Meeting Date	**22 February 2022**	**Agenda Item**	**3.1**
Report Title	Healthcare Acquired Infections Update Report		
Report Author	Delyth Davies, Head of Nursing, 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 is an assurance report that provides an update on prevalence, progress and actions for healthcare associated infections (HCAIs) within Swansea Bay University Health Board for the reporting period.		
Key Issues	• The Health Board continues to have the highest incidence of infection for the majority of the Tier 1 key infections. • The Omicron variant of COVID-19 within acute inpatient settings remains a challenge, with continuing evidence of transmission events. The consequences to disruption of services are significant. • Adherence to best practice in infection prevention and control (IPC) precautions is critical. Service Groups must focus on achieving compliance with staff training in this area and on auditing compliance. This is critical in relation to all nosocomial infections; COVID-19 has heightened awareness of the importance of IPC, and all staff must maintain vigilance going forward. • The Infection Prevention & Control team resource is acutely impacted by vacancies and sickness. There has been a suspension of the 7-day service since the end of December as there are not enough staff to cover the rota. Face-to-face training has been suspended temporarily. The service can be reactive only currently, and much of its focus is on supporting Board-wide services in responding to COVID.		

Specific Action Required	**Information**	**Discussion**	**Assurance**	**Approval**
	☐	☐	☒	☐

Recommendations	Members are asked to: Note reported progress against HCAI priorities to the end of January 2022 and agree actions.

Infection Prevention and Control Report

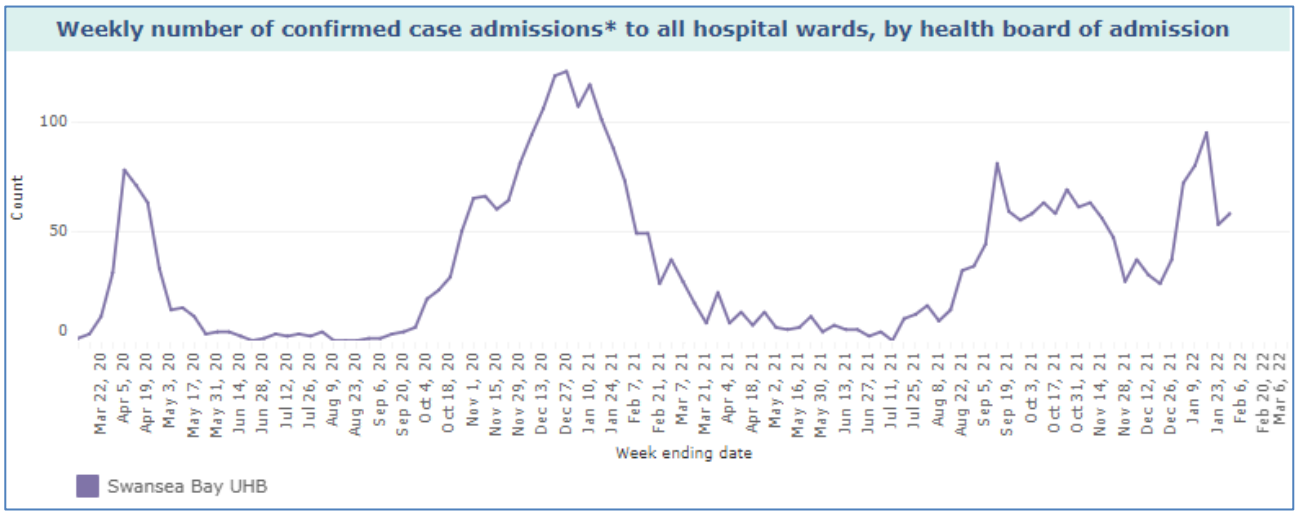
	Agenda Item	3.1
Freedom of Information Status	Open	
Performance Area	Healthcare Acquired Infections Update Report	
Author	Delyth Davies, Head of Nursing, Infection Prevention & Control	
Lead Executive Director	**Gareth Howells, Executive Director of Nursing & Patient Experience**	
Reporting Period	31 January 2022	

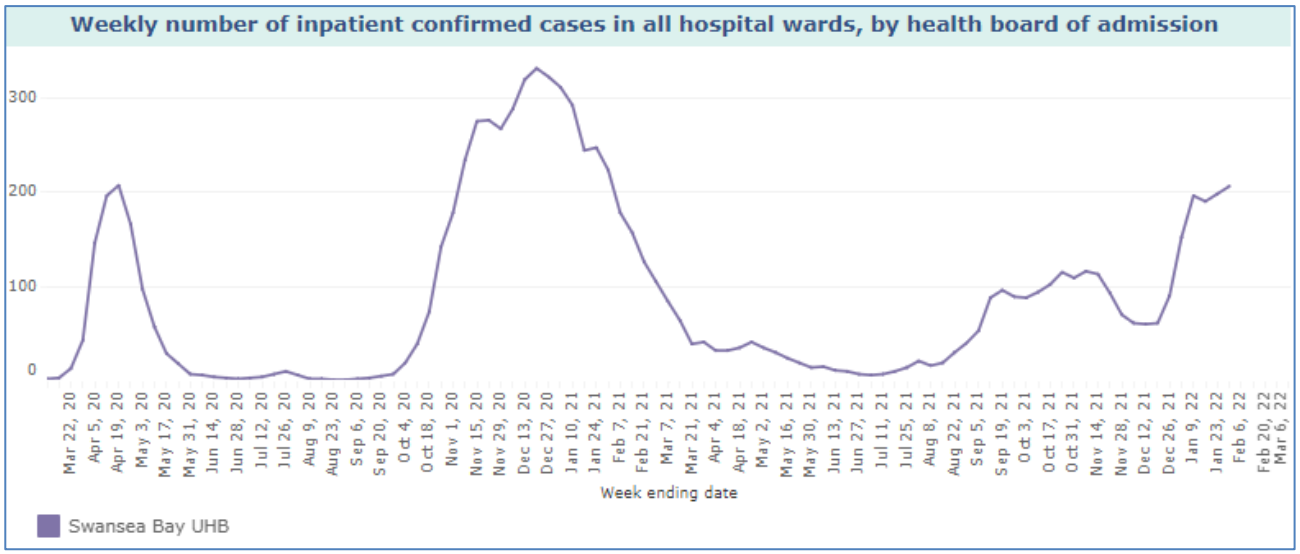
Summary of Current Position

The Health Board has continued with its response to COVID-19 (SARS 2) pandemic.

COVID-19 (SARS 2):

- From 01 April 2020 to end of January 2022: there have been over 101,700 positive cases of COVID-19 (an increase of approximately 12,700 in one month) from over 563,900 testing episodes (an increase of approximately 29,300 tests in one month).
- The charts below show the weekly number of laboratory confirmed COVID-19 cases admitted to SBUHB hospitals, and the number of confirmed cases in our hospitals. These charts highlight the impact of the second wave of the pandemic.





Source: Public Health Wales, to 30/01/22

- In January, the outbreaks in CCU, Cyril Evans Ward, Liz Baker Unit, Ward B, Ward 7, Ward E, Derwen Ward, Fendrod Ward, Rowan Ward, Penarth Ward and Rowan House concluded.
- In January, there have been continuing and new localised outbreaks of COVID-19 in the following areas:
  - ***Morriston*** – **Ward R** (10 patients/ 13 staff), **Cardigan Ward** (9 patients/ 2 staff), **Anglesey Ward** (8 patients/ 7 staff), **Ward D/ AMAU** (8 patients/ 9 staff), **Ward C** (6 patients/ 2 staff), **Ward A** (20 patients/ 8 staff), **Ward J** (16 patients/ 12 staff) and **Ward V** (16 patients/ 10 staff), **Ward T** (16 patients/ 4 staff), **TAU** (5 patient/ no staff), **Ward S** (11 patients/ 1 staff), **Gowers Ward** (12 patients/ 4 staff) and **Ward G** (10 patient/ 7 staff).
  - ***Mental Health & Learning Disabilities*** – **Cardigan Ward, Caswell Clinic** (3 patients/ 2 staff), **Mother and Baby Unit** (2 patients/ 5 staff) and **NPTH Ward F** (2 patients/ no staff).

- The Omicron variant had a significant impact on community outbreaks during January, due to its high transmissibility. The Omicron variant resulted also in ward outbreaks. Unscheduled care patients, initially testing negative on day of admission, are testing positive shortly after. Other patients who were exposed to these initially undetected patients (who were in the incubation period), subsequently have become positive. Staff absence is high, much of this being linked with community acquisition rather than exposure at work. The degree of staff shortages is likely to affect adversely infection risks.

COVID-19 Vaccination update

- A total of 303,876 first dose vaccines, and 282,891 second dose vaccinations, have been administered within the priority groups to the end of January 2022. There had been 7,090 third dose vaccinations administered by the end of January 2022 and a total of 214,423 Booster doses administered.
- To the end of January 2022, 16,645 SBUHB staff had received the first dose, and 16,406 staff had received the second dose of either one of the available COVID-19 vaccines; the breakdown is shown in the following table.

Vaccinations by Job Role, Frontline Status and Priority Group

Job Role Category	Cohort total	Total First Vaccination	Total Second Vaccination	% Vaccinated (1st Dose)	% Vaccinated (2 Doses)
Additional Clinical Services	165	149	145	90.30%	97.32%
Additional Prof Scientific and Technical	24	21	21	87.50%	100.00%
Administrative and Clerical	245	237	236	96.73%	99.58%
Allied Health Professionals	176	173	171	98.30%	98.84%
Estates and Ancillary	67	62	60	92.54%	96.77%
Healthcare Scientists	31	30	29	96.77%	96.67%
Medical and Dental	440	421	415	95.68%	98.57%
Nursing & Midwifery Registered	510	502	494	98.43%	98.41%
Other	1015	1009	999	99.41%	99.01%
Student	370	368	361	99.46%	98.10%
Unknown	14521	13673	13475	94.16%	98.55%
Total	**17564**	**16645**	**16406**	**94.77%**	**98.56%**

- Third dose and booster dose COVID vaccination programmes continues.
- The Immunisation Lead and Immunisation Coordinators continue to support the COVID vaccination training programme. The next training block will be allocated to volunteers from the St. Johns Ambulance Service. To date, the Immunisation Coordinator has trained just under 1000 registrants and up to 70 non-registrants for this programme, not all of whom have taken up vaccination posts.
- Work with the specialist vaccine allergy clinic continues, although at a reduced frequency due to reduced demand. The resource will be directed to the routine immunisation programme, in addition to the COVID vaccination programme.
- The Immunisation team was involved with the planning and implementation of the COVID vaccination programme to 'at risk' children aged 5-11 years. Standard Operating Protocols and Patient Group Directives were updated prior to its implementation and these were ratified at the Strategic Silver Immunisation Group. These immunisations were delivered at Paediatric Outpatients in Singleton Hospital and 145 children were vaccinated during the first weekend of working.
- Governance visits at the Mass Vaccination Centres will be a continuing focus of the Immunisation team work plan going forward, providing assurance in relation to the safe administration of vaccines.

Flu Planning 2021/22

- Welsh Government target for influenza vaccination of staff is 85%. To the end of January 2022, approximately 53% of staff had been vaccinated; approximately 53% of front-line staff had been vaccinated. The table below shows the percentage details by staff group –

Staff Group	Vaccinated %	Not Vaccinated %	Vaccinated	Not Vaccinated	Grand Total	Number of Doses to Target
Add Prof Scientific and Technic	65.99%	34.01%	262	135	397	36
Additional Clinical Services	50.04%	49.96%	1377	1375	2752	687
Administrative and Clerical	52.80%	47.20%	1385	1238	2623	582
Allied Health Professionals	58.62%	41.38%	561	396	957	157
Estates and Ancillary	46.95%	53.05%	585	661	1246	350
Healthcare Scientists	59.82%	40.18%	198	133	331	50
Medical and Dental	54.23%	45.77%	513	433	946	197
Nursing and Midwifery Registered	53.40%	46.60%	2136	1864	4000	864
Grand Total	**52.95%**	**47.05%**	**7017**	**6235**	**13252**	**2922**
Front Line Staff Totals	**53.57%**	**46.43%**	**4849**	**4203**	**9052**	**1940**

- Dependent on the outcome of the Immunisation Business Plan, the Immunisation Lead would propose to provide additional support and leadership for the staff flu immunisation programme for the 2022-12 season. The plan would be to revert to the previous model of having an Immunisation Coordinator leading on the training and support of champions and peer vaccinators. Early engagement with service leads is needed.

Decontamination Update

Progress continues to strengthen the governance of decontamination processes across the Health Board.

- The review and update of local standard operating procedures is 81% complete. The review of the remaining areas is currently in progress and are expected to be submitted to the next Decontamination Quality Priority Group in April.
- Assurance audits continue throughout the Health Board. The Operational Decontamination Lead and Decontamination Coordinator are supporting departments with their improvement plans.
- Training compliance continues to be monitored locally through individual performance review. Compliance figures for each department continue to be reported to the Decontamination Quality Priority Group.
- The review and update of departments' contingency plans are in progress, to ensure service delivery in the event of testing and machinery failure. The remaining plans are currently under review and are due for submission at the next Decontamination Quality Priority Group in April.

Tier 1 Infections 2021/22

The tables below show Health Board progress against the Welsh Government HCAI Improvement Goals for 2021-22, published in WHC (2021)028 to the end of January 2022; the year-on-year cumulative comparison is shown also.

Infection	Cumulative cases Apr 2021- Jan 2022	January 2022 Cases	Cases +/- Monthly WG Expectation	WG Monthly Expectation
C. difficile	165	14	+6	< 8 cases
Staph aureus BSI	117	11	+5	< 6 cases
E. coli BSI	241	14	- 7	< 21 cases
Klebsiella BSI	83	5	- 1	< 6 cases
Ps. aeruginosa BSI	19	1	- 1	< 2 cases

Infection	2020/21 total to 31/01/21	Comparison 2021/22 Total to 31/01/22
C. difficile	137	165 (20% ↑)
Staph aureus BSI	102	117 (15% ↑)
E. coli BSI	196	241 (23% ↑)
Klebsiella BSI	86	83 (-3% ↓)
Ps. aeruginosa BSI	17	19 (12% ↑)

The incidence (per 100,000 population) of the majority of the key Tier 1 infections in Swansea Bay University Health Board is the highest in Wales for *C. difficile*, *Staph. aureus* bacteraemia and *Klebsiella* bacteraemia. This is not an acceptable position.

To provide context to the position in Wales, during the ten months of the financial year, NHS Wales has seen an average increase in all Tier 1 infections as shown below (with the range of increases across various Health Boards shown in brackets):

- *C. difficile*: +26% (range +4% to +90%);
- *Staph. aureus* bacteraemia: +9% (range -17% to +36%);
- *E.coli* bacteraemia: +15% (range -2% to +27%);
- *Klebsiella spp*. bacteraemia: 0% (range -24% to +27%); and
- *Pseudomonas aeruginosa* bacteraemia: +22% (range 4% to +50%)

In the Health Board, the incidence of *C. difficile* is above the infection reduction monthly goals. The cumulative rate of increase, year-on-year, is 20%. Of the 165 cases, 30% were community-acquired and 70% were hospital-acquired.

The cumulative incidence of *Staph. aureus* bacteraemia remains above the infection reduction average monthly goals. There has been a 15% increase in the cumulative total cases year-on-year. Hospital acquired infection (HAI) continues to account for 52% of all cases; 48% were community acquired infections (CAI). In the majority of HAI cases, the source was line-associated; in the majority of CAI cases, the source was skin and soft tissue.

The cumulative incidence of *E. coli* bacteraemia has increased by 23% year-on-year. In SBUHB, approximately 67% of the cases in April to January 2022 were community-acquired infections; 33% were considered hospital acquired. Of the community-acquired cases, the urinary tract was considered the source of infection in approximately 46% of cases, and the hepato-biliary tract considered the source in approximately 23% of cases. Of the hospital-acquired cases, 34% were considered to have a urinary source; 20% a hepato-biliary tract source.

Fifty-seven percent of *Klebsiella spp*. bacteraemia cases between April and January 2022 were hospital-acquired cases; 43% were community-acquired. Of the hospital-acquired cases, 21% were considered to have a respiratory source; 28% a urinary source; 17% a hepato-biliary tract source. Of the community-acquired cases, 50% were considered to have a urinary source; 23% a hepato-biliary tract source.

The attribution of cases of *Pseudomonas aeruginosa* bacteraemia between April and January 2022 were considered to be 68% hospital-acquired and 32% community-acquired. Sources of infection, where identified, were urinary, skin & soft tissue, abdominal, and hepato-biliary tract.

The third wave of the COVID-19 pandemic continues; the effect of the Omicron variant has exacerbated an already challenging position. This, in addition to the escalation of service pressures, and the impact of increasing staff shortages, is increasing safety risks for patients, including risks associated with healthcare-associated infections.

Other significant infection incidents/outbreaks:

Heterogeneous glycopeptide intermediate resistant *Staph. aureus* (hGISA) in Renal Unit

To date, there have been no further cases of hGISA associated with the Renal Unit. Surveillance continues to identify additional cases.

Glycopeptide Resistant *Entercococcus faecium* (GRE) in Trauma and Orthopaedics.

Public Health Wales Consultant Nurses have visited Morriston to review the patient pathways. A formal report is anticipated in February. The investigation is continuing into the cases of surgical site infection caused by this GRE.

Achievements

- The General Practice Clinical Lead for Antimicrobial Stewardship and HCAI commenced the associated two sessions on 31st January 2022.

Challenges, Risks and Mitigation

- The Immunisation Team comprises one substantive Immunisation and Vaccination Lead for the Health Board, one full-time temporary secondment Band 7 Immunisation Coordinator, and one part-time fixed term contract Band 7. Funding has been agreed to extend the secondment and the fixed-term contract to September 2022. The Infection Prevention & Control team will take on this substantive post so that the secondment may continue without an adverse impact on the Immunisation team.
- The need for a substantive specialist Immunisation team remains a priority, especially in view of the uptake rates with our existing immunisation programmes that potentially could lead to outbreaks of vaccine preventable diseases. An influencing factor to the formation of a HB Specialist Immunisation Team revolves around the uncertainty regarding the longevity of the COVID vaccination programme; however, stability and resilience is needed to ensure other programme ambitions are met in addition to high standards and governance procedures within all Immunisation programmes.
- The Infection Prevention & Control Team is currently very stretched across the Health Board. There is a current 133.5-hour vacancy. The Band 7 Senior IPC Practitioner on maternity leave will be covered by a 12-month secondment as a Band 6 IPCN. This secondment post and the substantive Band 6 IPC Practitioner post should be advertised by the second week of February. Currently, there is a 22.5-hour long-term sickness absence, which compounds the pressures on the team. In April, a Senior Band 7 IPC Practitioner is due to leave the Health Board to take up a post with Public Health Wales' Healthcare Associated Infection Programme team. This post will be go out to recruitment.
- The IP&C Team has to prioritise its focus, currently dealing with the impact of COVID on wards and within community facilities. Face-to-face training has been suspended temporarily. The team hopes to maintain its focus on surveillance of infections of significance, such as *C. difficile* and extremely antibiotic-resistant organisms, but there is a risk to identifying all cases. The team is working closely with Public Health Microbiologists, who authorise these results, and have asked to be notified directly of any cases that they authorise. The team continues to support Service Groups in their efforts to safely manage and mitigate risks.
- The IP&C team reduced resource has resulted in a temporary suspension of the 7-day service, as there are insufficient staff to cover the rota.
- There is not a large pool of qualified and experienced Infection Prevention & Control Nurses nationally, and experience is that it may be a challenge to recruit the level of experience required for this Health Board, its complexities and the challenges it faces. Additionally, there are Band 6 and 7 Infection Prevention & Control posts being advertised currently by other organisations in Wales. Competition for these posts will be high.

- The Health Board is not achieving the infection reduction goals expected by Welsh Government.
- Service pressures on acute sites have precluded the decant of clinical areas affected by periods of increased incidence of *C. difficile*. Consequently, it has not been possible to undertake the level of 4D cleaning that is the standard within the Health Board. This particularly affects risks associated with those infections caused by extremely antibiotic-resistant infections and by *C. difficile*.
- Current pressures on Health Board services, both in the community and in hospitals, is extreme, as are the pressures on providing social care packages. The results of these pressures are that numbers of medically fit for discharge patients have increased, which results in increased length of stay for many patients. The demand for unscheduled acute care remains, leading to increased demand for inpatient beds. Surge capacity is being utilised on all inpatient sites. The increasing inpatient population occurs at a time of increased staff shortages, which an increasing patient-to-staff ratio.
- COVID-19 cases within acute inpatient settings remains a challenge, with continuing evidence of transmission events. The consequences to disruption of services are significant.
- Bed spacing and ventilation within the majority of wards in inpatient settings poses an ongoing risk in relation to transmission of COVID-19 and other seasonal viral infections, including influenza, Respiratory Syncytial Virus, parainfluenza, and Norovirus. The risk assessment in relation to bed spacing has been completed and measures to mitigate risk have been implemented. The risk assessment in relation to ventilation risks will be undertaken by Estates colleagues, with recommendations made on measures to mitigate risk in the short-, medium- and long-term.
- Historically, infection reduction initiatives have been compromised by the following: staffing vacancies, or shortages caused by sickness absence, with reliance on temporary staff; over-occupancy because of increased activity; use of pre-emptive beds; and increased activity such that it is not possible to decant bays to clean effectively patient areas where there have been infections.

Action Being Taken (what, by when, by who and expected impact)

Maintain infection Prevention & Control Support for COVID-19

- **Action:** Continue to provide support and advice in relation to COVID-19 for clinical and non-clinical staff across the Health Board. **This will be ongoing throughout the third wave, which has commenced. Lead:** Head of Nursing IP&C. **Impact:** Safe practices to protect the health of patients, staff and wider public.
- **Action:** Development of further proposals and actions following the presentation to Management Board in December of the "HCAI - State of the Nation" paper. **Target completion date: 28/02/22**. **Lead:** Executive Director of Nursing & Patient Experience, supported by Head of Nursing IP&C.

Immunisation & Vaccination

- **Action**: Further revision and clarification of the business case for a sustainable Vaccination & Immunisation Service to improve the uptake of vaccinations against Influenza and other preventable communicable diseases. **Target completion date:** provisional outcome anticipated by **31/03/22. Lead:** Matron Immunisation, Vaccination & Assistant Director of Nursing**. Impact:** Reducing preventable communicable disease.

Development of ward dashboards key infections (HCAI Quality Priority, 100 Day Plan)

Working with Digital intelligence to identify specification for the infection dashboard.

- **QP Action:** In collaboration with Digital Intelligence team, establish the data feed from LIMS, quality control and verify the accuracy of the data accessed. **Target completion date:** slippage due to COVID pressures to **31/03/22. Lead:** Head of Nursing Infection Prevention & Control, and Business Intelligence Information Manager. **Impact:** enable oversight of key indicators at Ward, Specialty, and Delivery Unit and Board level to enable early intervention and improve patient safety.

Achieve compliance with Infection Prevention-related training (HCAI Quality Priority, 100 Day Plan)

- **Action:** Service Groups to develop improvement plans for IPC training compliance. **Target completion date:** This is dependent on ESR functionality. **Lead:** Learning & Development Team. **Impact:** Improve reliability of data on compliance with IPC training for all Service Group staff.

Drive Improvements in Prudent Antimicrobial prescribing *(HCAI Quality Priority 6 & 7, 100 Day Plan)*

Antimicrobial initiatives – Secondary Care

- **Action:** Education and training sessions to highlight the changes in the secondary care antimicrobial guidelines to minimise use of broad-spectrum antibiotics. **Target Completion Date**: Quarter 4, 2021/22. **Lead:** Consultant Antimicrobial Pharmacist. **Impact:** Decrease prescribing of broad-spectrum antibiotics that are high risk for *C. difficile* and antibiotic resistance.

Antimicrobial initiatives – Primary Care

- **Action:** Cluster-based antibiotic quality improvement projects in Afan and City Health Clusters continue to progress. Focus on UTI, skin, and soft tissue infections, including long-term antibiotics. Improvements in UTI prescribing observed in the first GP surgeries targeted and learning is being evaluated and spread. PDSA cycles, 2 underway focusing on long-term antibiotics. **Target Completion Date**: Quarter 4, 2021/22. **Lead:** Antimicrobial Pharmacy team. **Impact:** Identify priority targets for QI interventions to improve compliance to guidelines and overall volumes of prescribing within the GP practice.

Antimicrobial initiatives – Health Board

- **Action:** A new Antimicrobial Stewardship Framework, governance structure and implementation plan has been agreed by the Clinical Outcome and Effectiveness Group. Reconvening the Antimicrobial Stewardship Group is critical to the implementation of the Framework. An interim chair has been agreed and the first meeting is being arranged. **Target completion date:** Quarter 4, 2021/22**. Lead:** Consultant Antimicrobial Pharmacist. **Impact:** Improve governance arrangements around antimicrobial stewardship with the health board and promote ownership and action at a service delivery group and cluster/speciality level.

Antimicrobial initiatives – Health Board

- **Action:** The Antimicrobial Stewardship Group will undertake a review of antibiotic prescribing data for the Health Board, including the agreed key prescribing indicators. Utilisation of e-prescribing data to enhance the current data will be investigated. The review will also include improving accessibility to antibiotic prescribing data via dashboards. **Target completion date:** Quarter 2, 2022/23**. Lead:** Consultant Antimicrobial Pharmacist. **Impact:** Achieve provision of clinically relevant prescribing data in a timely and accessible manner to all clinical staff, in order to drive improvements.

Tier 1 infections

Action: Executive Medical Director and Director of Nursing establishing monthly meetings with Service Group Directors to review IPC issues, receive feedback on outcomes of post-infection reviews, and discuss planned actions. **Target date**: Quarter 4, 2021/22. **Impact:** Improved governance and accountability at Service Group level.

***Clostridioides difficile* infection**

- **Action:** Digital Intelligence are developing an electronic investigation tool to allow MDT input and improve scrutiny and identification of themes by HB *C. difficile* Scrutiny Panel. The electronic data collection tool is being piloted to investigate new cases of *C. difficile* infection identified in hospital. **Target completion date:** draft of first stage developed. Additional development required, and date extended to Quarter 4, 2021/22. **Lead:** Quality Improvement Matron IPC, Public Health Wales Infectious Diseases/Microbiology Consultant. **Impact:** More robust system to collate themes and shared learning to improve the focus of prevention and management initiatives, leading to a reduction in *C. difficile* infection.

Bacteraemia improvement

- **Action:** Morriston Service Group's Medical Director has established a Consultant-led bacteraemia group, with multi-disciplinary representation, including a Public Health Wales Microbiologist, to review investigations of significant bloodstream infections and share lessons learned. A digital investigation tool has been developed and is to be implemented. **Target completion date:** Quarter 1, 2022/23. **Lead:** Morriston Hospital Service Group Directors. **Impact:** timely review of cases, identification of themes, reduction in significant bloodstream infections and share methodologies across the Health Board.

Domestic staff recruitment

- **Action:** Recruitment process for additional cleaning staff progressing. **Target completion date:** Recruitment is ongoing process to meet possible shortfalls that occur through vacancies caused by retirement or staff leaving for alternative job opportunities. **Lead:** Support services manager. **Impact:** Increased domestic staffing to provide cleaning hours required.

***Decant (Quality Priority - built environment for management and prevention of HCAI*)**

- **Action:** The feasibility including a decant facilities would enable work that is essential for reducing infection risks from respiratory infections, including COVID-19, improving mechanical ventilation in inpatient areas to standards set in national, and WHO, guidance documents. Decant facilities are essential for enabling upgrade inpatient areas to increase single room accommodation, to meet standards set in national Health Building Note guidance. **Target completion date:** *included in Capital funding bid for 2022/23.* **Lead:** Assistant Director of Strategy Capital, Assistant Director of Strategy Estates.

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 2021 to the end of January 2022 is as follows: *C. difficile* - £1,650,000; *Staph. aureus* bacteraemia - £819,000; *E. coli* bacteraemia - £280,700; therefore, a total cost of **£2,749,700**.
Recommendations
Members are asked to: • Note reported progress against HCAI priorities to the end of January 2022 and agree actions.