38:56.324 --> 0:39:15.364
Hanna Squire
We don't know. We only look at, so similarly, I think they escape pathogens are maybe 6 pathogens as well. They differ slightly. There's some overlap in terms of the Gramme negative, but

0:39:16.484 --> 0:39:26.564
Hanna Squire
We, so we're looking at E. coli, Klebsiella pneumoniae, sorry, Klebsiella species, Pseudomonas aeruginosa.

0:39:28.324 --> 0:39:35.124
Hanna Squire
CDI and MRSA and MRSA. So those are the pathogens that we cover, which differ slightly from the escape pathogens.

0:39:37.844 --> 0:39:54.84
Hanna Squire
So I think those are all the questions I can see when I quickly go through, but if there are any we've missed, we can answer them directly into the Q&A. So I can hand over

to our first guest speaker now, Vint Brown, if you want to share your slides and come in.

0:39:55.844 --> 0:39:56.484
Hanna Squire
Thank you.

0:39:59.604 --> 0:40:0.484
Fionnuala Browne
Thank you, Hanna.

0:40:1.924 --> 0:40:22.404
Fionnuala Browne
Morning, everyone. I'm Fiona Brown, Assistant Director of Ipc at Mersey and West Lancs Teaching Hospitals in and around Liverpool and Merseyside. We're a trust with around 1300 inpatient beds. We do have some community services as well.

0:40:23.604 --> 0:40:41.724
Fionnuala Browne
but our acute sites with five different sites. We merged in 2023. So that was two legacy trusts. So of course that then complicates practise because there's

0:40:41.924 --> 0:40:47.204
Fionnuala Browne
variation and differences in relation to Ipc.

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Fionnuala Browne
So in terms of MRSA Bacteraemia since the merger, you can see here that we had six healthcare associated cases that year and the year after. And last year we had four cases. Year to date, we haven't had any cases, so we're coming up to nine months.

0:41:14.724 --> 0:41:33.204
Fionnuala Browne
without any healthcare associated cases. Going back to 23-24, four of those cases were related to peripheral cannula. So our trust very much focused on improvements around peripheral cannula care.

0:41:35.604 --> 0:41:42.404
Fionnuala Browne
It's probably worth noting as well that the COCA cases, so the community onset cases that we've had over that time.

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Fionnuala Browne
have actually last year was the highest number at 8 and this year we've had one.

0:41:52.4 --> 0:42:11.604
Fionnuala Browne
So lessons from the MRSA Bacteraemia, a number of the lessons that I've listed here won't come as a surprise to colleagues, particularly NIPC. You know, many of the lessons are in relation to the skin and soft tissue sources that we see.

0:42:12.404 --> 0:42:32.84
Fionnuala Browne
Peripheral cannula monitoring and VIP scoring came up frequently in the post-infection reviews. Although we've made monitoring easier for staff, we've digitised it. With that, of course, comes more of a tick box culture. So we did find that even in

0:42:32.404 --> 0:42:54.164
Fionnuala Browne
some cases where the VEP, where the patient had an infection, a cannula infection and severe phlebitis, that actually the VEP had been documented as zero. We found a number of systems issues related to these Bacteraemia as well.

0:42:54.684 --> 0:43:14.964
Fionnuala Browne
We found, particularly in our urgent and emergency care areas, that suppression therapy wasn't always readily available for busy staff. And the expectation then was that these nurses would go to the pharmacy to collect the treatment, which, given that the pace that they work at, was

0:43:15.284 --> 0:43:16.484
Fionnuala Browne
Quite impractical.

0:43:17.684 --> 0:43:31.844
Fionnuala Browne
One of the themes that comes through time and time again across really all infections, including MRSA Bacteraemia, is delay in sampling. And we do struggle to really address this.

0:43:33.364 --> 0:43:52.164
Fionnuala Browne

In the context of our MRSA Bacteraemia is that sometimes with MRSA screens, but blood culture collection, timely blood culture collection is a challenge. And I'll go on in my talk to focus more on how we've engaged with the sepsis agenda.

0:43:52.644 --> 0:43:53.364
Fionnuala Browne
as well.

0:43:55.284 --> 0:44:4.804
Fionnuala Browne
We noted that body mapping and identification of wounds and skin breaks in patients following admission to hospital wasn't always consistent.

0:44:6.724 --> 0:44:7.524
Fionnuala Browne
But probably.

0:44:9.604 --> 0:44:28.804
Fionnuala Browne
Of more kind of maybe interest to colleagues would be the kind of pre-op and intra-op or peri-op lessons that we identified. We found in one instance, for example, a patient who'd had orthopaedic surgery was known to be MRSA colonised.

0:44:29.164 --> 0:44:47.364
Fionnuala Browne
This wasn't picked up during the huddle with the theatre team pre-op. The patient wasn't given the right prophylaxis during their surgery and that was thought to have a direct impact on the patient developing an MRSA Bacteraemia.

0:44:48.564 --> 0:45:9.284
Fionnuala Browne
So we've since reviewed that checklist because within that the question is who's responsible? Even if we do identify an infection risk, is it the anaesthetist? Is it the surgeon? Who's responsible for taking action? We've also found, as I'm sure many will, that a number of

0:45:9.404 --> 0:45:29.124
Fionnuala Browne
procedures in line with GIRFT, so getting it right first time, guidance and the right procedure, right place, guidance, which now allows more procedures to be

undertaken outside of operating theatres. We in Ipc just very much need to be engaged with that and involved.

0:45:30.84 --> 0:45:51.204
Fionnuala Browne
so that we can make sure that where it does happen, that it is done safely. In two of our cases, we had procedures undertaken. In one instance, it was an interventional radiology procedure on a ward in a known MRSA colonised patient. And then another, a patient had debridement of a wound in a bay.

0:45:51.724 --> 0:46:13.284
Fionnuala Browne
because they couldn't be moved to, there was no treatment room available or theatre and they were in a bay with MRSA colonised patients. So we're focused on developing clarity around systems and processes for those type of interventions. And then of course we have the oversight of

0:46:14.324 --> 0:46:33.124
Fionnuala Browne
compliance with things like ANTT training, IPC training, cannula and catheter care. And traditionally that's sat with the IPC team. So we have focused on devolving that the governance around IPC.

0:46:33.604 --> 0:46:53.84
Fionnuala Browne
and that assurance down to that clinical level where it should set. And then feeding up through a divisional government, Ipc governance process up to the organisation, which wasn't previously in place. And I think that's one of the things that's probably had one of the biggest impacts.

0:46:53.284 --> 0:46:54.564
Fionnuala Browne
On.

0:46:55.924 --> 0:47:3.444
Fionnuala Browne
on reducing our MRSA, well, improving the process measures, practises around Ipc.

0:47:6.84 --> 0:47:24.84
Fionnuala Browne
Two years ago, following the or three years ago now, following our cannula related

MRSA Bacteraemia, as we developed at that time, it was called a cannula improvement plan. It's now it was then expanded to become a bloodstream infection improvement plan.

0:47:26.84 --> 0:47:38.644
Fionnuala Browne
And as I alluded to before, we had a number of, you know, elements that we needed to align across our new organisation, including ANTT, our audit programme.

0:47:40.484 --> 0:47:49.524
Fionnuala Browne
But what we've done more recently in the last 12 months is from an Ipc team point of view, really started to support the sepsis agenda.

0:47:50.724 --> 0:48:10.404
Fionnuala Browne
So we frequently pick up delays in blood culture collection. We think a proportion of our wider bloodstream infections are actually community onset, but there are delays in those blood cultures. So although we haven't traditionally overseen sepsis and we still don't

0:48:10.804 --> 0:48:23.124
Fionnuala Browne
We very much support those clinical and the medical director team who are responsible for that. And we make sure that we include

0:48:24.164 --> 0:48:43.44
Fionnuala Browne
particularly the measures here around blood culture collection and antimicrobials in a timely way within our reports, because these are the elements of sepsis 6 that have the lowest compliance within our organisation.

0:48:45.684 --> 0:49:4.244
Fionnuala Browne
We've also supported with the development of the blood culture policy. So again, doesn't necessarily sit with Ipc, but given the breadth of our organisation, the bringing together of not just adult, but paediatric services as well.

0:49:5.524 --> 0:49:20.164
Fionnuala Browne
We supported that policy and a task and finish group. And that really helped to bring

all the key stakeholders together. So now those relationships are well established going forward.

0:49:21.364 --> 0:49:40.324
Fionnuala Browne
MRSA Bacteraemia has been a trust quality objective since, well, since our new organisation came into being. It's, and I think this makes a big difference, is having that priority within the organisation.

0:49:40.804 --> 0:49:50.724
Fionnuala Browne
So we're on our 4th year now, I think, of this quality objective within the trust strategy.

0:49:51.684 --> 0:50:16.244
Fionnuala Browne
We have since closed our bloodstream infection improvement plan. We've incorporated all the measures within that into our business as usual processes and that includes the VIP monitoring of peripheral cannula and ANTT compliance. In terms of VIP monitoring, really trying to get above 90% has been a challenge and that's why we kept our

0:50:16.484 --> 0:50:19.444
Fionnuala Browne
improvement plan going for a couple of years.

0:50:20.804 --> 0:50:40.324
Fionnuala Browne
Over the period of last year, we, and over, you know, the months of this year, we are saying that kind of consistent, it's only by a few percent, but I think it is having an impact on, well, it is having an impact on Cannula associated.

0:50:40.724 --> 0:50:41.924
Fionnuala Browne
Infections.

0:50:44.124 --> 0:51:2.404
Fionnuala Browne
We have also in the last 12 months relaunched the One Together programme. So this is a programme aimed at reducing surgical site infection. And a few of our MRSA

Bacteraemia over the last few years have been related to patients who have gone for surgery.

0:51:3.284 --> 0:51:22.404
Fionnuala Browne
So this is a group that we facilitate as an Ipc team and again bringing all relevant stakeholders from across the organisation, some of whom will have never worked together before. So reducing variation.

0:51:23.44 --> 0:51:35.684
Fionnuala Browne
in pre-op practises. So the screening, the suppression therapy patients get preoperatively. So that's for MRSA or MRSA colonisation.

0:51:38.164 --> 0:51:53.284
Fionnuala Browne
Something that came out of this process was, in particular, was around the patient, the information we give patients. So we knew that certain patients weren't compliant with pre-op washing or pre-op suppression therapy.

0:51:54.724 --> 0:52:15.444
Fionnuala Browne
but we could say that we really needed to make that information more accessible for patients. We also looked at our joint school, so patients going for arthroplasty go to joint school and just making sure that the information we give there is consistent, that it's easy to digest and patients understand what's required of them.

0:52:15.924 --> 0:52:16.964
Fionnuala Browne
Pre operatively.

0:52:18.4 --> 0:52:38.964
Fionnuala Browne
We've also, within our One Together programme, looked at perioperative warming, so warming of the patient, warming of fluids, how we monitor patients' temperatures. Theatre etiquette came up, so how many times a door opens in a theatre that may interfere with the ventilation within the

0:52:39.84 --> 0:52:58.164
Fionnuala Browne
theatre and may then have an impact on surgical site infection. And we've maintained

MDT post-infection reviews for all arthroplasty surgical site infections. And again, that just helps to maintain the profile around these SSIs.

0:52:59.204 --> 0:53:18.84
Fionnuala Browne
We as an Ipc team are on the Trust Girth Group, so this is led by our surgical Ops teams, right procedure, right place group, which falls out of Girth as well. And it's just acknowledging the context that we now work in, the need to

0:53:19.44 --> 0:53:34.884
Fionnuala Browne
to reduce theatre waiting list, to optimise theatre utilisation. So a lot of lower risk procedures are being pushed out now of theatres. So it's just us being proactively involved to make sure that's being done safely.

0:53:37.684 --> 0:53:46.244
Fionnuala Browne
So finally, I just want to touch on what we've done around governance and assurance. And I think

0:53:47.924 --> 0:53:53.364
Fionnuala Browne
This has had an impact on reducing our MRSA Bacteraemia.

0:53:55.684 --> 0:54:14.324
Fionnuala Browne
The reducing, as I've mentioned before, I'm going to say Bacteraemia reduction and Ipc overall do remain as trust priorities. It's something that our exec team give voice to and when we need additional support with them, they do step in.

0:54:14.724 --> 0:54:18.4
Fionnuala Browne
And endorse whatever key messages are required.

0:54:19.844 --> 0:54:34.404
Fionnuala Browne
That evolution of IPC assurance, that governance within divisions, heavily supported by the IPC team in a collaborative way, working together to address learning from post-infection reviews.

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Fionnuala Browne

MRSA Bacteraemia and other IPC indicators are also part of the ward accreditation programme. So ward leaders do have a vested interest in engaging with IPC. Our MRSA Bacteraemia panels continue to be led by the CEO, which again,

0:54:56.4 --> 0:55:16.724
Fionnuala Browne
just demonstrates the priority to colleagues and clinicians in relation to MRSA Bacteraemia. And we just take, we just like to take a more kind of systems and human factors approach to improvement, moving away from that kind of traditional

0:55:17.204 --> 0:55:17.684
Fionnuala Browne
You know.

0:55:19.764 --> 0:55:30.564
Fionnuala Browne
inclination to look at the individual errors or blame and, you know, working together to address the challenges that we face.

0:55:32.484 --> 0:55:33.444
Fionnuala Browne
Thank you very much.

0:55:36.524 --> 0:55:56.364
Hanna Squire
All right, thank you. That was really interesting. We've got a few minutes for the questions and I can see there's just a couple in here. The Q&A is loading quite slowly for me, so sorry if I missed some, but we can always we can always get to them at the end or you can contact directly afterwards. But

0:55:56.644 --> 0:56:2.884
Hanna Squire
One of the questions here, so Finn, what is your approach to PVC replacement, routine or in line with vessel health?

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Fionnuala Browne
We haven't fully moved to that guidance yet. There is a reluctance based on the history at our organisation at a senior level to do so, but we are on that journey. Just to note that

0:56:8.644 --> 0:56:8.884
Hanna Squire
Yeah.

0:56:28.44 --> 0:56:47.844
Fionnuala Browne
The VADIP, the new in EVAS guidance, which moves from something called VEP to VADIP, does encourage Conneely to be removed out of VEP of 1. So the organisation are more comfortable leaving.

0:56:49.204 --> 0:56:56.964
Fionnuala Browne
Well, senior colleagues more comfortable leaving devices in for longer when we adopt that guidance, which we're working on at the moment.

0:56:59.44 --> 0:57:12.964
Hanna Squire
Great, thank you. And one other question before we move on to John's talk from Devin. FYI, there is a national there is national work ongoing for a period skin and soft tissue pathway, majoring on

0:57:14.404 --> 0:57:33.364
Hanna Squire
MRSA screening, although is actually the first area of focus. Happy to join you up if helpful, Finn. Also national work on blood culture pathway optimization happening in NHS in collaboration with BSAC, RCE Path and others. So I think a comment if you want to kind of join up.

0:57:34.404 --> 0:57:36.164
Fionnuala Browne
Yeah, yes, yes, please.

0:57:37.604 --> 0:57:44.884
Hanna Squire
Fantastic. All right, thank you. We're out of time, so I'll move to John Otter now. You can share your slides and jump in.

0:57:52.244 --> 0:57:53.604
Hanna Squire
Oh, you're just on mute, John.

0:57:55.204 --> 0:58:2.644
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
OK, thanks, Hanna. Thanks, Shona. What a great story. Congratulations to you and the team. No small undertaking.

0:58:4.244 --> 0:58:7.604
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Okay, let me share some slides.

0:58:12.644 --> 0:58:15.844
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
All right, let me try and share the right set on set.

0:58:22.484 --> 0:58:43.524
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Okay, so some of the themes that I'm going to talk about are very similar to what you've just heard, Finn, but also there are some differences in our approach. I think led really by our differences in local epidemiology. And that's a key part of the story, I think, is that to really get on top of MRSA Bacteraemia,

0:58:43.924 --> 0:59:4.484
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
there needs to be a clear understanding of the local issues that are driving risk that can then be addressed. I put a nagle plate up here because I do think that effective admission screening is a really important part of this story and certainly an important part of our story and the success that we've seen

0:59:4.564 --> 0:59:5.284
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
so far.

0:59:6.884 --> 0:59:28.164
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So just to give you a bit of context, I work at Guy's St Thomas in London, which is a group of five hospitals. So we have Royal Brompton Hospital, we have Harefield Hospital, St Thomas, Guy's and Evelina, which is a children's hospital. So it's a big group, like many others in the UK. So it's a large and complex organisation to try to affect

0:59:28.724 --> 0:59:46.244
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)

consistency of practise and trying to affect change across such a large group of clinicians approaching 30,000 people is not an easy task. So I think the, you know, the main job is trying to get communications right in order to get some meaningful change.

0:59:48.84 --> 1:0:7.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So firstly, a little bit of a step back in time. This is local data from St Thomas and Guy's Hospital with Evelina. So this was pre-merger, so a slightly smaller organisation, and you can just see the trend in the number of MRSA Bacteraemia is related to healthcare exposures.

1:0:7.604 --> 1:0:28.324
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
And a similar trend to the country, we saw a peak in the early 2000s and then a really significant decline to the mid-2010s. I remember when I was an undergraduate student reading a commentary in the Journal of Hospital Infections, which was along the lines of, to paraphrase,

1:0:29.124 --> 1:0:49.964
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
And I say Bacteraemia is collateral from modern healthcare. There's not really much we can do about it. We have to accept it as part of what we do. And it's likely to be an increasing part of our future. And that was definitely a view that was current and real at that time and held by some

1:0:50.564 --> 1:1:13.124
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
working in the field. So when the government announced this target to reduce MRSA, Bsi and halve it, there was outcry because the sense was these are complex patients and there's not the level of preventability there to achieve those levels of reductions, but it was achieved. And I think a few people had to eat a bit of humble pie and hold their hands up and say, actually, you know,

1:1:13.364 --> 1:1:17.524
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
We were wrong, but this was more preventable than we thought it was.

1:1:19.44 --> 1:1:37.924
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
As to what was underpinning that success, it's very difficult to say because there were

so many interventions that all happened at the same time. But I boil it down to three things. Awareness, I think before the mid 2000s, if you asked a general ward nurse or member of the team, what do you know about MRSA?

1:1:38.164 --> 1:1:54.84
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
there would have been some surprises, I think. Accountability at that time, chief effects were made personally accountable for their MRSA Bacteraemia numbers and vascular access device care was a bit ropey, I think it's fair to say, prior to those initiatives.

1:1:55.604 --> 1:2:6.804
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So, moving back to our recent history locally, guys in Thomas Trust, so this is actually pre-merge data. Since the pandemic, sorry, post-merge data, since the pandemic, we've...

1:2:7.644 --> 1:2:30.524
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
kind of been around the 4 to 9 number of cases per year. But then, unfortunately, in the last financial year, 2025-26, we identified 14 MRSA Bacteraemia, which was more than we've seen for a very, very long time. And this is only healthcare associated, so the HOHA and the COCA.

1:2:30.724 --> 1:2:31.244
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Together.

1:2:33.564 --> 1:2:53.844
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
When we actually did the final reconciliation, we ended up with 16 cases because two of the cases that we considered non-healthcare associated actually met the surveillance definition for healthcare associated. So our final number was 16. And I've broken this down by a clinical group. So just to illustrate, this is not an issue on a particular site.

1:2:54.404 --> 1:3:9.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
not in a particular set of services. This was an issue pretty much across the board. So we were scratching our heads really to say, well, where do we start with trying to

address this risk, which seems to be distributed all the way across this pretty vast organisation.

1:3:11.764 --> 1:3:30.324
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
And unfortunately, fortunately in some ways, the National Oversight Framework was launched around the time and we found ourselves, if you look at the MRSA Bacteraemia line, 132nd out of 134 providers in terms of our number of MRSA Bacteraemia over

1:3:30.404 --> 1:3:36.4
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
over the 12-month period. That is not where we aspire to be, so action was required.

1:3:38.404 --> 1:3:58.84
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Another comparison that was perhaps even more meaningful from my point of view is benchmarking across the shelfer group of hospitals. Guys in Thomas had approximately double the rate of MRSA Bacteraemia, healthcare associated, than any other shelfer group hospital. So we couldn't argue it's to do with the complexity of our case mix because there's nine other

1:3:58.244 --> 1:4:17.284
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
large organisations with similar complexity that were doing considerably better with MRSA Bacteraemia over the same period. So this is what we started with. We looked in detail at the cases that we felt to be healthcare associated and we saw recurring themes emerging around screening compliance and missed opportunities for screening.

1:4:17.924 --> 1:4:37.364
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
vascular access device management and suppression therapy administration. So it wasn't as if every case had the same issues or every case had issues with these three points. As you can see from the matrix, it was sort of hit and miss as to whether these cases occurred. You can also see

1:4:37.844 --> 1:4:45.444
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
diversity of sources, these Bacteraemia is that there wasn't even a particular clinical syndrome that we could go for in terms of prevention.

1:4:47.724 --> 1:5:7.604
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So, this is what we came up with: a key, a clear focus on 3 asks of our clinical teams around MRSA Bsi prevention: screening, admission screening, suppression, and improvements in vascular access. So, in terms of screening, we've developed a new tool.

1:5:7.884 --> 1:5:26.644
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
which helps to identify admission screening compliance, which is an electronic platform and can be looked at at a ward level. In terms of suppression, we launched a new policy and we've rationalised the suppression therapy, which was different across our sites and I think that's helped. We launched it around the

1:5:27.204 --> 1:5:45.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
That time campaign, we've called Every Device Journey Matters to try and focus on device care, including vascular access devices, and made a slight tweak to our policy that all MRSA colonised patients with any vascular access device would get a biopatch with a chlorhexidine impregnated.

1:5:46.84 --> 1:5:50.84
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
The disc that goes on the site, it is the insertion site.

1:5:51.204 --> 1:6:9.684
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So, in addition to those three asks of our clinical teams, we've got several underpinning actions which are designed to support those. So, much like Fiona, we've introduced enhanced case review, which is which is led very much by the CNO and CMO together. We've

1:6:10.404 --> 1:6:29.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
stood up what we're calling MRSA rounds. This is where every patient with known MRSA colonisation receives a visit by the Ipc and or vascular access team to review the patients, particularly to make sure they're isolated properly, that suppression therapy has started.

1:6:29.764 --> 1:6:48.964
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)

and not only been ordered on our electronic system, but actually been administered and found its way onto the patient's skin and their nose. We've got a few new tools in Epic, our electronic patient record to support good practise. There's a high-risk dashboard which helps identify patients with

1:6:49.364 --> 1:7:7.684
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
potentially higher risk. And we've got what are called our practise advisories, which are little pop-ups that help with the delivery of suppression and peripheral line care. We launched a new policy in Feb 26 and that rationalised the sites that were screened and reinforced the need.

1:7:8.84 --> 1:7:27.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
to not only screen the regular screening sites, nose, groyne and perineum and or perineum, but also that the non-screening sites as and when required, wounds, etc. And finally, this is as yet not yet complete across the board, but to establish a medical lead for Ipc.

1:7:27.604 --> 1:7:32.484
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
in each of our clinical groups to try and drive that medical engagement in the Ipc agenda.

1:7:34.484 --> 1:7:54.164
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So this is just a quick snapshot of our Every Device Journey Matters campaign. We're in London, so we sort of hung it on the London tube map in terms of design to try and connect with our Londoners. And as you can see, there's a particular, there's a red line for vacuum access, a yellow line for you and the catheters. See what we did there. And the circle line is

1:7:54.324 --> 1:7:56.164
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Interventions that are relevant for both.

1:7:58.44 --> 1:8:18.884
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
The MRSA rounds have been really quite illuminating and it turned up some surprises for me. I think the first thing is around MRSA awareness. It was not completely uncommon to find a patient with known MRSA colonisation. It was not really known

by the ward staff. It was a surprise to them. And that's a position that we haven't been in for a long time, I think.

1:8:19.764 --> 1:8:41.524
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Inconsistencies around screening with lack of understanding around who should be screened, which patient groups and how it should be done. Suppression therapy often not ordered or if it's ordered, not started. Or documentation in general, but particularly around devices and the biopatches, these chlorhexidine impregnated patches frequently

1:8:41.684 --> 1:8:47.884
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
absent, and as will be the case in many organisations, unnecessary peripheral lines present.

1:8:49.724 --> 1:9:8.284
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Okay, so in terms of impact, it's good news. So in this financial year, so from April 26th, we haven't had a single healthcare associated associated amyrocyte Bacteraemia over 8 months, which compared with 16 over 12 months in the previous period, feels like a pretty big win.

1:9:8.924 --> 1:9:28.444
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
As to what we attribute this to, it's very difficult to say. As you've seen, we've done a lot of individual interventions. I do think the MRSA rounds have been important to really have visibility and eyes on the patients with known colonisation and to make sure that they're being managed optimally. The new policy and the slight policy changes, and I think that

1:9:28.604 --> 1:9:34.204
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
that accountability piece that we saw in the national picture has been important for us too.

1:9:36.404 --> 1:9:49.4
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
I'm pleased to say the shelf comparisons are now reversed. So we have the lowest rate of healthcare associated MRSA BSI and the shelf group over the first half of this financial year. So that's a much better position to be in.

1:9:50.924 --> 1:9:55.564
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So that's all I have. I hope that's been useful and looking forward to your questions.

1:9:58.44 --> 1:10:17.84
Hanna Squire
Thank you, John. Yeah, that was a really interesting, really interesting talk. Thank you and well done. We have one question here from Anna Morris. John Otto, is it possible to learn more about your Every Device Journey Matter campaign, please, as we currently work on quality improvement for this?

1:10:17.724 --> 1:10:37.244
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Okay, so we decided not to go for a particular device because obviously all devices carry risk, but we are focusing predominantly on vascular access devices in neuron catheters because that's where we feel the most risk is. And we've got a couple of campaign messages, but

1:10:37.364 --> 1:10:59.724
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
But to put it simply, we want fewer inserted and to really make sure that we've got a really strong clinical rationale for insertion, no just in case lines. When the line is in, take really good care of it. So documentation, making sure that documentation is both done and recorded on the electronic patient record.

1:11:0.364 --> 1:11:12.364
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
and prompt removal. So as soon as they're no longer required, let's take them out. And I think if we can do those three things, we're going to significantly reduce our device days, which is going to reduce our risk days.

1:11:14.244 --> 1:11:29.404
Hanna Squire
Great, thank you. Okay, we have a couple more. So from Gaty Morris, that increase in Hoha and COHA cases possibly an unusual blip. Any feeling that the number of cases may have reduced this financial year regardless?

1:11:29.724 --> 1:11:48.164
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Yeah, I mean, there's an old saying, isn't there, in Ipc circles, sometimes you're riding the epic curve to glory. And perhaps it's true. Maybe there is a bit of random

variation. I'm not sure that that is fits with the numbers, though, because if you look at our picture before, it was fairly consistently

1:11:49.404 --> 1:12:6.124
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
you know, less than 10, we had we had a particularly bad year. But even looking at that less than 10 baseline, we've gone eight months without a single case. So I think looking at our more historic baseline, even if that 16 was a bit of a blip, it's good performance against our sort of five year performance.

1:12:8.124 --> 1:12:17.324
Hanna Squire
Yeah, absolutely. We have one comment, a great approach, John, and demonstrates need for local systematic approach to data and insight too. So that's just a comment.

1:12:18.204 --> 1:12:38.44
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Yeah, can I can I can I just say something to that? We've only been able to do that because we have local resource allocated to that. I'm aware that there are teams that don't have any local capability around epidemiological data management. So I think that's a really important lesson really is that there needs to be an investment across the board in having

1:12:21.164 --> 1:12:21.564
Hanna Squire
Yeah.

1:12:27.764 --> 1:12:27.884
Hanna Squire
Yeah.

1:12:38.364 --> 1:12:42.44
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
people in and around Ipc that can really bring the numbers to bear.

1:12:43.964 --> 1:12:44.924
Hanna Squire
Yeah, really good point.

1:12:46.764 --> 1:12:54.204
Hanna Squire

Okay, are all the Shelford Group going to implement your strategic approach? Have they seen your data?

1:12:56.204 --> 1:13:15.164
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
So I have an informal Shelford network, but I don't think there's a mechanism by which that would be copied and pasted across the Shelford group. You know, they're independent and fiercely so in some ways. But hopefully via this kind of forum in terms of sharing best practise, and I have been

1:13:15.244 --> 1:13:23.964
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
in contact informally with other trusts to share the kind of Uber action plan that's behind all this. I'm happy to share that with anyone who's interested.

1:13:25.804 --> 1:13:26.844
Hanna Squire
Right, thank you.

1:13:30.604 --> 1:13:37.84
Hanna Squire
I, we just have time for one more. Are there any MRSA follow up rounds when suboptimal issues are identified?

1:13:37.884 --> 1:13:47.404
OTTER, Jon (GUY'S AND ST THOMAS' NHS FOUNDATION TRUST)
Well, yeah, we keep going. So we keep visiting. That's been a big feature of the plan is that is that we continue the visits throughout the inpatient stay at a slightly lower frequency.

1:13:50.44 --> 1:14:12.924
Hanna Squire
Fantastic. Okay, wonderful. There are a couple more comments in the Q&A if you want to have a quick look, John. And also I think there might be one or two for you, Finn, if you have time to respond directly into the Q&A that I missed previously before. Sorry. But we have to move on now to our final guest speaker. So Stephanie Evans, if you want to jump in, share your slides.

1:14:13.84 --> 1:14:14.684
Hanna Squire
And keep going.

1:14:41.164 --> 1:14:48.44
Hanna Squire
I can see your slides, Steph, but I can't hear you or see you. Not sure if anyone else is having the same.

1:15:5.444 --> 1:15:7.324
Hanna Squire
Anyone else here, Steph?

1:15:10.684 --> 1:15:13.324
Lucy Findlater
No, I can't see or hear her either.

1:15:16.524 --> 1:15:19.84
Tim Pollington
Oh, she's just about to leave and come back in again.

1:15:18.364 --> 1:15:24.44
Hanna Squire
It's going to, yeah, I'll just give her a moment. She's going to leave and hopefully that will fix the issue.

1:16:18.364 --> 1:16:22.524
Hanna Squire
It seems Steph is still having issues.

1:16:24.764 --> 1:16:25.164
Hanna Squire
Um...

1:16:28.124 --> 1:16:40.364
Hanna Squire
Can you? We'll give it one more minute. She's left and come back and it hasn't fixed the issue. So we'll just see if we can fix this. Give us a moment. Thanks.

1:17:32.44 --> 1:17:32.164
Stephanie Evans
But.

1:17:33.484 --> 1:17:35.724
Stephanie Evans
Hello, can you hear me now?

1:17:36.44 --> 1:17:38.684
Lucy Findlater
It's working! Yay! Well done, Steph.

1:17:37.164 --> 1:17:50.204
Stephanie Evans
Yay. Sorry, I don't know what was going on. I left and came back and I was doing all sorts of things, but it just wouldn't. Yeah, it looked like it's working on my side, but obviously it wasn't. Right. I let me share my slides and we can.

1:17:39.724 --> 1:17:40.44
Hanna Squire
But...

1:17:47.964 --> 1:17:48.244
Hanna Squire
Okay.

1:17:51.244 --> 1:17:55.164
Stephanie Evans
We can go. I can be a little bit quicker if I need to be.

1:17:56.764 --> 1:17:57.564
Stephanie Evans
Two.

1:18:2.684 --> 1:18:20.764
Stephanie Evans
It's just loading. Okay, can everyone see the slides? Anyone see the slides? Yeah, fantastic. Right. I'm going to talk to you about something a little bit different. So we've done some modelling work looking at the observed and expected trends in bloodstream infections and tried to get at the drives of this

1:18:7.644 --> 1:18:8.364
Hanna Squire
Kids.

1:18:21.4 --> 1:18:22.44
Stephanie Evans
These changes list back.

1:18:24.124 --> 1:18:41.724
Stephanie Evans
As you've already been told, trends, BSI trends have been going up over time. There's a bit of a dip during the pandemic period, but generally both community and hospital onset infections are rising in number. The majority of BSIs are in the community, but hospital onset BSIs also contribute A considerable burden.

1:18:43.84 --> 1:19:0.924
Stephanie Evans
We aim to explore where the changes in the risk factors within the population, so an ageing population, changes in covid distributions and things like that are sufficient to explain the increase that we've seen in BSI cases. So using data from the data capture system, the mandatory surveillance data that goes into the AEC,

1:19:2.204 --> 1:19:25.4
Stephanie Evans
We put together two different methodologies. So for community onset cases, we used Cox proportional hazard models for our at-risk cohort was all patients discharged from hospital. We followed them for three years since the Bsi death or in a follow-up. And that three-year period allows us to capture 90% of BSIs that occur in people that have previously been hospitalised.

1:19:26.84 --> 1:19:44.364
Stephanie Evans
which is about 90% of the BSI. So we're looking at about 85% of the total BSI count. The outcome we're looking for is the first community onset BSI and we're comparing that to a weighted 1% random sample of hospital discharges that do not develop a BSI regardless of onset.

1:19:44.924 --> 1:20:3.564
Stephanie Evans
For the hospital onset models, we're using logistic regression. We're looking at all admissions where people stay for more than two days. So not the day of admission, not the day after, but the day after that. Our outcome is hospital onset Bsi and again, we're using a weighted random 1% sample.

1:20:3.724 --> 1:20:9.4
Stephanie Evans
of all the spells where people stay for more than two days and do not develop a Bsi.

1:20:12.764 --> 1:20:31.524
Stephanie Evans
In this modelling, we use three different types of models. So we have a baseline model where we don't put any covariates in at all. So in this model, the BSI rates are considered to be fixed and any increase in BSI numbers that we predict with this model is just due to the fact that the underlying population is changing. So we're getting more and more admissions year on year and more and more discharges for the

1:20:31.724 --> 1:20:50.844
Stephanie Evans
community onset model. We have a model that we call the demographics model where we account for changes in age, sex, ethnicity, deprivation and geography, as well as those changes in the numbers of admissions and discharges. And then we have another model that we call the full model, which is the demographics model plus looking at changes in

1:20:51.44 --> 1:20:53.724
Stephanie Evans
distribution across the population.

1:20:55.84 --> 1:21:13.884
Stephanie Evans
The models are fit on data from the start of the data collection period, which as you already heard, varies for different pathogens, up to the end of the 2019 financial year. And then we predicted counts from 2020 onwards and compared to observed BSIs in the population. And we looked at infections

1:21:14.284 --> 1:21:21.884
Stephanie Evans
across the species that are included in the annual Epidemiology commentary, so E. coli, CLEB, Pseudomonas, MRSA and MSSA.

1:21:24.764 --> 1:21:33.564
Stephanie Evans
Starting with E. coli, all the models that we fit had a reasonably good fit to the observed data. So we've got community on top, hospital on the bottom, and that's going to carry on throughout the rest of the slides.

1:21:34.484 --> 1:21:54.764
Stephanie Evans

When we added in additional covariates, demographics and the full model, it didn't significantly improve the fit over what we already had for community or hospital onset data. So adding in demographics and comorbidity distributions does change the seasonality of the data. So you can see the blue and orange lines.

1:21:55.244 --> 1:22:13.644
Stephanie Evans
fit closer to the purple one in terms of they have those peaks and troughs, but the baseline model where we just look at the numbers of patients admitted and discharged depending on the model that we're looking at, tracks reasonably well to capture the average. So we think that this suggests that while the number of infections is increasing,

1:22:13.884 --> 1:22:33.164
Stephanie Evans
the rates not really increasing year on year. So the change that we're seeing is associated with the fact that our underlying population that we have fit in this model and predicting on is growing over time and that tracks for both the community and the hospital onset models. However, when we look at

1:22:33.204 --> 1:22:53.324
Stephanie Evans
the Klebsiella infections, we see a completely different trend. So none of the models captures the trends that we see particularly well. We do have an increasing trend. So we are predicting year on year that there would be more cases of both hospital and community onset KLEB BSIs. But we're not really capturing

1:22:53.644 --> 1:23:12.364
Stephanie Evans
the extent of the growth you've seen in these infections post COVID. In particular, the hospital onset case looks really, really bad. The model just doesn't fit at all. But we're still not seeing any benefit really to adding in demographics or commodities to our models. That baseline model is

1:23:12.404 --> 1:23:32.284
Stephanie Evans
just as good or bad as the other models were. And they suggest that there's been something else that's happened that is driving these changes. So once we've hit the pandemic period, the risk factors are just not the same. There's something going on

that's not in our data, so not demographic changes, not comorbidities. We've also got

1:23:32.404 --> 1:23:40.524
Stephanie Evans
things like UTI risk and things like that, that we combine in the comorbidity model. And it's just not capturing the data at all.

1:23:42.404 --> 1:24:0.604
Stephanie Evans
And we can look at all the other species. So for Pseudomonas, it's a bit of a strange case where it looks like immediately after the pandemic, so 2020-231, we're not really capturing the data very well with the models. But as time goes on, we've suddenly started to be able to fit the model a lot better. So it looks like there was some sort of slip in infection counts that was not related to the population.

1:24:0.924 --> 1:24:19.804
Stephanie Evans
and now it seems to have very recently levelled out. Obviously, we're getting quite close to the end of the data period here, so we need to be able to run this model another one year in the future, really, to get an idea of whether these trends are going to hold and to be able to say anything too confident about whether it's the growth of the population at risk or

1:24:19.844 --> 1:24:22.604
Stephanie Evans
the changes in something else that's driving this.

1:24:24.4 --> 1:24:44.124
Stephanie Evans
MRSA, again, it's a bit of a tricky one. The community one looks like it fits reasonably well. No advantage to adding in demographics or comorbidities. But just in terms of the underlying population increasing, you do get a reasonable fit to the data for the community. For the hospital, not that there's some variation.

1:24:44.684 --> 1:25:3.844
Stephanie Evans
But it's relatively small numbers. It's quite noisy data. And, you know, if the next point along was lower in the purple line, we would say that the model fits reasonably well again. So it's really not, but we really can't be confident about the MRSA trends, but it doesn't look like the demographic.

1:25:4.44 --> 1:25:9.964
Stephanie Evans
Changes are explaining it particularly well for MRSA if I had to like make a judgement either way.

1:25:11.564 --> 1:25:33.244
Stephanie Evans
MSSA, we're sort of in a similar situation to CLEB, so we're capturing the upward trend of infection in the community on the top figure with all of the models, but we're still slightly underfitting and not quite predicting the right number of cases. But again, adding in extra terms, so demographics and commodities does not improve that fit at all. And the hospital onset.

1:25:33.324 --> 1:25:54.564
Stephanie Evans
is, again, just like the CLEB case, it's really quite bad. So we're predicting an upper trend, but something has, there's been some change that has caused the number of MRSA BSIs to jump up post-pandemic and it's not related to comorbidities, age, sex, demographics, geography, any of the things that we've included in our model.

1:25:56.204 --> 1:26:10.604
Stephanie Evans
So in summary, the increase in community onset BSIs is likely driven by the changes in the size of the population at risk, or at least partially driven by the size of the population at risk for most of the pathogens, but definitely not for Klebsiella.

1:26:12.764 --> 1:26:31.244
Stephanie Evans
For hospital and at Bsi, the picture is a lot less clear. So for some, for E. coli, we can predict the number of cases reasonably well, but for everything, all the other pathogens, we couldn't really capture the trends that we wanted to. Including additional covariates could improve the model fit, and that's what we want to do. But finding data that adequately captures these factors.

1:26:32.124 --> 1:26:51.4
Stephanie Evans
is really quite difficult, especially because a lot of things we know had a step change after COVID. If you include that in, it's just going to force the model to fit anyway because it'll artificially add and jump after COVID. So it has to be something that's measurable before and after COVID that hasn't, that can sort of be

1:26:51.84 --> 1:27:10.684
Stephanie Evans
consistently modelled and the data has to mean the same thing before and after. The other thing that the next steps for this are incorporating prescribing data and repeating this analysis for AMR just to see if the population trends hold, but we don't really expect prescribing data to be the thing that's going to join.

1:27:11.4 --> 1:27:22.924
Stephanie Evans
going to cause that jump up to the level of infection that we saw in CLEB or MRSA because the prescribing just hasn't changed dramatically enough for that to be the case. And

1:27:24.204 --> 1:27:39.244
Stephanie Evans
I do have, I can pop the odds ratios from the models on the screen if people are interested. So these are all the things that we included in the models by infection type. I don't have a split for MRSA versus MRSA here, all the stuff infections are lumped together.

1:27:40.604 --> 1:27:41.884
Stephanie Evans
See, that's all.

1:27:47.4 --> 1:27:49.644
Hanna Squire
Thank you, Steph. That was great. Really interesting.

1:27:52.124 --> 1:28:10.244
Hanna Squire
We've got time for three minutes of questions. So I can see one here from Elizabeth Beach. For the community onset Klebsiella model, can you repeat this by gender as what is different since pandemic is escalating elective wait lists in NHS with increasingly

1:28:10.524 --> 1:28:23.484
Hanna Squire
older men using catheters in the community. You can see this very clearly in FP10 prescribing data. Catheter use linked to elective weights for urology surgery in this specific population.

1:28:26.684 --> 1:28:38.844
Stephanie Evans
Yeah, thanks, Elizabeth. That's a really interesting angle to look at. So we'll definitely do that. Splitting it by any population is relatively easy to do. So we will definitely look into that. That's a really, a really nice point. Thank you.

1:28:43.804 --> 1:28:48.644
Hanna Squire
And I can see a couple more questions, but I think they are more general questions for the.

1:28:53.244 --> 1:29:3.84
Hanna Squire
There was one for Klebsiella. Are there any changes in the circulating strains? But I don't think you looked at strains, so that must be one for the general strain. Yeah.

1:29:3.244 --> 1:29:3.364
Hanna Squire
Yeah.

1:29:4.244 --> 1:29:6.444
Stephanie Evans
I know, but it's something that we might look into if we can.

1:29:4.604 --> 1:29:4.924
Hanna Squire
I think.

1:29:6.604 --> 1:29:7.884
Hanna Squire
Okay. Okay.

1:29:11.484 --> 1:29:28.524
Hanna Squire
There aren't any more questions for you at this stage, so I think we can come to a close, one minute to half past, which is great. I want to thank everybody who presented today. We're really grateful and it was fantastic to hear your perspectives.

1:29:28.764 --> 1:29:30.684
Hanna Squire
Um, your work.

1:29:33.404 --> 1:29:53.564
Hanna Squire
Thank you all to the presenters as well, sorry, to the attendance as well. Really grateful you joined us. Hope you enjoyed it. And thank you for all your interesting questions. If there's anything that we didn't get to respond to in the Q&A, please contact us at our mandatory dot Surveillance at UKHSA.

1:29:53.884 --> 1:29:56.204
Hanna Squire
Dot Gov dot UK e-mail address.

1:29:57.884 --> 1:29:59.724
Hanna Squire
Thank you very much, everybody.

1:30:1.404 --> 1:30:1.884
Hanna Squire
Bi.