Meeting Date	**24 January 2023**	**Agenda Item**	**3.1**
Report Title	Healthcare Acquired Infections Update Report		
Report Author	Andrew Letters, Interim Matron, Infection Prevention & Control		
Report Sponsor	Gareth Howells, Executive Director of Nursing & Patient Experience		
Presented by	Delyth Davies, Head of Nursing, Infection Prevention & Control		
Freedom of Information	Open		
Purpose of the Report	This paper provides the Committee with an update on the Health Board's progress against Tier 1 infections and against the Infection Improvement Plan to the end of Quarter 3.		
Key Issues	• By the end of December 2022, the Health Board was no longer in a position to achieve the annual reduction trajectories for all Tier 1 infections, with the exception of E. coli bacteraemia, having exceeded to proposed annual maximum number of cases by the end of Quarter 3. • Year-on-year reductions in the following infections: *C. difficile* (3%) and *E. coli* bacteraemia (10%) (Appendix 1). • *Staph. aureus* bacteraemia rates per 100,000 population continue be the highest in Wales. The rate of *Pseudomonas aeruginosa* bacteraemia continues to increase; however, no common themes or sources of infection have been identified to date that could explain why the increase has occurred. • Comparison of Health Board incidence of infection by 100,000 population and by 1000 admissions is shown in Appendix 2. The graphs showing incidence/1000 admissions provide an alternative view on the performance of SBUHB acute hospitals compared with other acute hospitals in Wales. • An update on the progress of the Rapid Improvement Programme in Morriston Hospital Service Group, particularly in relation to *C. difficile* and *Staph. aureus* bacteraemia. Days between cases are shown in Appendix 3. • All Service Groups provide at least monthly scrutiny updates to the Executive Nurse and Medical Directors. • The HCAI Digital Dashboard work is progressing with a 'live staging' site currently undergoing validation by the Infection Prevention & Control Team, prior to wider access being available. • The overarching Improvement Plan has been updated to the end of Quarter 3, with RAG-rating applied (Appendix 4).		
Specific Action Required	**Information**	**Discussion**	**Assurance**	**Approval**
	☐	☐	☒	☐
Recommendations	Members are asked to: • NOTE the progress against the tier 1 infections to 31/12/2022; • NOTE Service Group progress in relation the Infection Improvement Plan, including Morriston's Rapid Improvement Programme to 31/12/22;			

	• NOTE the progress against the overarching Infection Improvement Plan, with progress to the end of Quarter 3; • AGREE the proposed actions related to the overarching Infection Improvement Plan; • NOTE the development of the *Award for Improved Area of the Month* recognition programme.

Infection Prevention and Control Report

		Agenda Item	3.1
Freedom of Information Status		Open	
Performance Area	Healthcare Acquired Infections Update Report		
Author	Andrew Letters, Interim Matron, Infection Prevention & Control		
Lead Executive Director	**Gareth Howells, Executive Director of Nursing & Patient Experience**		
Reporting Period	31 December 2022	**Report prepared on**	04/03/2023

Summary of Current Position

This paper will present a summary of the overarching position in relation to the number of cases of infection within the Health Board, and by Service Group, to the end of December 2022.

Health Board and Service Group progress against the Tier 1 infection reduction goals to the end of December 2022 is shown in Appendix 1.

A summary position for the Health Board is shown in the table below, identifying the cumulative position for the financial year 2022/23, the monthly case numbers, and the average monthly goal.

Table 1: Health Board Summary Position for December 2022

Infection	Cumulative Cases to end of December 2022	Monthly total: December 2022	Average monthly reduction goal (max.)
C. difficile (CDI)	**147**	**14**	<8 (annual maximum: <95 cases)
***Staph. aureus* bacteraemia (SABSI)**	**116**	**13**	<6 (annual maximum: <71 cases)
***E. coli* bacteraemia (EcBSI)**	**204**	**22**	<21 (annual maximum: <251 cases)
***Klebsiella spp.* bacteraemia (Kl BSI)**	**77**	**8**	<6 (annual maximum: <71 cases)
Ps. aeruginosa bacteraemia (PAERBSI)	**34**	**3**	<2 (annual maximum: <21 cases)

A summary position for Service Groups is shown in the table below, identifying the number of cases in the reporting month, with cumulative totals for the financial year to date shown in brackets.

Table 2: Service Group Summary Position for December 2022 (cumulative)

	CDI	SABSI	EcBSI	KlBSI	PAERBSI
PCTSG - CAI	6 (52)	3 (48)	14 (126)	3 (37)	2 (11)
PCTSG - HAI	0 (2)	0 (0)	0 (2)	0 (0)	0 (0)
MH&LD – HAI	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)
MORR – HAI	6 (63)	8 (49)	2 (42)	3 (23)	0 (14)
NPTH - HAI	0 (2)	0 (3)	0 (2)	0 (2)	0 (1)
SH - HAI	2 (28)	2 (16)	6 (31)	2 (15)	1 (8)

Progress against Infection Prevention Improvement Plan to 31.12.22

- By the end of December 2022, the Health Board was no longer in a position to achieve the annual reduction trajectories for all Tier 1 infections, with the exception of *E. coli* bacteraemia, having exceeded to proposed annual maximum number of cases by the end of Quarter 3.
- There was a year-on-year reduction in *C. difficile* and *E. coli* bacteraemia. The incidence per 100,000 population of *Staph. aureus* bacteraemia and *Pseudomonas aeruginosa* bacteraemia remains the highest in Wales, and the second highest for both *Klebsiella spp*. bacteraemia and *C. difficile*.
- Comparison of Health Board incidence of infection by 100,000 population, and by 1000 admissions is shown in Appendix 2. The graphs showing incidence/1000 admissions provide an alternative view on Health Board performance, comparing the incidence of these infections in SBUHB's acute hospitals with other acute hospitals in Wales.
- The year-on-year comparison (April – December) for the Health Board, and by Service Group, for each of the Tier 1 infections is shown in the table below (Neath Port Talbot Hospital and Singleton Hospital are shown separately):

	CDI	SABSI	EcBSI	KlBSI	PAERBSI
SBUHB	3%↓	9%↑	10%↓	≡	89%↑
Morriston Hospital	2%↓	40%↑	11%↑	21%↓	56%↑
Singleton Hospital	20%↓	30%↓	55%↑	25%↑	+6 cases ↑
Neath Port Talbot Hospital	50%↓	+2 cases ↑	86%↓	+1 case ↑	≡
MH & LD	0 cases	0 cases	1 case	0 cases	0 cases
PCTG Gorseinon Hospital	+1 case ↑	0 cases	≡	0 cases	0 cases
PCTG Community acquired	13%↑	2%↑	18%↓	6%↑	83%↑

- Cases of Tier 1 infections are significantly higher in Morriston than in the other acute hospitals, accounting for 66%, 72%, 54%, 58% and 61% respectively of all hospital attributed *cases of C. difficile*, *Staph. aureus* bacteraemia, *E. coli* bacteraemia, *Klebsiella* bacteraemia, and *Pseudomonas* bacteraemia. This will reflect the patient mix, complexity and acuity of patients cared for in Morriston in particular.

Update on Infection Prevention Improvement Plan

Service Group Improvement Progress

Acute Care Service Groups

Morriston Hospital Rapid Improvement Programme

- The current pressures in relation to all acute respiratory infections (ARI), including influenza and COVID-19, is unprecedented. Numbers of patients with 'flu are at least as great as with COVID, and these patients are often very sick. These ARI are resulting in staff absences also, which increases the clinical pressures and workload of staff in work. This has impacted on the capacity that staff at Morriston have to undertake many of the point prevalence activities included in the Rapid Improvement Programme.
- While there was a rise in the number *Staph. aureus* cases report again in December 2022, there were no cases of *Pseudomonas aeruginosa* bacteraemia associated with Morriston Hospital. It is not possible to prove causality with the ongoing improvement activities in Morriston at this time.

- Joanne Walters, Infection Prevention & Control (IPC) Matron, continues in the three-month secondment into the Morriston Infection Improvement Lead post, which started on 22nd November 2022.
- Universal skin decolonisation using 2% chlorhexidine wash cloths has been variable on wards in Morriston. This is an area of focus for the Morriston Improvement Lead.
- Days between cases of *C. difficile* infection and *Staph. aureus* bacteraemia on the rapid improvement wards, to 31st December 2022, are shown in Appendix 3.
- The Service Group continues to hold infection scrutiny panels. The Service Group reports improved medical engagement in the scrutiny process. Fortnightly scrutiny meetings continue with the Executive Nurse and Medical Directors.
- The Service Group met with the Chief Executive Officer (CEO) in December to present a summary of the improvement work that has taken place and learning to date. Morriston Directors were asked to provide the CEO with a summary of the Service Groups aspirations, with time scales, during January 2023.

Neath Port Talbot and Singleton Hospitals (NPTH&SH) Service Group

- ARI has had a significant impact on the clinical pressures and workload for staff in both Singleton and Neath Port Talbot Hospital.
- The three cases of *C. difficile* on Singleton's Ward 3, reported to the Committee in December, were confirmed to be unrelated. Whole Genome Sequencing for these cases indicated three separate genomes; as a result, a transmission event has been excluded.
- The Service Group continues to hold infection scrutiny panels and to update monthly the Executive Nurse and Medical Directors.

Primary Care, Community & Therapies Group

- Monthly scrutiny meetings continue in Primary Care and the Service Group provides monthly updates to the Executive Nurse and Medical Directors.
- From the scrutiny of community-associated cases, it was identified that hepato-biliary disease was the probable primary source in 26% of *E. coli* bacteraemia and 42% of *Klebsiella spp*. bacteraemia. Further analysis, with Digital Intelligence, will focus on any potential correlation with any potential increase in waiting time for relevant surgery.

Update on Infection Prevention Improvement Plan

The overarching Improvement Plan has been updated to the end of Quarter 3, with RAG-rating applied. The updated plan is attached in Appendix 4. Key points of note include:

- Rapid improvement wards are participating in undertaking point prevalence of peripheral vascular devices and urinary catheters. Reported compliance with insertion and maintenance bundles has improved, particularly in relation to urinary catheters and there has been an improvement in compliance with peripheral vascular device maintenance bundles.
- ANTT training and competence assessment compliance has not shown improvement on ESR and does not appear to reflect the improvement that has occurred on the rapid improvement wards in Morriston.
- There were no suitable applicants for the second time for the Director of Infection Prevention & Control post. Consideration is being given to alternative models for a way forward.
- The 'live stage' HCAI Digital Dashboard work has been completed to the agreed timescale. Validation of the data continues, to confirm that the data is correctly mapped to hospital and primary care and community locations, and that infection onset type definitions are correctly identified by application of specified national criteria.
- A small number of inconsistencies have been identified and referred back to the Digital Intelligence team for investigation and rectification. On reflection, the work to identify the onset

type and the location of attribution has been significantly more complex than originally anticipated. Accuracy of the data is critical. Completion of validation remains on track for the end of January. Following this, the Head of Nursing IPC, with the Digital Intelligence Team, will provide appropriate training on use and interpretation.
- Capital Planning continue with plans for future dedicated decant facilities as part of the Morriston site reconfiguration.

Challenges, Risks and Mitigation

- Current pressures on Health Board services, both in the community and in hospitals, continues to be extreme, as are the pressures on providing social care packages. The demand for unscheduled acute care remains high, leading to increased demand for inpatient beds. There are increasing numbers of medically fit for discharge patients, increased length of stay, and staff shortages, all of which increase risks of delivering safe patient care.
- The age and condition of the estate is a challenge, and planned preventive maintenance is not possible without the provision of dedicated decant facilities.
- The Infection Prevention & Control Nursing (IPCN) Team has held a Band 7 post to provide an additional resource to the Immunisation Team at a time of high demand for that service. The recent announcement of a National Immunisation Framework will, it is hoped, be accompanied by Welsh Government funding. Once this funding is confirmed, the Band 7 IPCN post will be released for advertisement and recruitment.
- The redirection of a Band 6 IPCN post from secondary care to Primary Care and Community (whilst also maintaining an input for Mental Health and Learning Disabilities) does impact on the IPCN support for secondary care.
- The secondment of the Infection Prevention & Control Matron to Morriston was agreed as the highest proportion of hospital-acquired infections are associated with Morriston. Also, a significant proportion of the IPC Matron's time was already spent supporting the rapid improvement work in Morriston whilst the Infection Improvement Programme Lead had been unable to be released. Although this allows the Matron to focus only on improvement work, the result of this has been that the operational workload of the IPC Matron has been shared across the remaining senior IPC Team.
- ARI activity continues to be high across the Health Board and has resulted in outbreaks in a number of wards/units. This situation will continue to be monitored, but increased influenza and COVID cases circulating in the community impacts on hospital admissions, staff sickness and potential clusters of inpatient transmission. In previous years, the Health Board has seen an increase in the numbers of *C. difficile* cases approximately 8 to 12 weeks after the peak of the respiratory viruses. There are a number of studies on the co-seasonality of *C. difficile* and influenza, pneumonia and other respiratory viruses, with one study estimating that there could be an impact on *C. difficile* for up to 6 months.

Actions in progressing Infection Prevention Improvement Plan (what, by when, and by whom)

Action: Validation of the 'live' Digital HCAI Dashboard to confirm accuracy of data. **Target completion date**: 31.01.23. **Lead:** Head of Nursing IP&C and Corporate Digital Intelligence Partners.

Action: Roll-out of Digital HCAI Dashboard. **Target completion date**: 28.02.23. **Lead:** Head of Nursing IP&C and Corporate Digital Intelligence Partners.

Action: Agree a recognition programme *Award for Improved Area of the Month*, with criteria to be agreed between Service Group Directors and Executive colleagues. **Target completion date**: January 2023. **Lead:** Assistant Director of Nursing and Service Group Nurse Directors.

Financial Implications

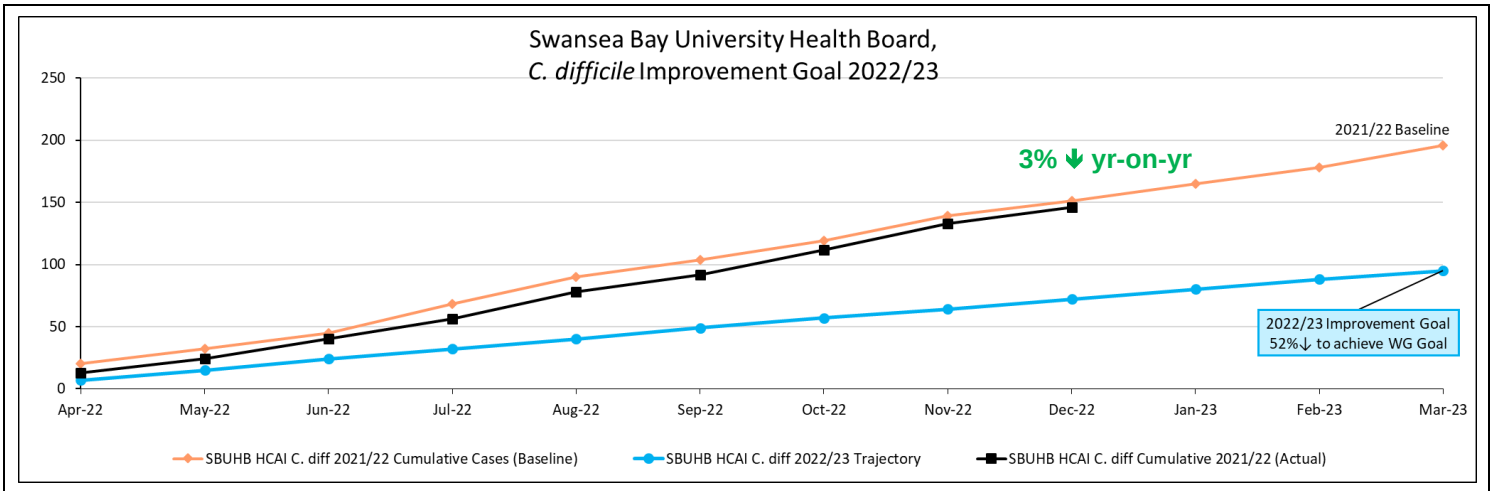
A Department of Health impact assessment report (IA No. 5014, 20/12/2010) stated that the best estimate of costs to the NHS associated with a case of *Clostridioides difficile* infection is approximately **£10,000**. The estimated cost to the NHS of treating an individual cost of MRSA bacteraemia is **£7,000** (the cost of MSSA bacteraemia could be less due to the availability of a wider choice of antibiotics). In an NHS Improvement indicative tool, the estimated cost of an *E. coli* bacteraemia is between **£1,100** and **£1,400**, depending on whether the *E. coli* is antimicrobial resistant. Estimated costs related to healthcare associated infections, from 01 April 2022 to the end of December 2022 is as follows: *C. difficile* - £1,460,000; *Staph. aureus* bacteraemia - £812,000; *E. coli* bacteraemia - £232,500; therefore, a total cost of **£2,504,500**.

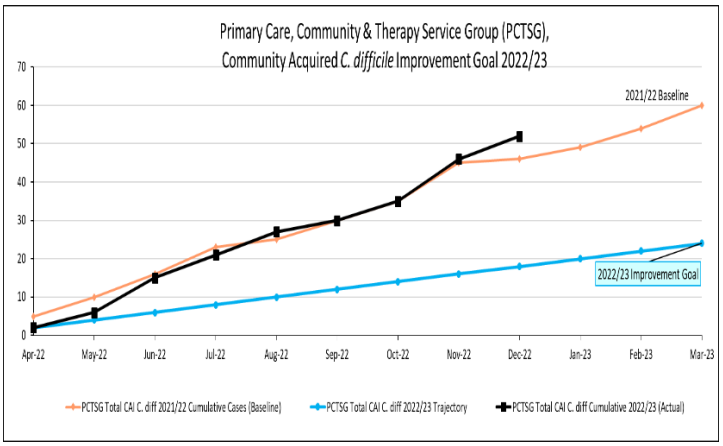
Recommendations

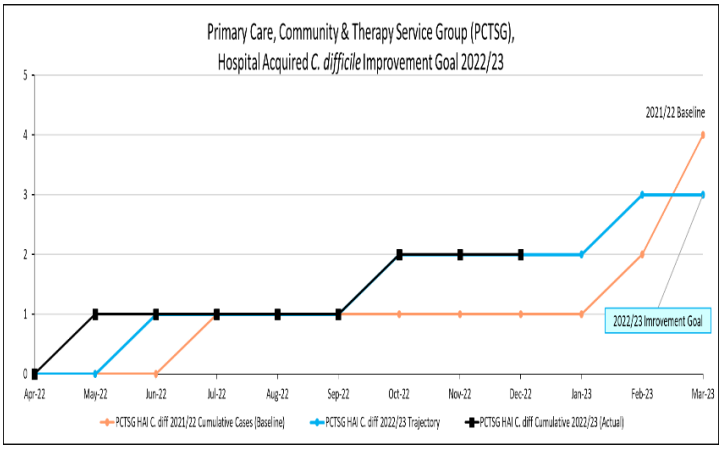
Members are asked to:

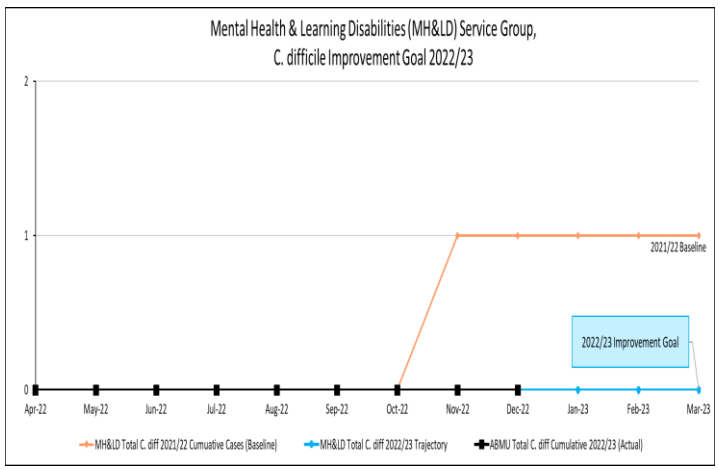
- NOTE the progress against the tier 1 infections to 31/12/2022;
- NOTE Service Group progress in relation the Infection Improvement Plan, including Morriston's Rapid Improvement Programme to 31/12/22;
- NOTE the progress against the overarching Infection Improvement Plan, with progress to the end of Quarter 3;
- AGREE the proposed actions related to the overarching Infection Improvement Plan;
- NOTE the development of the *Award for Improved Area of the Month* recognition programme.

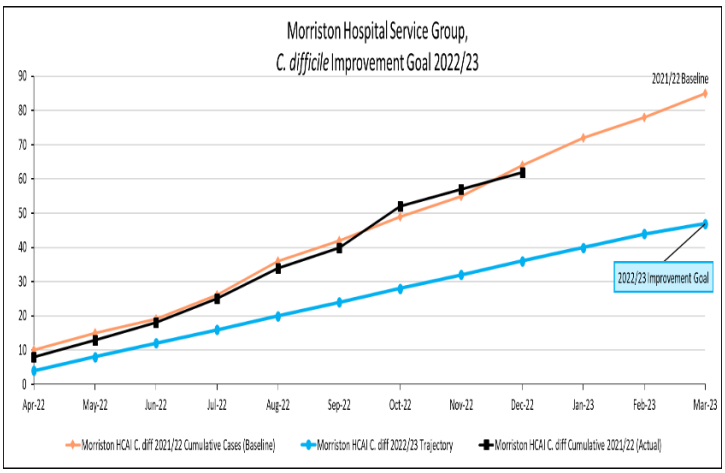
C. difficile

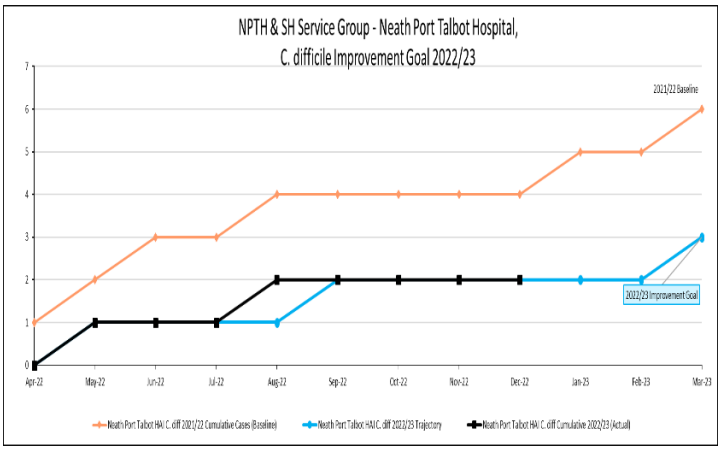

Swansea Bay University Health Board,
C. difficile Improvement Goal 2022/23
2021/22 Baseline
3% ↓ yr-on-yr
2022/23 Improvement Goal
52%↓ to achieve WG Goal
SBUHB HCAI C. diff 2021/22 Cumulative Cases (Baseline)
SBUHB HCAI C. diff 2022/23 Trajectory
SBUHB HCAI C. diff Cumulative 2021/22 (Actual)

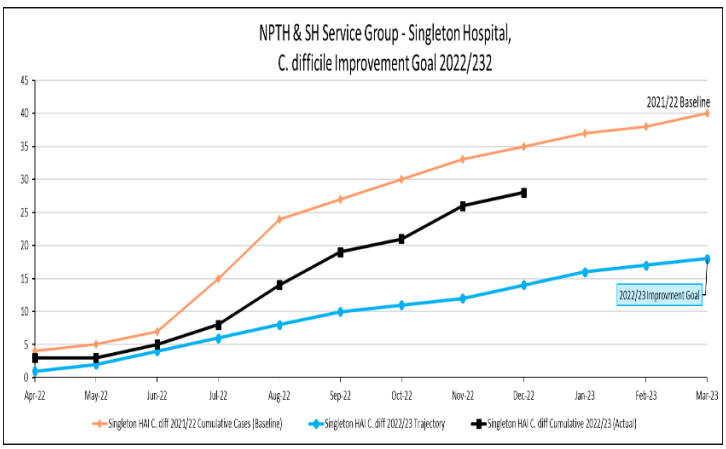

Primary Care, Community & Therapy Service Group (PCTSG),
Community Acquired C. difficile Improvement Goal 2022/23
2021/22 Baseline
2022/23 Improvement Goal


Primary Care, Community & Therapy Service Group (PCTSG),
Hospital Acquired C. difficile Improvement Goal 2022/23
2021/22 Baseline
2022/23 Improvement Goal

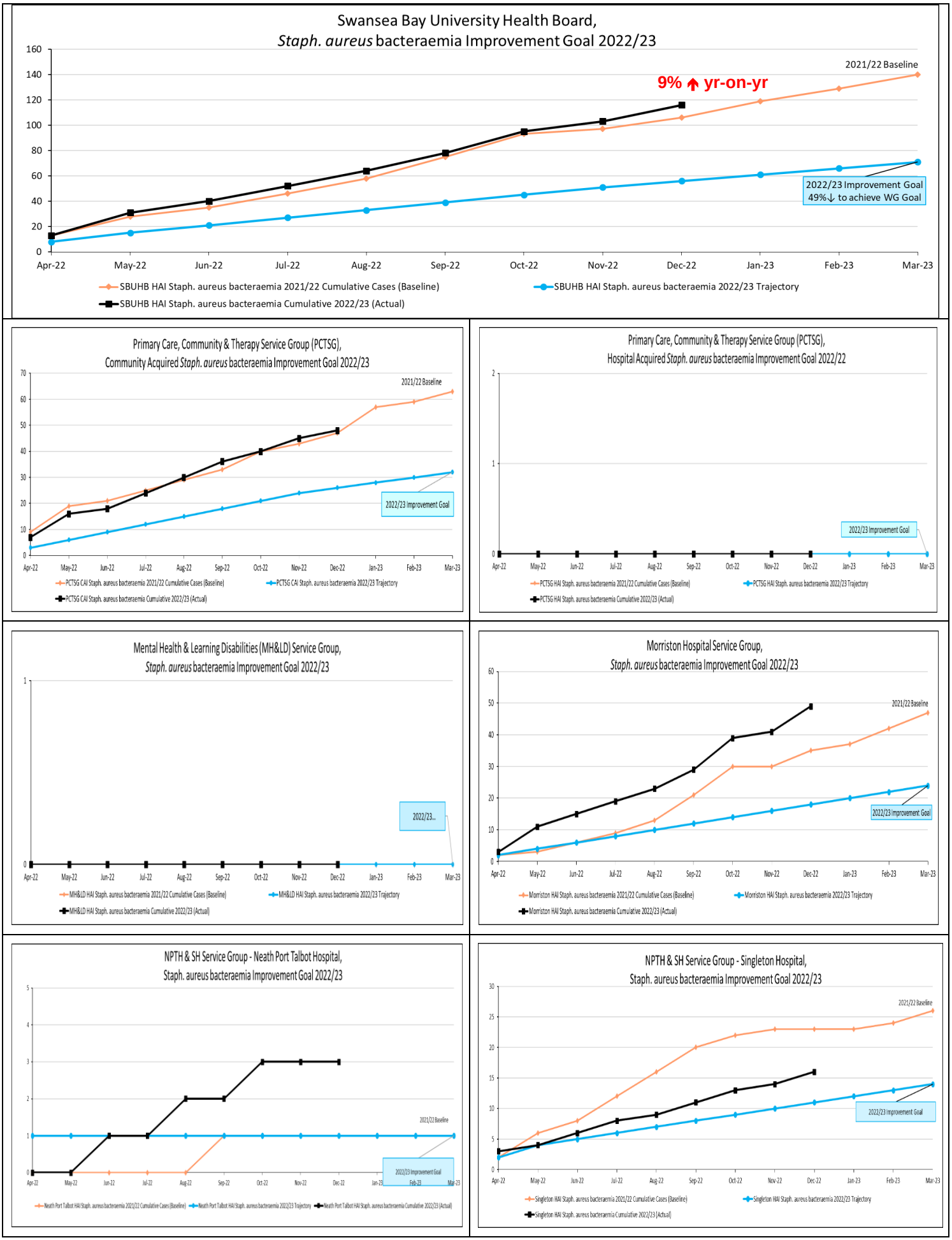

Mental Health & Learning Disabilities (MH&LD) Service Group,
C. difficile Improvement Goal 2022/23
2021/22 Baseline
2022/23 Improvement Goal


Morriston Hospital Service Group,
C. difficile Improvement Goal 2022/23
2021/22 Baseline
2022/23 Improvement Goal

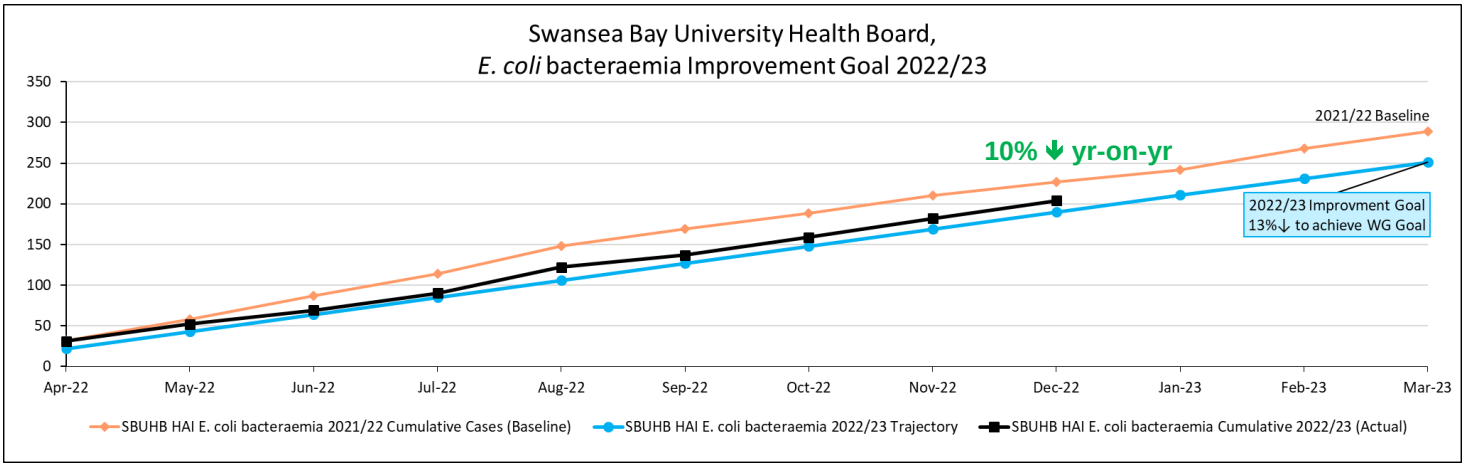

NPTH & SH Service Group - Neath Port Talbot Hospital,
C. difficile Improvement Goal 2022/23
2021/22 Baseline
2022/23 Improvement Goal

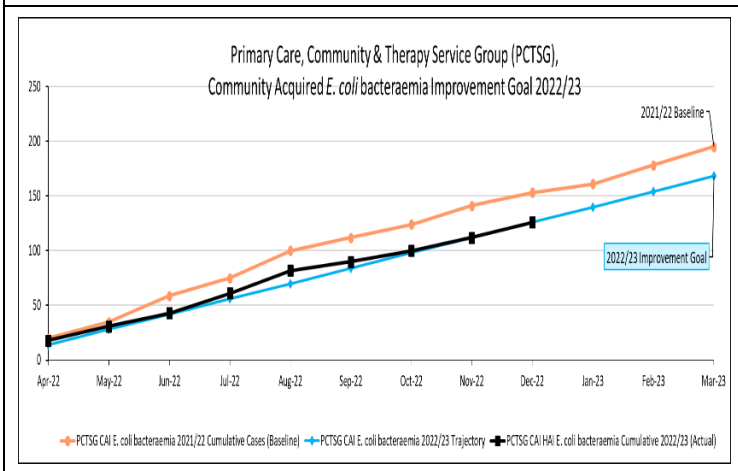

NPTH & SH Service Group - Singleton Hospital,
C. difficile Improvement Goal 2022/232
2021/22 Baseline
2022/23 Improvement Goal

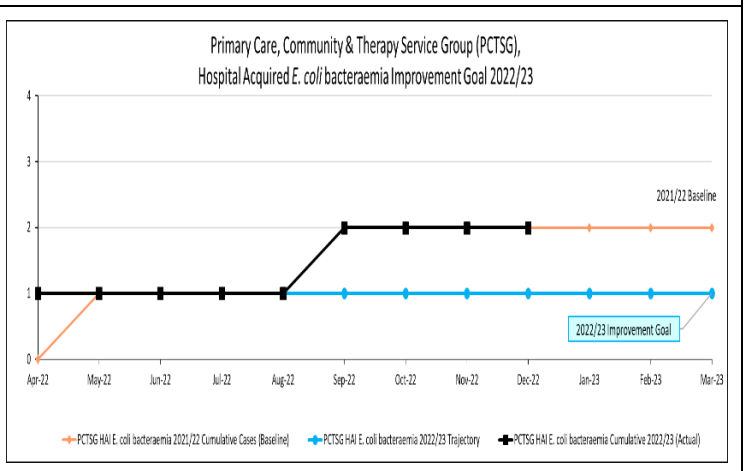
***Staph. aureus* bacteraemia**

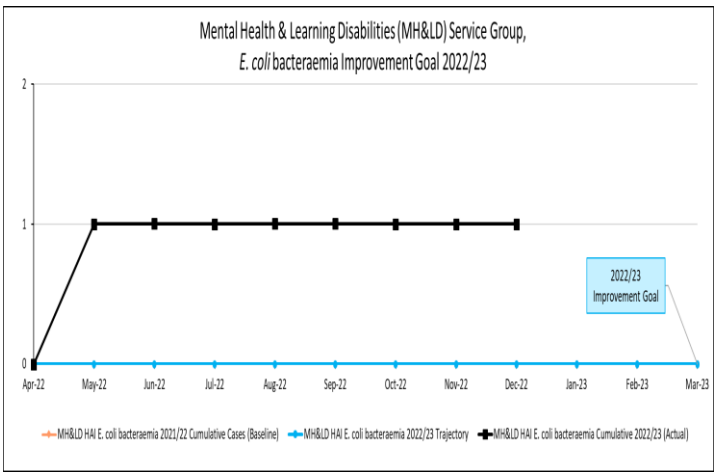


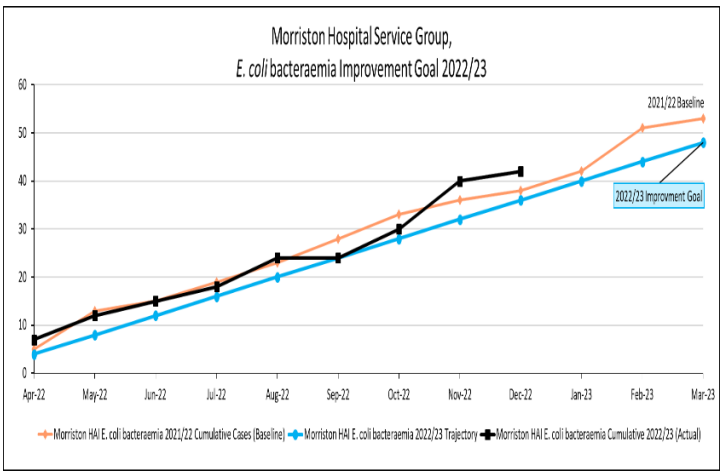
E. coli bacteraemia

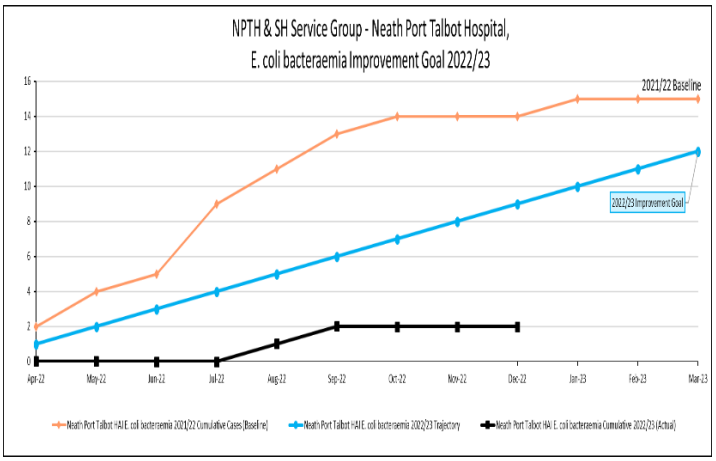


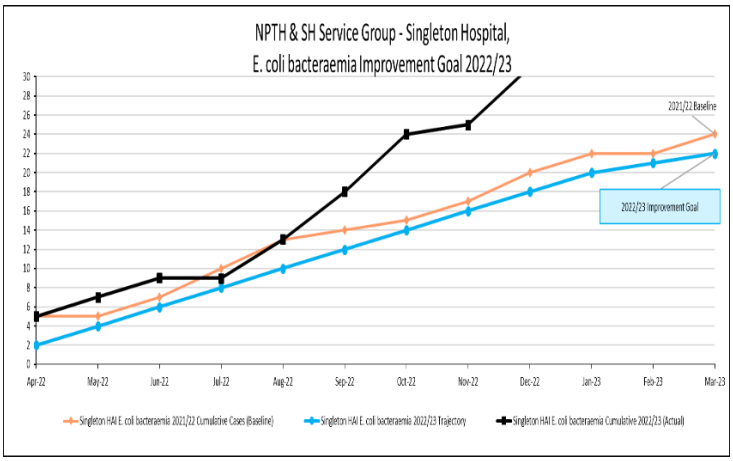




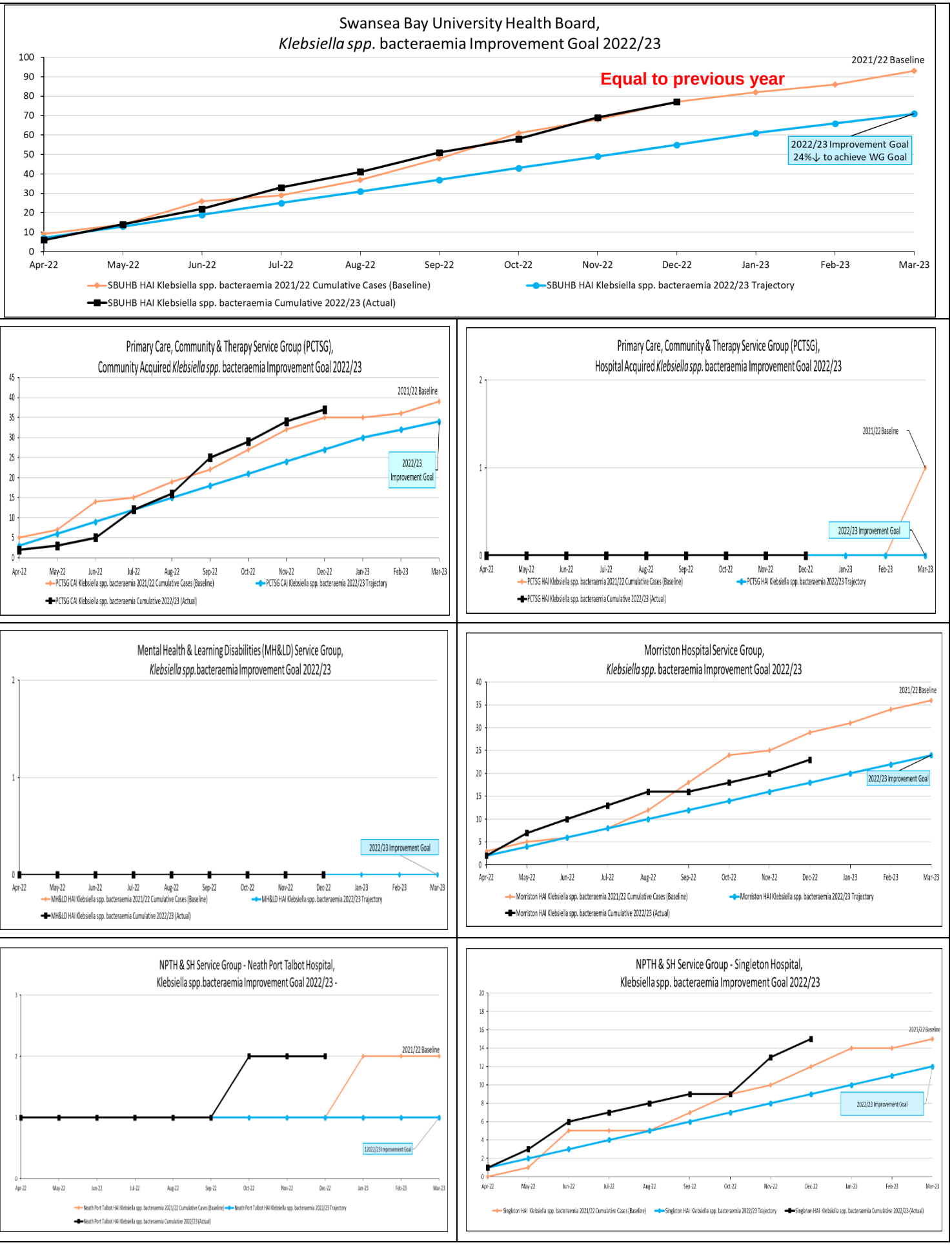




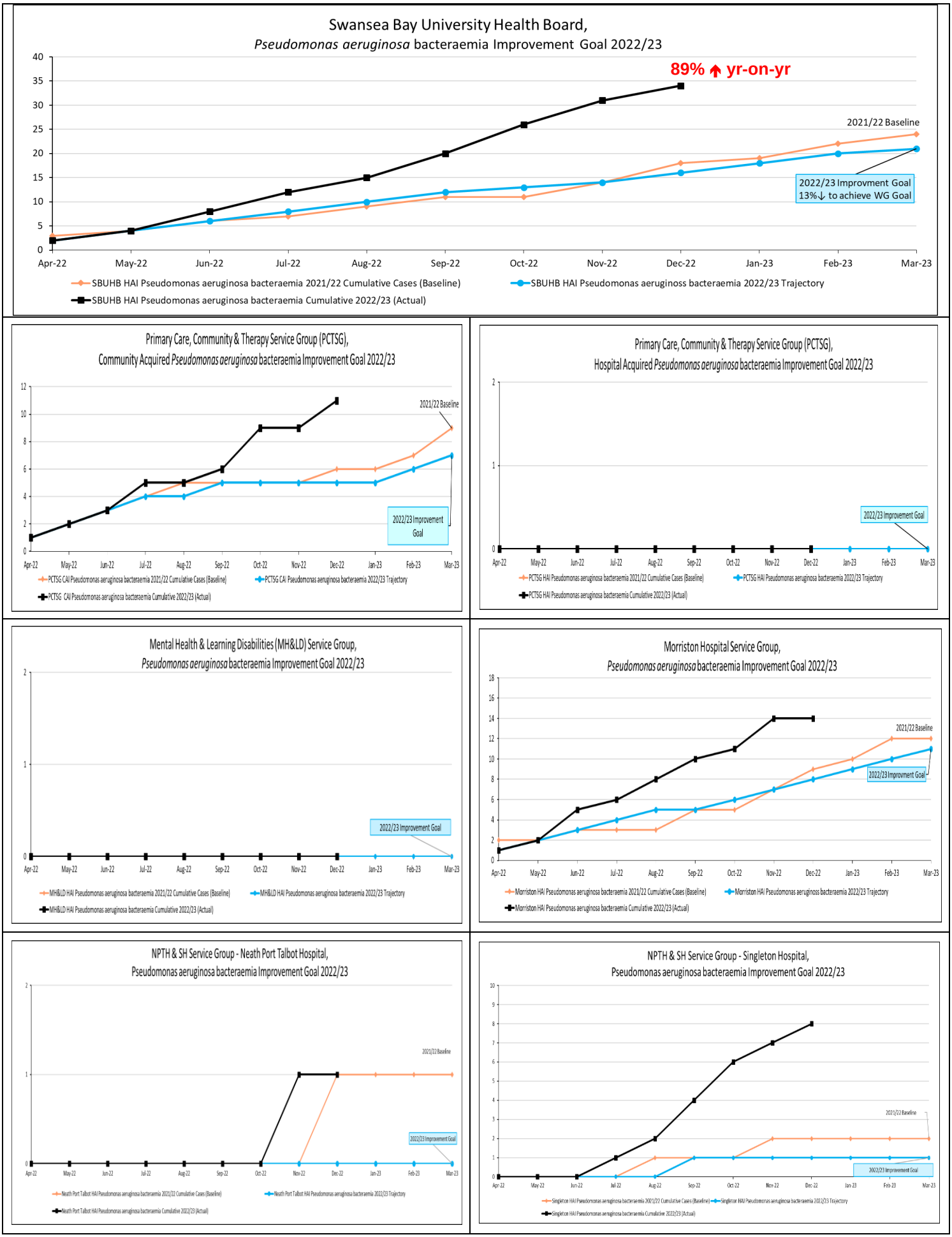




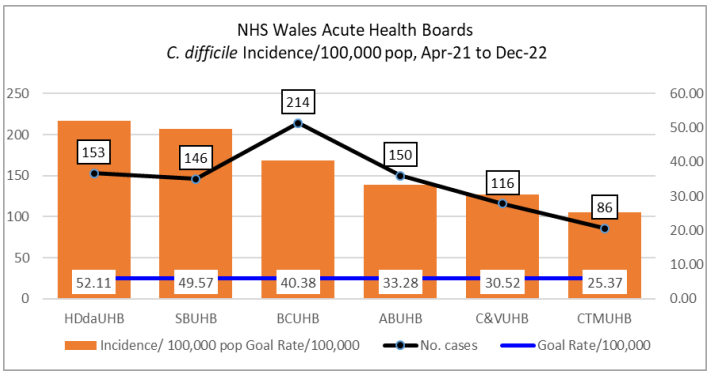
***Klebsiella spp.* bacteraemia**

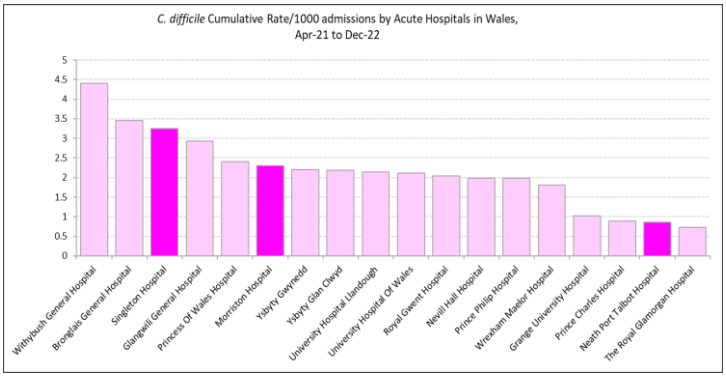


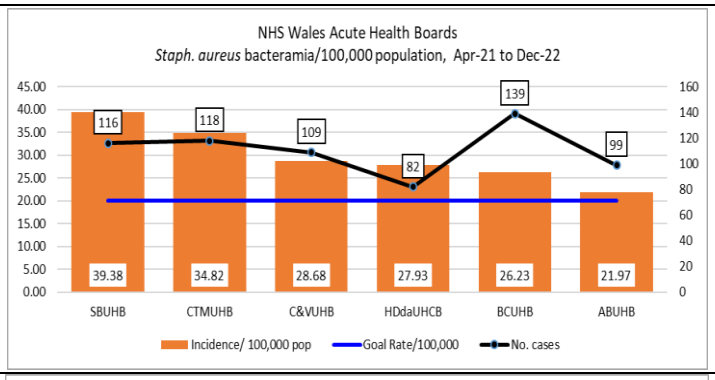
***Pseudomonas aeruginosa* bacteraemia**

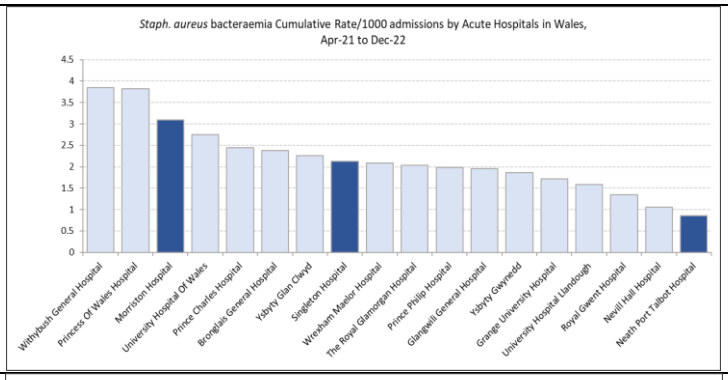


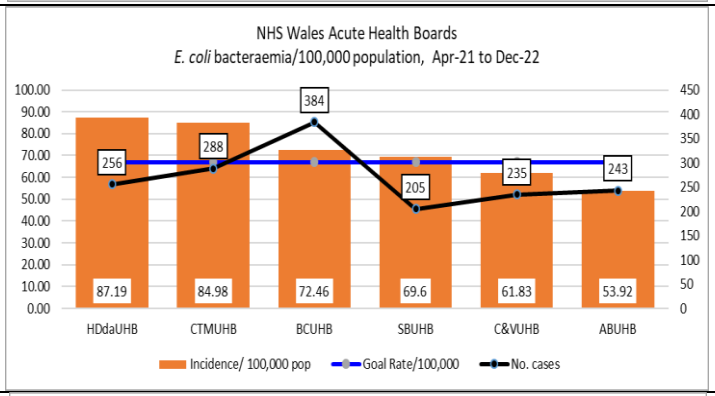
Appendix 2 - Health Board progress against the Tier 1 infection reduction goals to 31/12/2022, in comparison to other acute Health Boards in Wales

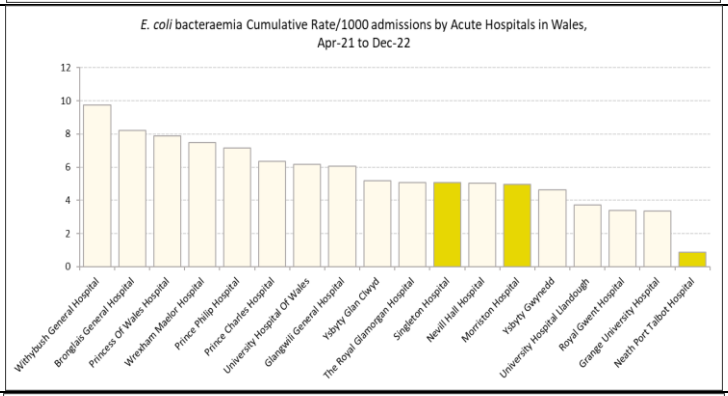


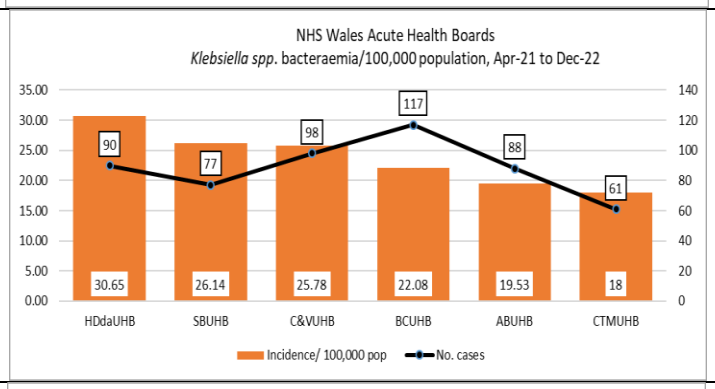


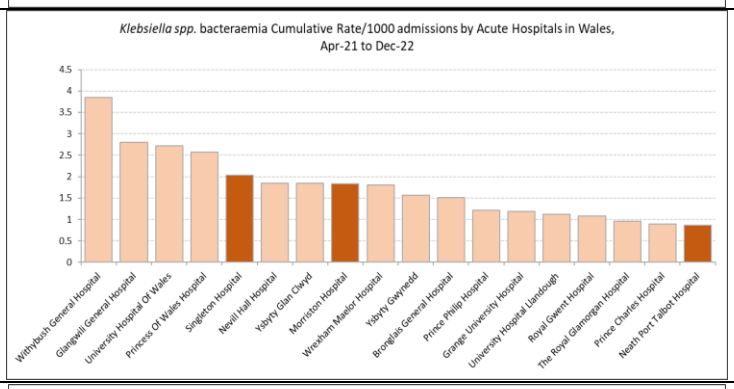


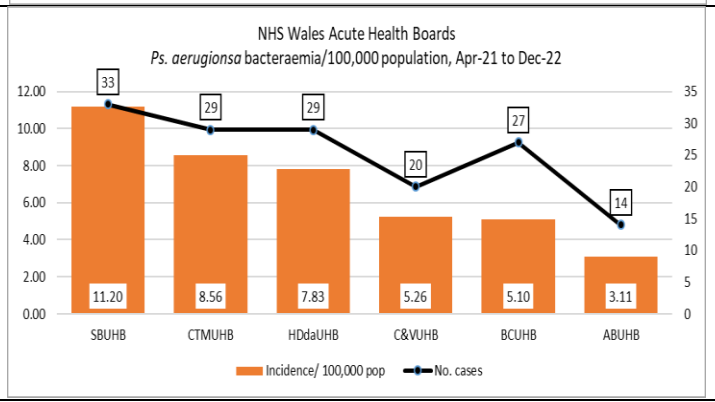


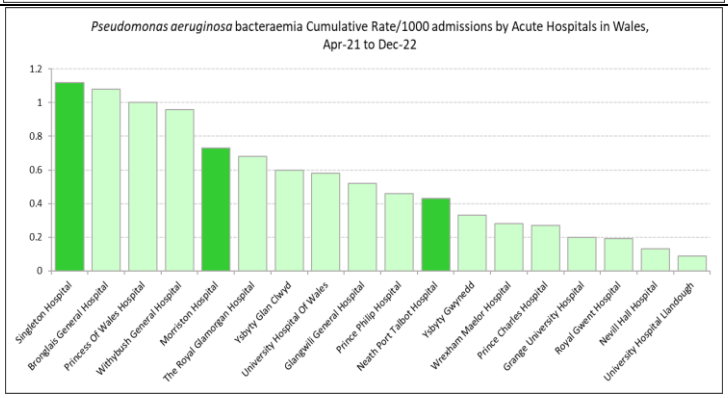






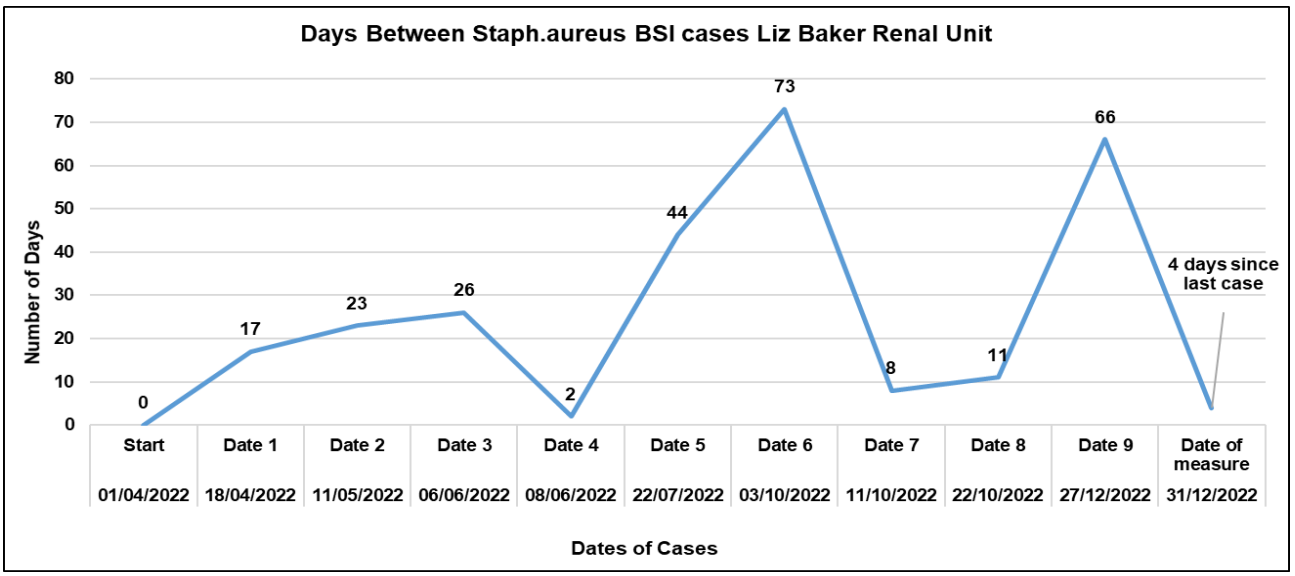




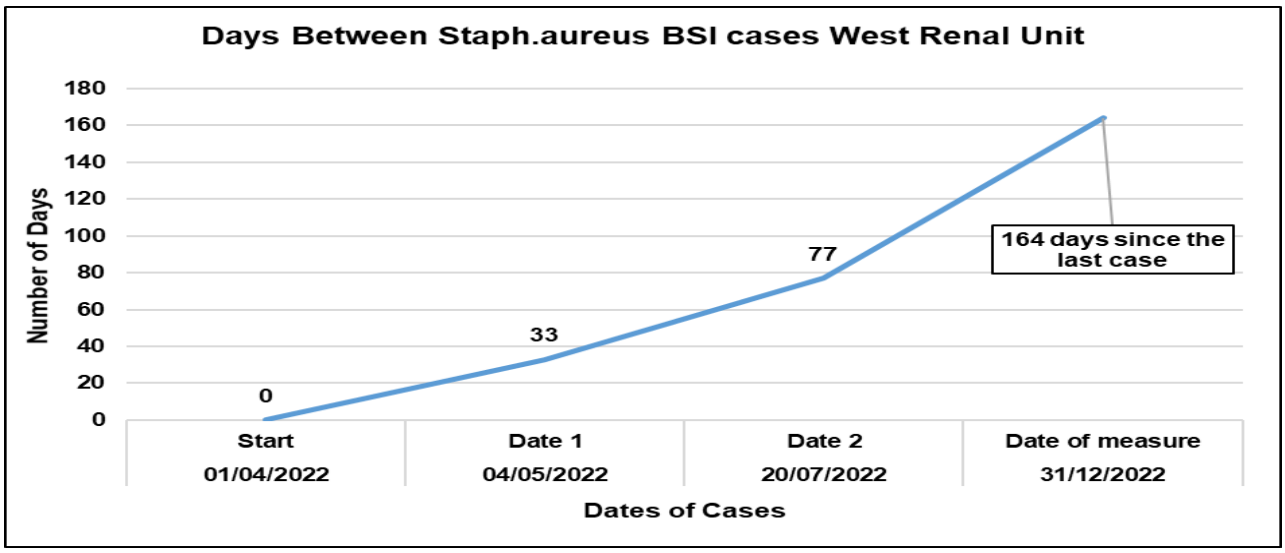


Staph. aureus bacteraemia

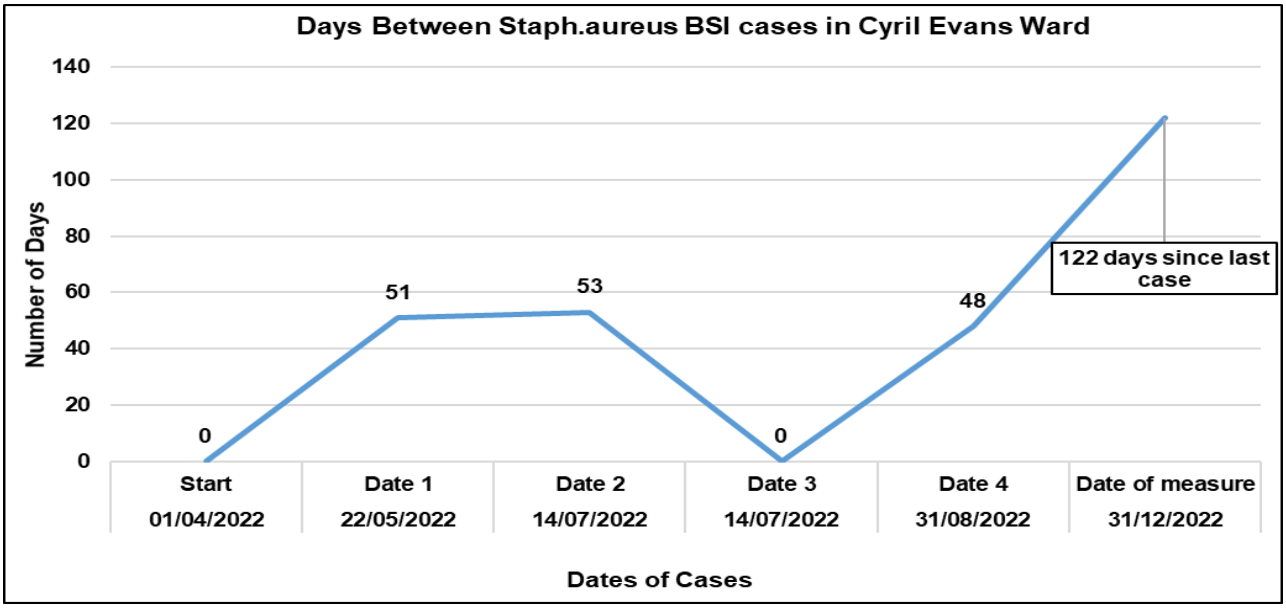
Liz Baker Renal Unit:



West Renal Unit:

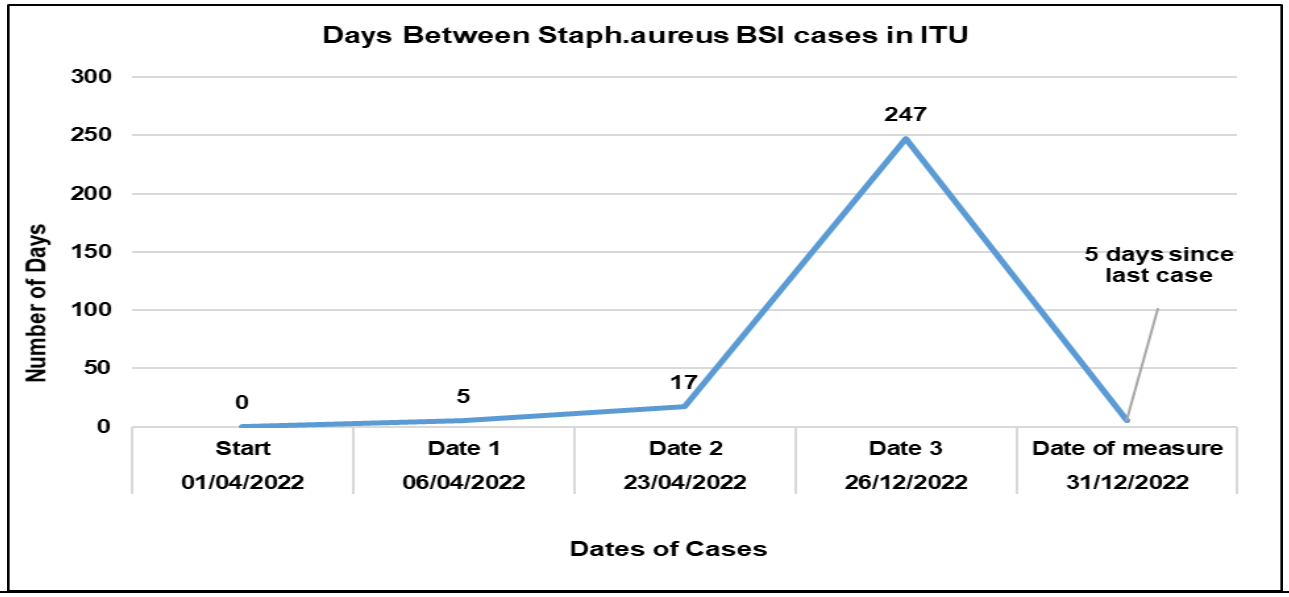


Cyril Evans Ward:



Staph. aureus bacteraemia

ITU:



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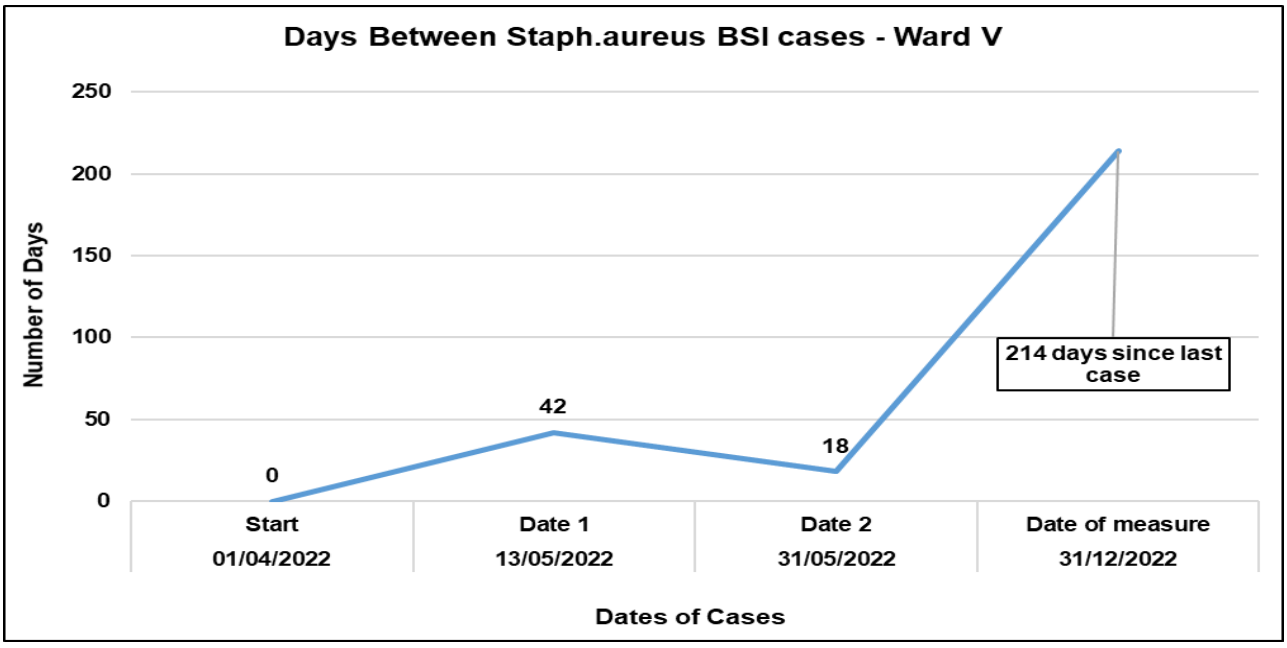
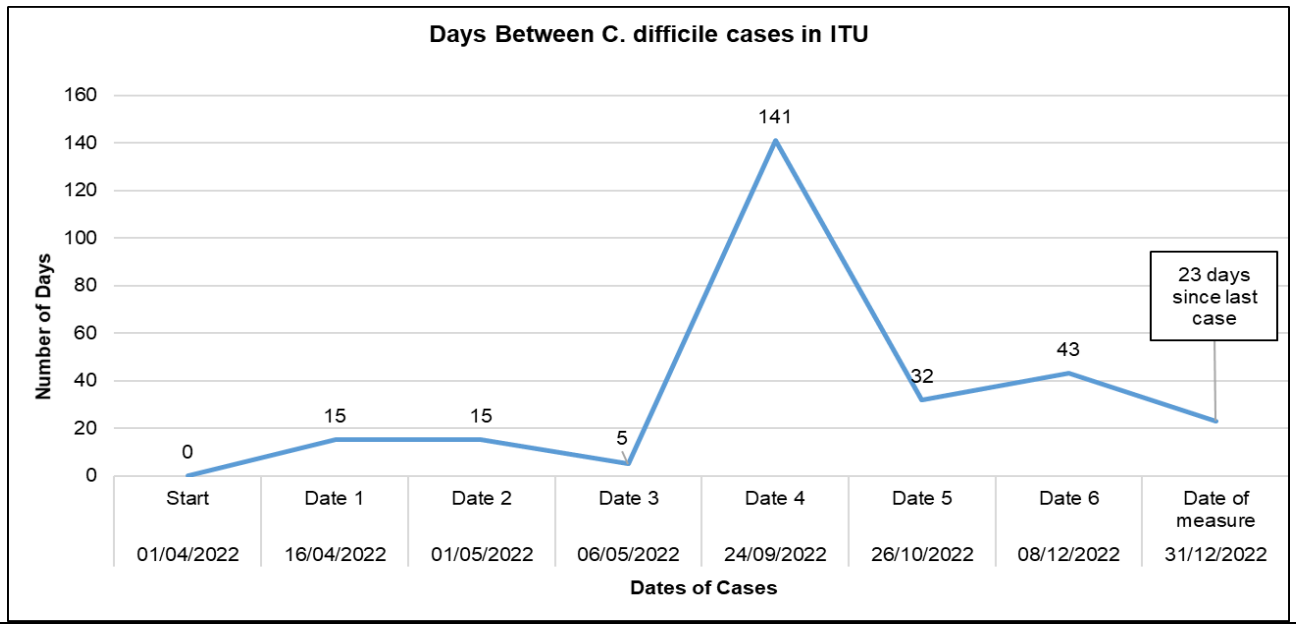


C. difficile Infection

ITU:



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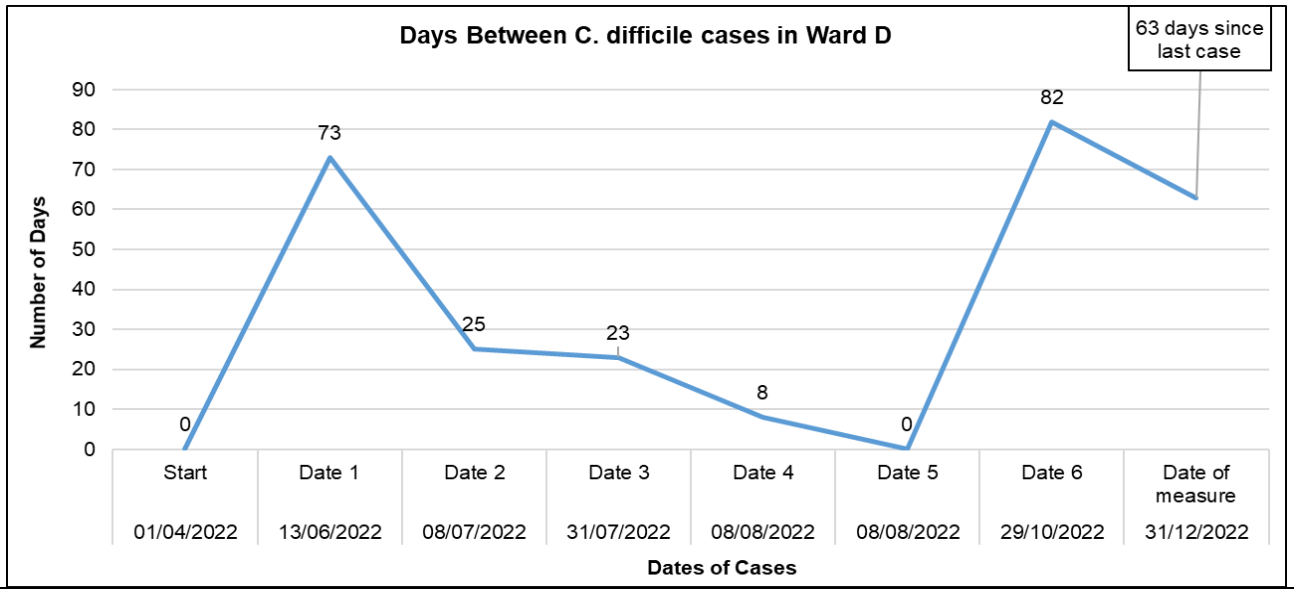

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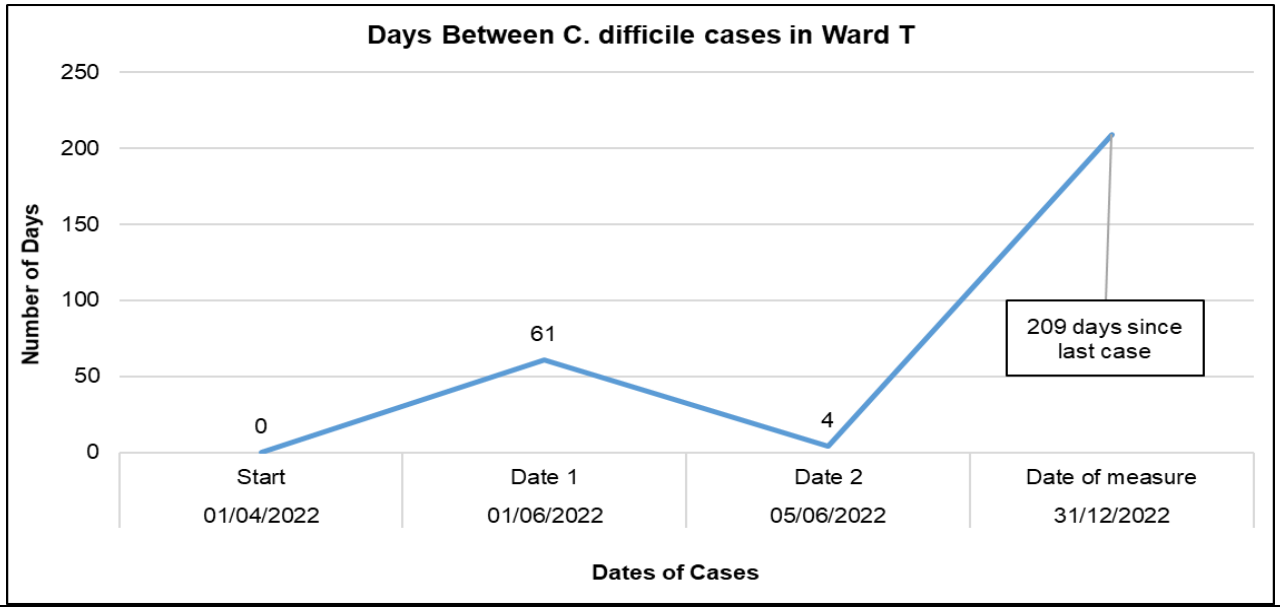

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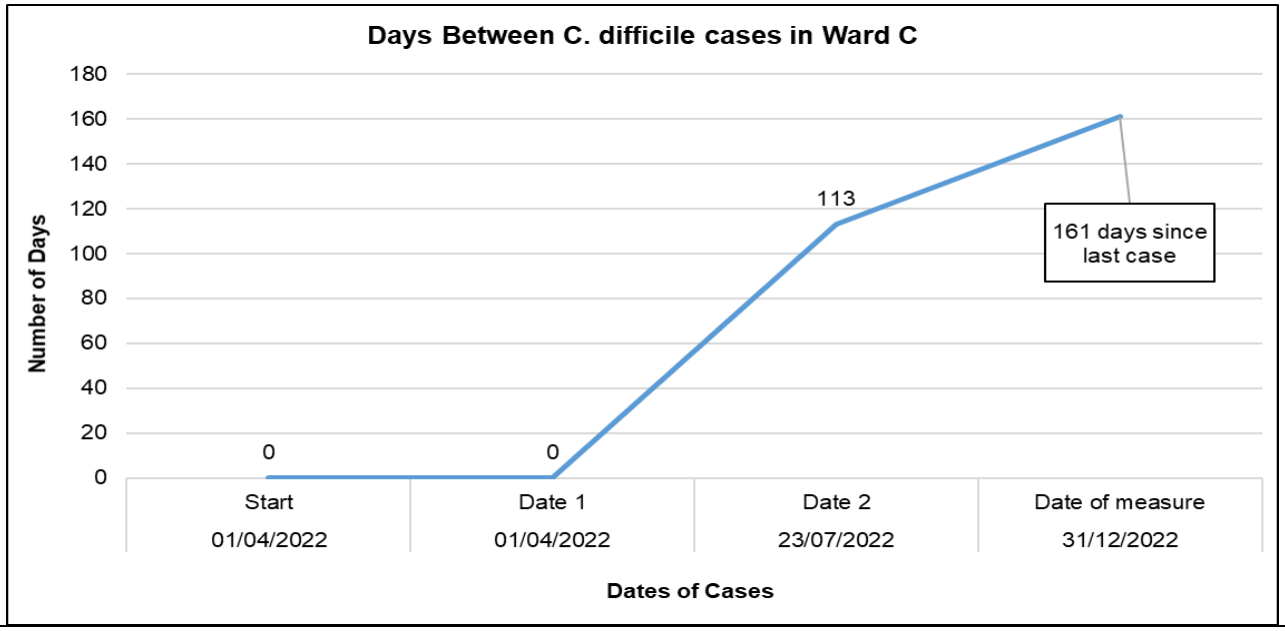
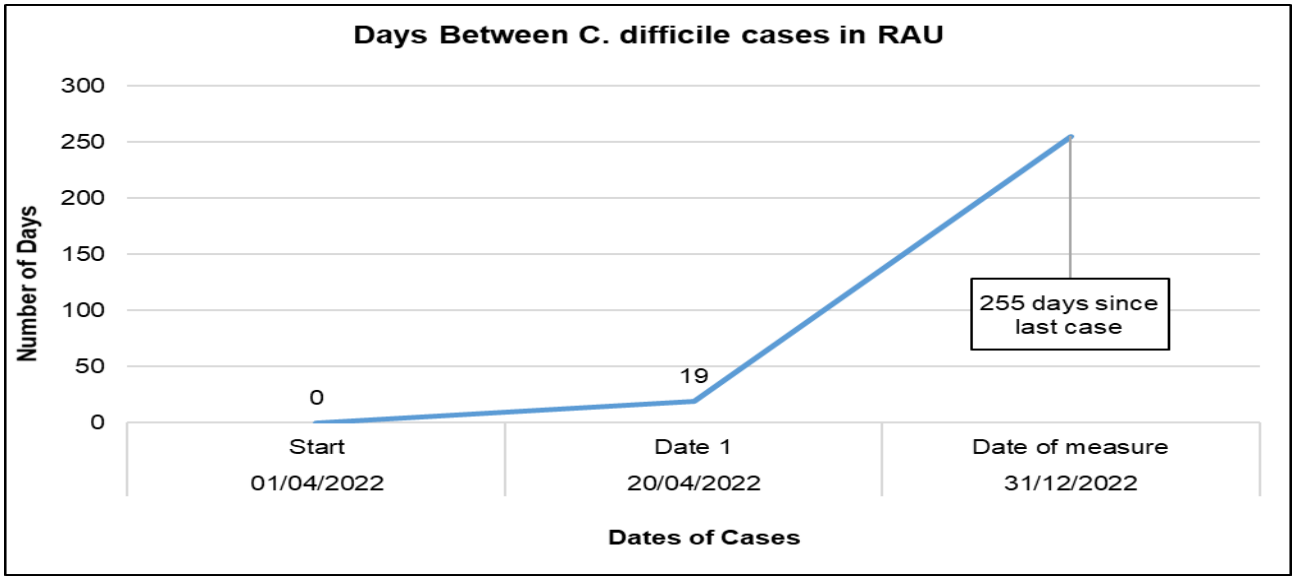


RAU:



Ward S: