GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

HARP

Healthcare Associated Infection, Antimicrobial Resistance & Prescribing Programme

Caesarean Birth Surgical Site Infection Surveillance

2025 Annual Report:

All Wales

Includes data from 01/01/2025 – 31/12/2025

Version 1
Issued: 12/08/2026

The Healthcare Associated Infection, Antimicrobial Resistance and Prescribing Programme (HARP) can be accessed via the Public Health Wales website at:
https://phw.nhs.wales/

Published by Public Health Wales NHS Trust, No. 2 Capital Quarter, Tyndall Street, Cardiff CF10 4BZ.

Produced 29 July 2026

Acknowledgements

We are grateful to the obstetric clinical teams, midwifery teams, infection control teams and audit teams from all participating hospitals for continuing to provide surveillance data to Public Health Wales.

Report Authors

The HARP Analytical Team in conjunction with the Communicable Disease Surveillance Centre.

Reference this Document as:

Public Health Wales NHS Trust. Annual Report on Caesarean Birth Surgical Site Infection 2025, Wales.

Data Requests and Queries Addressed to:

Public Health Wales NHS Trust
HARP Programme
4th Floor, No. 2 Capital Quarter
Tyndall Street
Cardiff CF10 4BZ.
Email: HARP@wales.nhs.uk

Contents

Acknowledgements 2
Report Authors 2
Reference this Document as: 2
Data Requests and Queries Addressed to: 2
SUMMARY 4
INTRODUCTION 6
DATA INTERPRETATION 6
SECTION 1: DATA COMPLETENESS 8
Compliance 8
Completion of Surveillance Forms 8
SECTION 2: SSI RATE 10
Incidence of Early Onset, Late Onset and Overall SSI 10
Annual SSI Rates 11
Incidence of SSI by Infection Type 13
SECTION 3: DEMOGRAPHICS 14
Incidence of SSI by Age 14
Incidence of SSI by BMI 16
Incidence of SSI by Number of Previous C-births 17
SECTION 4: DETAILS OF THE SURGICAL PROCEDURE 18
Incidence of SSI by Procedure Type 18
Incidence of SSI by Antibiotic Prophylaxis 19
Incidence of SSI by Skin Closure Type 21
Incidence of SSI by Skin Closure Type, BMI ≥30 23
SECTION 5: DETAILS OF THE MICROBIOLOGICAL RESULTS 25
SECTION 6: POST-PROCEDURE DETAILS & ONSET OF INFECTION 26
Length of Stay in Hospital 26
Time to Onset of Infection 27
Anonymised Hospital SSI Rates 28
DISCUSSION 29
NEXT STEPS 31
REFERENCES 32

SUMMARY

NOTE: This report refers to the procedures as Caesarean Births (C-Birth), following discussion with the Caesarean Birth Steering Group.

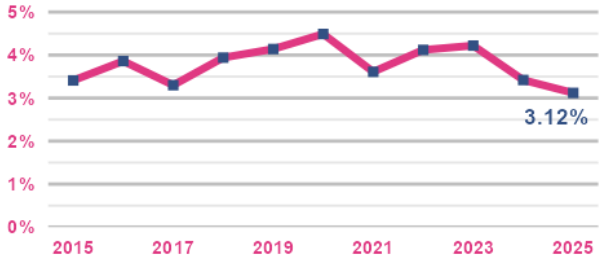
NOTE: This report contains data relating to Caesarean Births among women and pregnant people. Where the term woman/women are used throughout the text, it is intended to be inclusive of all pregnant people.

NOTE: The information in this annual report may differ from that found in the C-birth quarterly reports. This annual report should be used when quoting annual figures and for comparison across countries.

NOTE: This report contains data for 2019-2022, where the COVID-19 pandemic may have impacted data quality and reporting of C-birth Surgical Site Infections (SSIs).

NOTE: Compliance and form completion measures are based on data submitted by hospitals by the reporting deadline. Other annual report outputs include provisional imputed procedure-level records for expected hospital-months where data had not been received. In this report, imputation was applied for: University Hospital Of Wales (December 2025: 90 valid procedures, 4 SSIs).

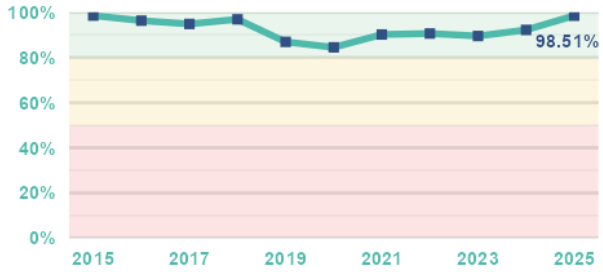
SSI Rate



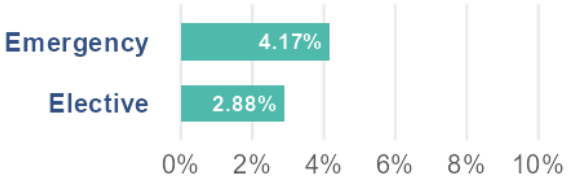
1 in 32 women had an SSI within 14 days of their caesarean birth procedure



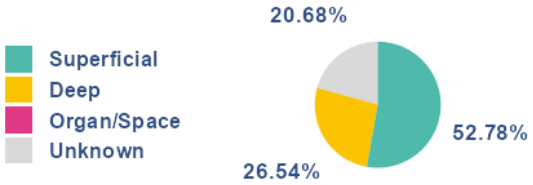
Compliance

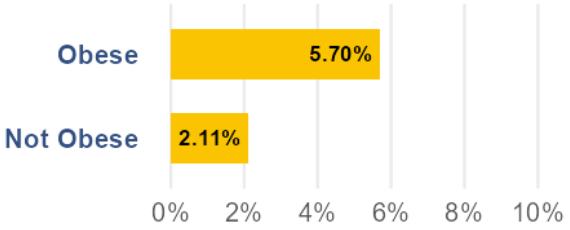


Risk Factors



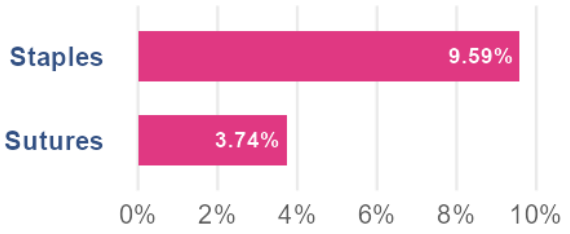
Infection Type





There has been a 0.29% reduction in SSI rate since 2015.

This equates to 30 infections prevented (based on 2015 rates).



10,529 procedures are included in the annual reporting dataset for 2025, of which 98.52% were valid procedures (n=10,373).

There were 324 SSIs reported in 2025, equating to an SSI rate of 3.12%. 86 were complicated infections (deep or organ/space), approximately 26.54% of all infections.

Among procedures with a known operation type (85.49% of all valid procedures), 54.60% were emergency and 45.40% were elective. The SSI rate in emergency procedures was significantly higher than in elective procedures.

INTRODUCTION

The Healthcare Associated Infection, Antimicrobial Resistance and Prescribing Programme (HARP) team at Public Health Wales (PHW), Health Protection were instructed by the Welsh Government to develop and support the implementation of surveillance following Caesarean birth (C-birth) procedures undertaken in NHS hospitals in Wales. This process has been mandatory since January 2006.

Surgical Site Infection (SSI) is an important area for surveillance and remains a complication of surgery where human and financial costs are high (Plowman, 2000; Jenks, Laurent, McQuarry & Watkins, 2014). Additionally, most infections are preventable (National Institute for Health and Care Excellence, 2019). An SSI is one of most common complications following a C-birth (Zuarez-Easton et al. 2017; Zejnullahu et al. 2019).

Serious patient consequences can result from SSIs, including pain, suffering and, on some occasions, they require additional surgical interventions (Sykes, Brodribb, McLaws, & McGregor, 2005). It is important to recognise that SSIs can range from a relatively trivial wound discharge with no other complications, to a life-threatening condition. Other clinical outcomes of SSIs include poor scars that are cosmetically unacceptable, persistent pain and itching, restriction of movement and a significant impact on emotional wellbeing.

This report includes data captured both during hospital stay and post-discharge within the community. The surveillance incorporates data collected by clinical teams and midwives and uses internationally agreed definitions (Horan, Gaynes, Martone, Jarvis, & Emori, 1992), allowing Welsh data to be compared with and incorporated into other international databases, such as the European Centre for Disease Prevention and Control (ECDC) European SSI database. This report details results obtained for surveillance data captured in 2025.

DATA INTERPRETATION

SSI rates in this report are calculated as the number of infections (inpatient and post-discharge) as a proportion of valid procedures. This is reported as a rate per 100 procedures.

$$SSI\ Rate = \frac{Number\ of\ SSIs}{Number\ of\ valid\ procedures} \times 100\%$$

A valid procedure is one where an SSI is recorded, or one where there is confirmation of no SSI in both inpatient and post-discharge SSI fields. “Number of procedures” refers only to valid procedures, unless otherwise specified.

In keeping with the regular reports, all SSI rates reported in this document are those that occurred up to 14 days post-procedure. Due to the different discharge policies and treatment plans in place at all Health Boards, we are confident in the consistency of rates up to 14 days, but we are unable to guarantee consistency between hospitals after this point.

Where data for an expected hospital-month had not been received by the annual reporting deadline, provisional procedure-level estimates were generated for use in annual report outputs excluding compliance and form completion measures. Imputation was only applied where data were expected but not received; it was not applied where a hospital or ward was not active, or where no submission

was expected.

For each eligible missing hospital-month, estimates were based on the same hospital and calendar month from the previous five years. The expected number of valid procedures and SSIs was calculated using the rounded five-year average. Whole historical procedure records were sampled and assigned to the missing month in the current reporting year, preserving realistic relationships between variables and SSI outcome.

Direct identifiers and historical date fields were removed from imputed records, and all imputed records were flagged in the reporting dataset. These estimates should be interpreted as provisional and will be replaced by submitted hospital data if these become available. In this report, imputation was applied for: University Hospital Of Wales (December 2025: 90 valid procedures, 4 SSIs).

SECTION 1: DATA COMPLETENESS

The compliance and form completion measures in this section are based only on surveillance forms submitted by hospitals by the reporting deadline. Any provisional imputed records used elsewhere in the report are not included in these data completeness measures, because they do not represent submitted forms.

Compliance

The proportion of valid forms being returned has increased compared to 2024, with **98.51%** of the total number of forms being valid in **2025**.

Table 1. Proportion of valid C-birth SSI surveillance forms

	2023	2024	2025
Total number of surveillance forms	9,401	9,876	10,439
Number of valid surveillance forms	8,414	9,106	10,283
Valid forms returned*	89.50%	92.20%	98.51%

*A valid form is a procedure where an SSI is recorded, or one where there is confirmation of no SSI on both inpatient and post-discharge SSI fields.

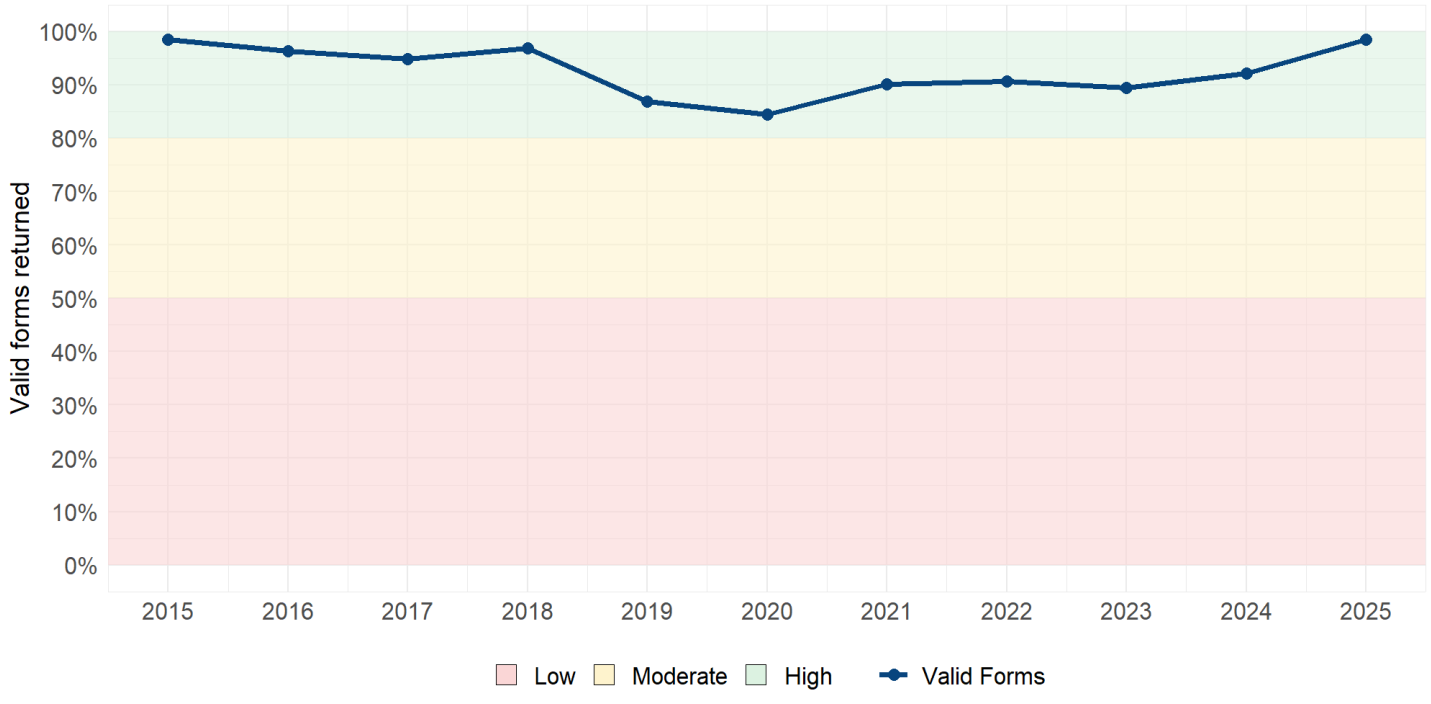


Figure 1. Trend in the proportion of valid forms returned over the previous 10 years, 2015–2025.

Completion of Surveillance Forms

The majority of inpatient forms received at PHW had a completed inpatient SSI status field (where

either “Yes” or “No” was selected), with 10,437 of 10,439 (99.98%) forms completed. In comparison, 10,283 of 10,439 (98.51%) forms had a completed post-discharge SSI field. Of the forms where a post-discharge SSI was reported, additional information was provided in most cases, with 82.64% including an SSI type and 100% including an infection date.

SECTION 2: SSI RATE

Incidence of Early Onset, Late Onset and Overall SSI

Table 2. Overall number of procedures, SSIs, and SSI Rate, 2025.

	No. of Procedures	No of SSIs	SSI Rate (%) (95% CI)
C-birth surveillance	10,373	324	3.12 (2.79 - 3.46)

Of the **10,373** valid procedures reported and imputed procedures, **324** reported an inpatient or post-discharge SSI. This gives an SSI rate of **3.12%**, which represents **a decrease** compared to the previous year, when the SSI rate was **3.42%**.

The following table provides the SSI rates separated out as 'Early Onset,' from 0 to 5 days, and 'Late Onset' from 6 to 14 days. Early onset are infections that may occur when the woman is still in hospital or following the first 2 to 3 days after discharge. Late onset are the infections that occur, typically, in the community. A total of **22** inpatient SSIs (**6.79%**) were recorded, giving an inpatient SSI rate of **0.21%**. The majority of SSIs (**302**, **93.21%**) occurred following hospital discharge, giving a rate of **2.91%**. A total of **27** early onset SSIs were recorded, giving an early onset SSI rate of **0.26%**. The majority of SSIs (**297**, **91.67%**) occurred in the late onset period, giving a rate of **2.86%**.

The length of hospital stay is shorter now than it was at the start of the surveillance period, as more emphasis is being placed on community midwifery care, as well as shorter hospitalisations for labour and delivery during the COVID-19 pandemic. As a result, fewer early onset SSIs are being identified than previously, and these are instead being picked up as late onset. Although the overall SSI rate is **3.12%**, the majority of these are late onset, indicating that infections are more commonly occurring in the community rather than being identified in the early days following discharge.

All SSIs reported occurred within 14 days of a C-birth procedure.

Table 3. Incidence of SSIs, 2025.

Time to Onset of Infection	No. of SSIs	SSI Rate (%) (95% CI)
Early onset (0-5 days)	27	0.26 (0.16 - 0.36)
Late onset (6-14 days)	297	2.86 (2.54 - 3.18)
Unknown	0	0.00 (0.00 - 0.00)

Annual SSI Rates

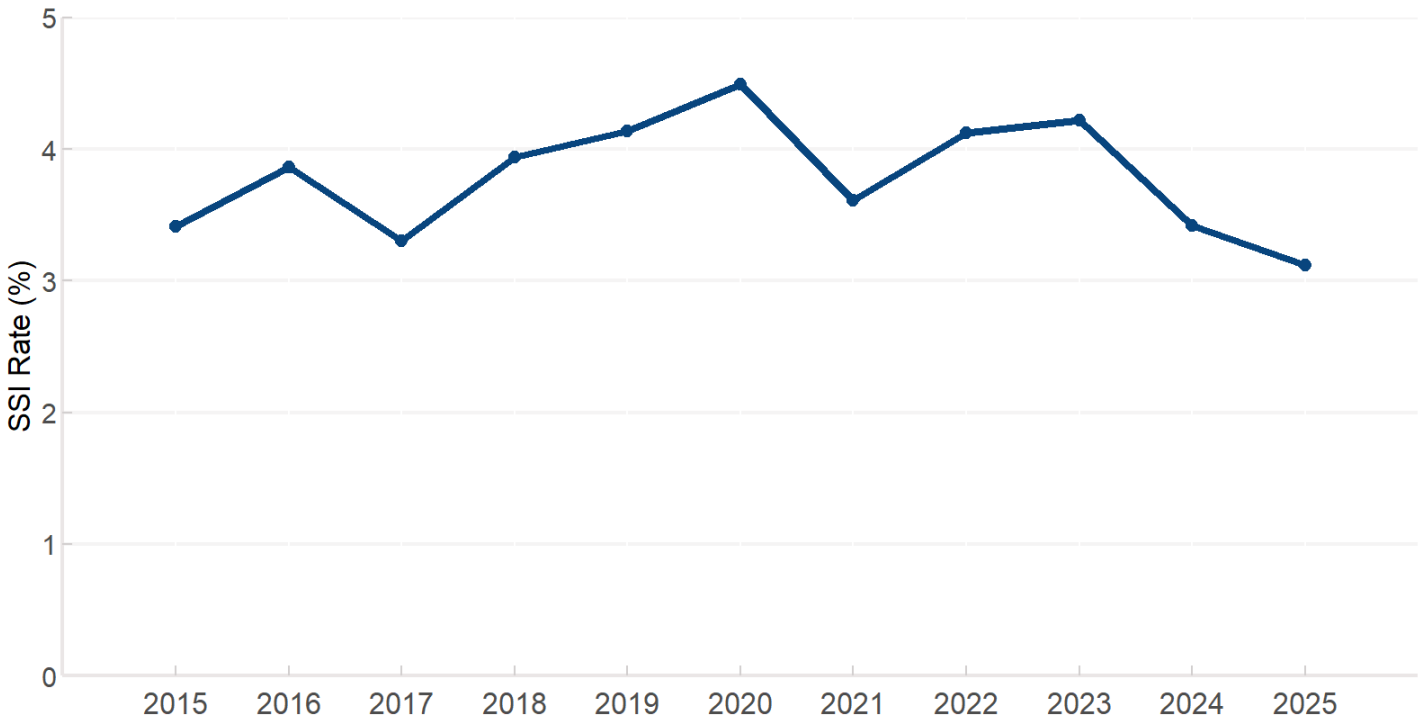


Figure 2. Overall SSI rates for 2015 - 2025.

Table 4. Overall SSI rates for the last five years. (Unknowns excluded).

Year	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
2025	10,373	324	3.12 (2.79 - 3.46)
2024	9,106	311	3.42 (3.04 - 3.79)
2023	8,414	355	4.22 (3.79 - 4.65)
2022	7,361	303	4.12 (3.66 - 4.57)
2021	7,173	259	3.61 (3.18 - 4.04)

The SSI rate in Wales was **3.41%** in **2015** and **decreased** to **3.12%** in **2025**. This represents **a decrease of 0.29%** in the SSI rate over this period. The SSI rate observed in **2015** was applied to the number of procedures reported in each subsequent year to estimate how many infections would have been expected if the SSI rate had remained unchanged. Comparing these expected values with the number of infections reported across the period from **2015** to **2025** indicates that **there were 266 more infections than would have been expected if the earlier SSI rate had persisted**.

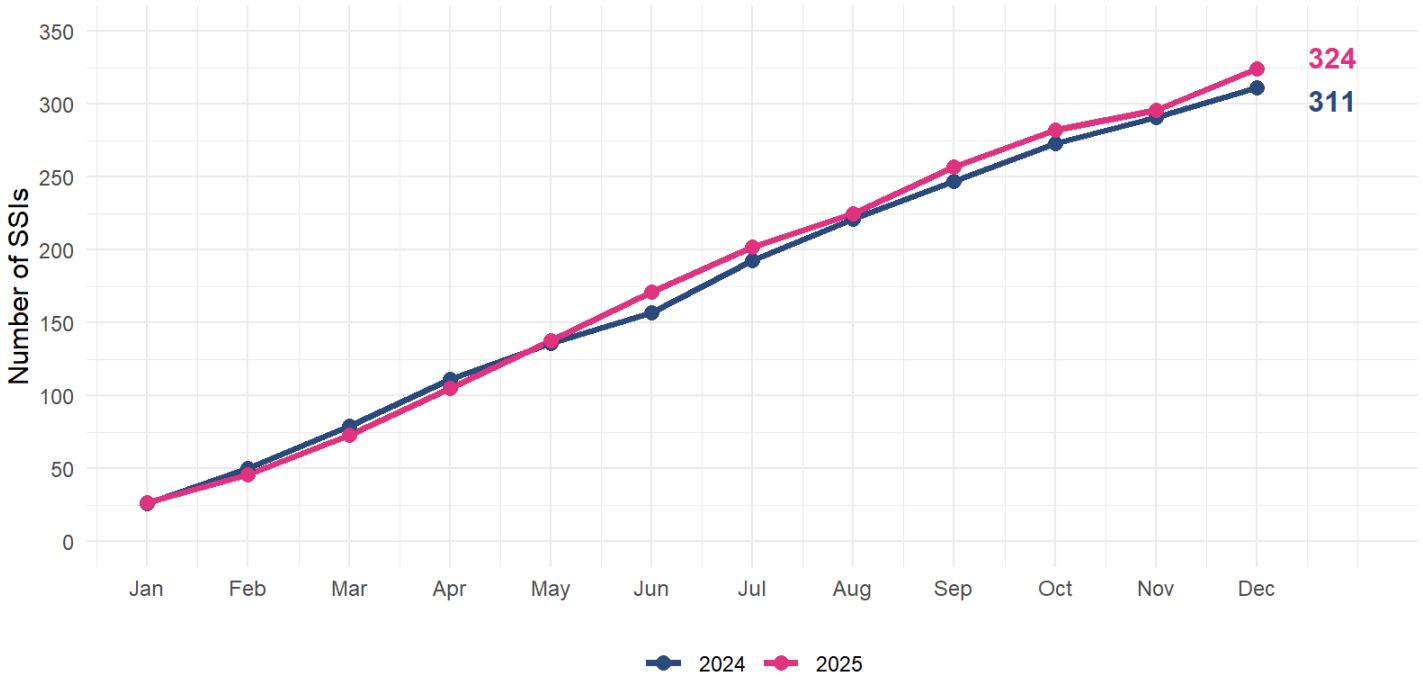


Figure 3. Cumulative SSI number for 2025, compared to the previous year.

Throughout Wales, there were **324** SSIs reported in **2025**, compared to **311** in **2024**, representing an **increase** of **4.18%** (**13 more infections**). Cumulative SSI numbers for **2024** and **2025** are shown in Figure 3.

Incidence of SSI by Infection Type

The type of SSI recorded on the surveillance form can be categorised into either superficial, deep seated or organ/space infections. These all have specific definitions and diagnostic criteria and remain standardised across Europe. The following tables show the split between different SSI types, and their corresponding rates.

Table 5. Types of SSI and corresponding SSI rates in C-birth procedures, 2025.

SSI Type	No. of SSIs	Proportion (%)	SSI Rate (%) (95% CI)
Superficial	171	52.78	1.65 (1.42–1.92)
Deep	86	26.54	0.83 (0.67–1.03)
Organ/Space	0	0.00	0.00 (0.00–0.05)
Unknown	67	20.68	0.65 (0.50–0.82)

The distribution of SSI types is as expected, with the majority of infections being superficial (52.78%), followed by deep infections (26.54%), and no organ/space infections (0.00%) were reported.

SECTION 3: DEMOGRAPHICS

This section provides information about the woman which is not affected by the current procedure itself and is known beforehand, namely age, Body Mass Index (BMI), and the number of prior C-birth procedures.

Incidence of SSI by Age

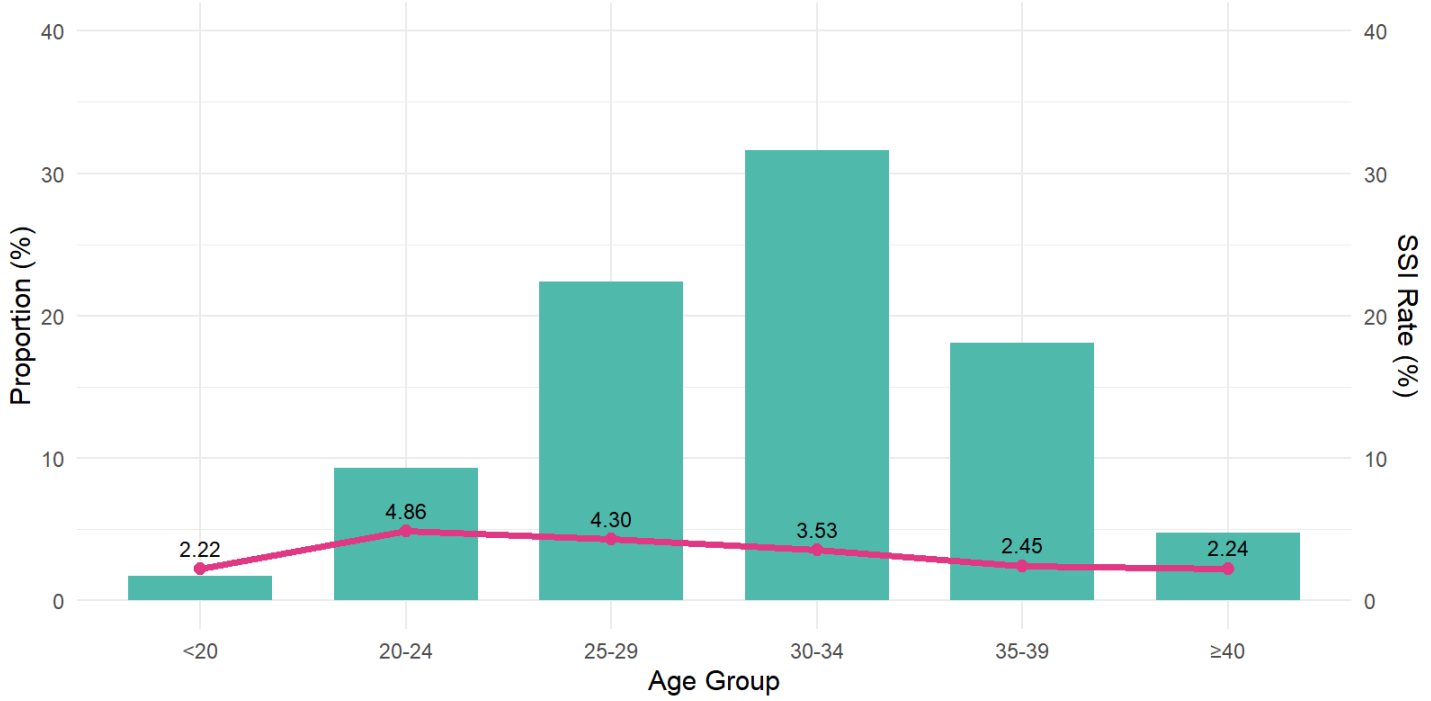


Figure 4. Graph showing the incidence of SSI by age group, 2025.

Table 6. Incidence of SSI by age group, 2025.

Age Group	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
<20	180	4	2.22 (0.07 - 4.38)
20-24	968	47	4.86 (3.50 - 6.21)
25-29	2,325	100	4.30 (3.48 - 5.13)
30-34	3,282	116	3.53 (2.90 - 4.17)
35-39	1,880	46	2.45 (1.75 - 3.15)
≥40	491	11	2.24 (0.93 - 3.55)
Unknown	1,247	0	0.00 (0.00 - 0.00)

The primary axis in Figure 4 represents the proportion of procedures in each category, calculated as the number of procedures within the category divided by the total number of procedures for which an age is recorded. The secondary axis displays the SSI rate as a percentage, calculated as the number of procedures in the given category where an SSI is recorded, divided by the total number of procedures in that category. This is the case for all further graphs where the proportion and SSI rate are both shown in one graph.

In 2025, higher SSI rates were observed in women aged 20-24 (4.86%), followed by those aged 25-29

(4.30%) and 30-34 (3.53%). The mean age among women with a valid procedure was 31.0 years, compared with 29.9 years among those with an SSI. Age was highly significant in its association with the probability of having an SSI ($p = 0.002$).

Incidence of SSI by BMI



Figure 5. Graph showing the incidence of SSI by BMI category, 2025.

Table 7. Incidence of SSI by BMI category, 2025.

BMI Group		No. of Procedures	No. of SSIs	SSI rate (%) (95% CI)
Underweight	<18.5	108	0	0.00 (0.00 - 0.00)
Healthy Weight	18.5–24	2,092	37	1.77 (1.20 - 2.33)
Overweight	25–29	2,578	64	2.48 (1.88 - 3.08)
Obese	≥30	3,840	219	5.70 (4.97 - 6.44)
Unknown		1,755	4	0.23 (0.00 - 0.45)

In 2025, there was a clear association between BMI and the probability of having an SSI. The mean BMI for all valid procedures was 30.0 (median 29.0) and was higher at 34.5 (median 34.0) among women with an SSI. Figure 5 shows a similar proportion of procedures performed in women in the obese and overweight BMI categories. When comparing BMI groups, the SSI rate in obese women was significantly higher when compared with all other BMI groups combined (p = <0.001). The SSI rate in underweight women was lower than in the other BMI groups combined; however, this group was smaller compared with the other groups and the difference was statistically significant (p = 0.035).

Incidence of SSI by Number of Previous C-births

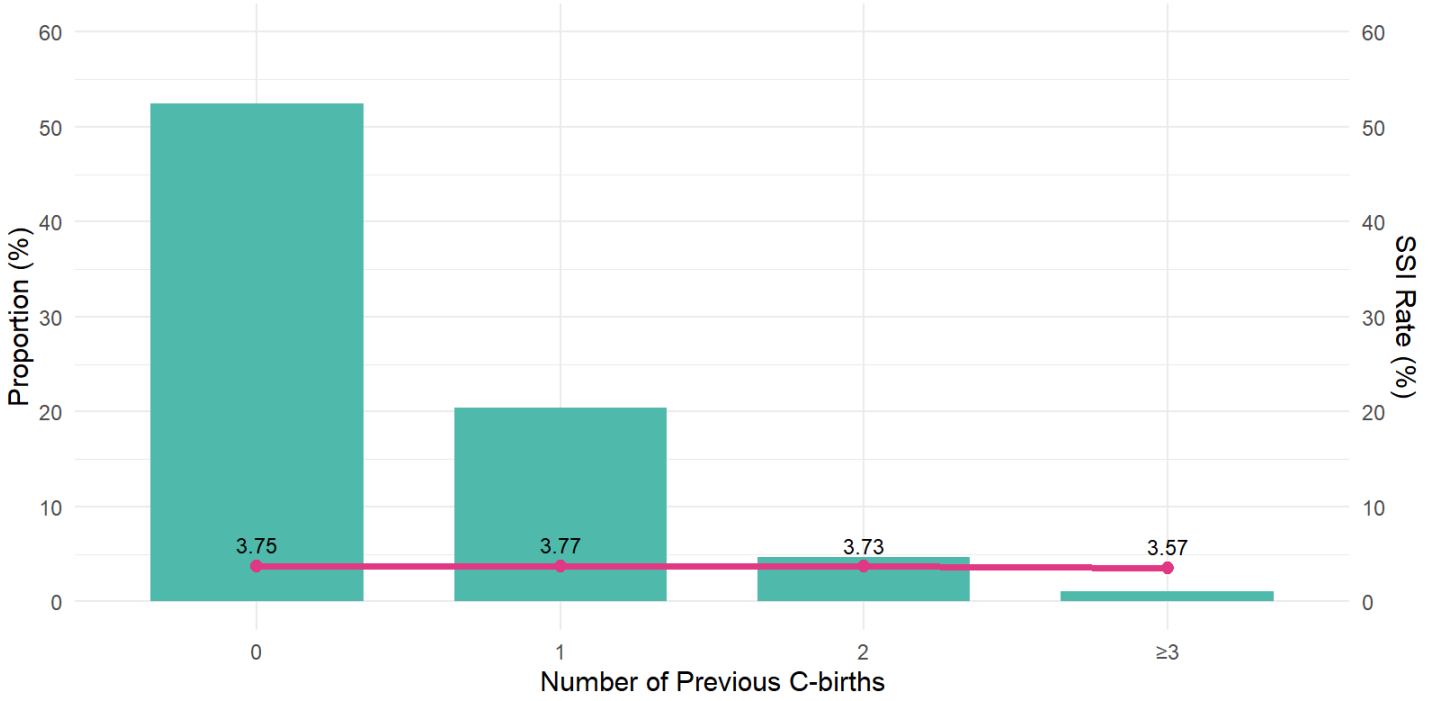


Figure 6. Graph showing incidence of SSI by the number of previous C-births, 2025.

Table 8. Incidence of SSI by the number of previous C-births, 2025.

No. of Previous C-births	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
0	5,444	204	3.75 (3.24 - 4.25)
1	2,120	80	3.77 (2.96 - 4.58)
2	483	18	3.73 (2.04 - 5.42)
≥3	112	4	3.57 (0.13 - 7.01)
Unknown	2,214	18	0.81 (0.44 - 1.19)

The proportion of procedures in each category steadily decreases as the number of previous C-births a woman has had increases, but when comparing the number of C-births a woman has undergone prior to the current procedure, there is no clear consistent trend in the SSI rate by number of previous C-births. The SSI rate was highest among women who had undergone **1 previous C-birth** (**3.77%**), which was **lower than** the previous year (**4.69%** in **2024**).

SECTION 4: DETAILS OF THE SURGICAL PROCEDURE

The following section provides information on the variables relating to the procedure itself (including procedure type, prophylaxis, and skin closure).

Incidence of SSI by Procedure Type

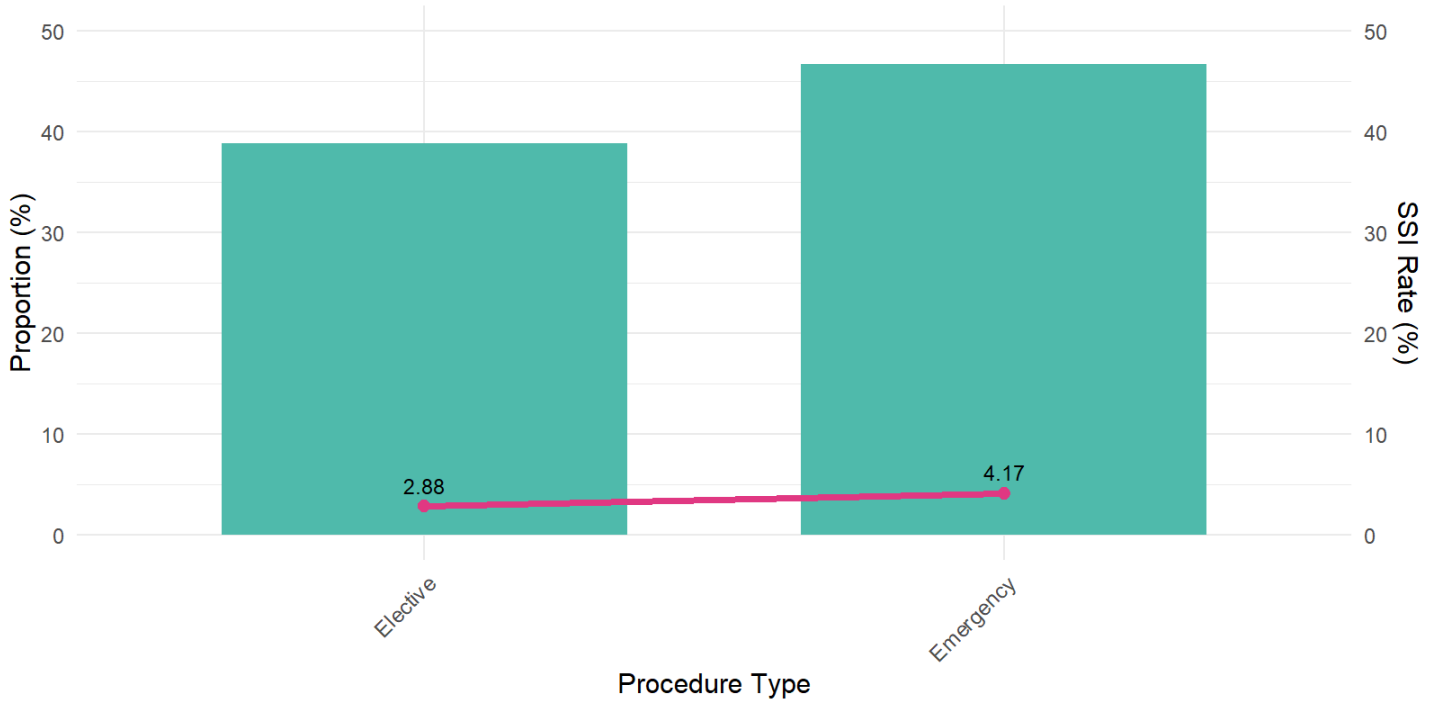


Figure 7. Graph showing incidence of SSI by type of procedure, 2025.

Table 9. Incidence of SSI by procedure type, 2025.

Procedure Type	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
Elective	4,026	116	2.88 (2.36 - 3.40)
Emergency	4,842	202	4.17 (3.61 - 4.74)
Unknown	1,505	6	0.40 (0.08 - 0.72)

In 2025, the SSI rate in emergency procedures was significantly higher than in elective procedures (1.29%, p = 0.001). The split of procedures is fairly even, with just over half (54.60%) of procedures being classed as emergency (CS1, CS2 and CS3), and the remaining 45.40% being classed as elective (CS4).

CS1 – Immediate threat to life of woman or foetus, e.g. cord prolapse, significant placental abruption or maternal cardiorespiratory distress.

CS2 – Late foetal heart rate decelerations, CS pre-booked to avoid vaginal delivery but woman presents in advanced labour.

CS3 – Deteriorating but compensated maternal medical condition.

CS4 – Operation at short notice but no clinical urgency, Elective.

Incidence of SSI by Antibiotic Prophylaxis

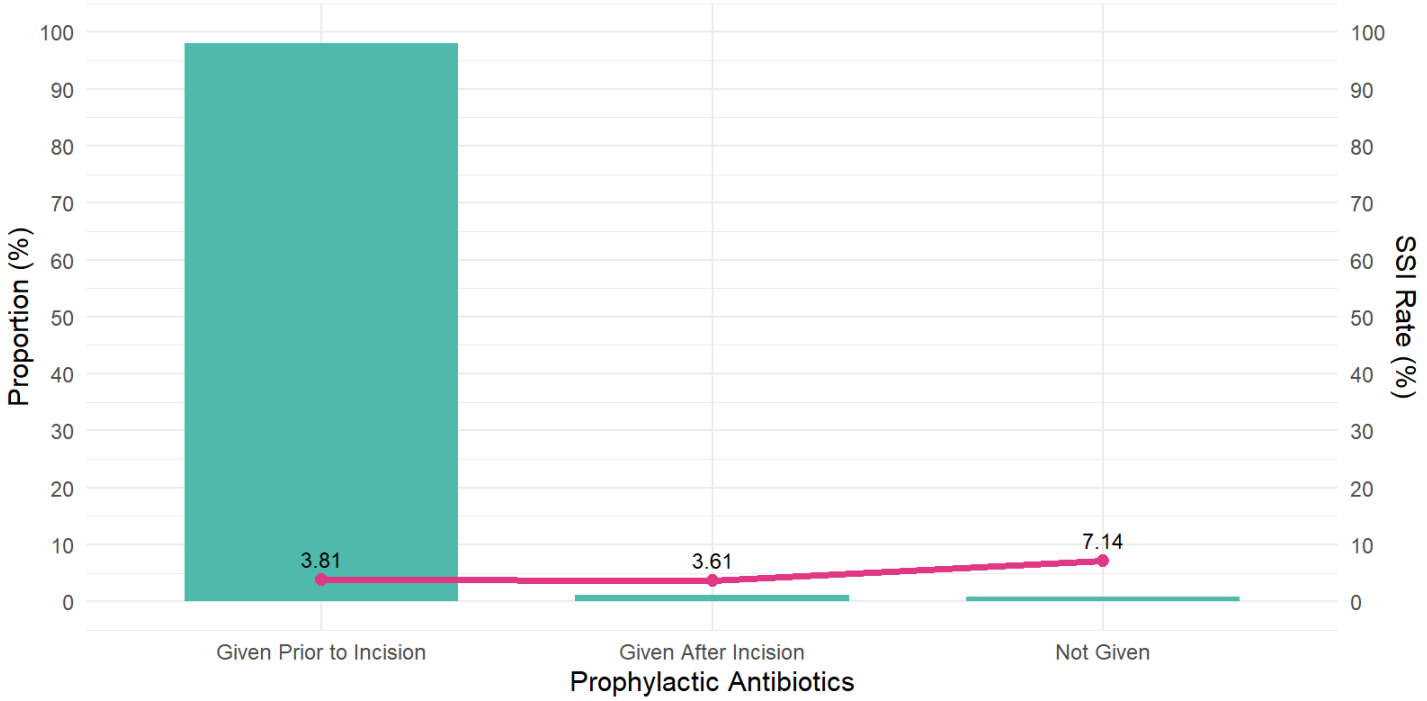


Figure 8. Graph showing proportion of procedures and incidence of SSI by timing of prophylactic antibiotics, 2025.

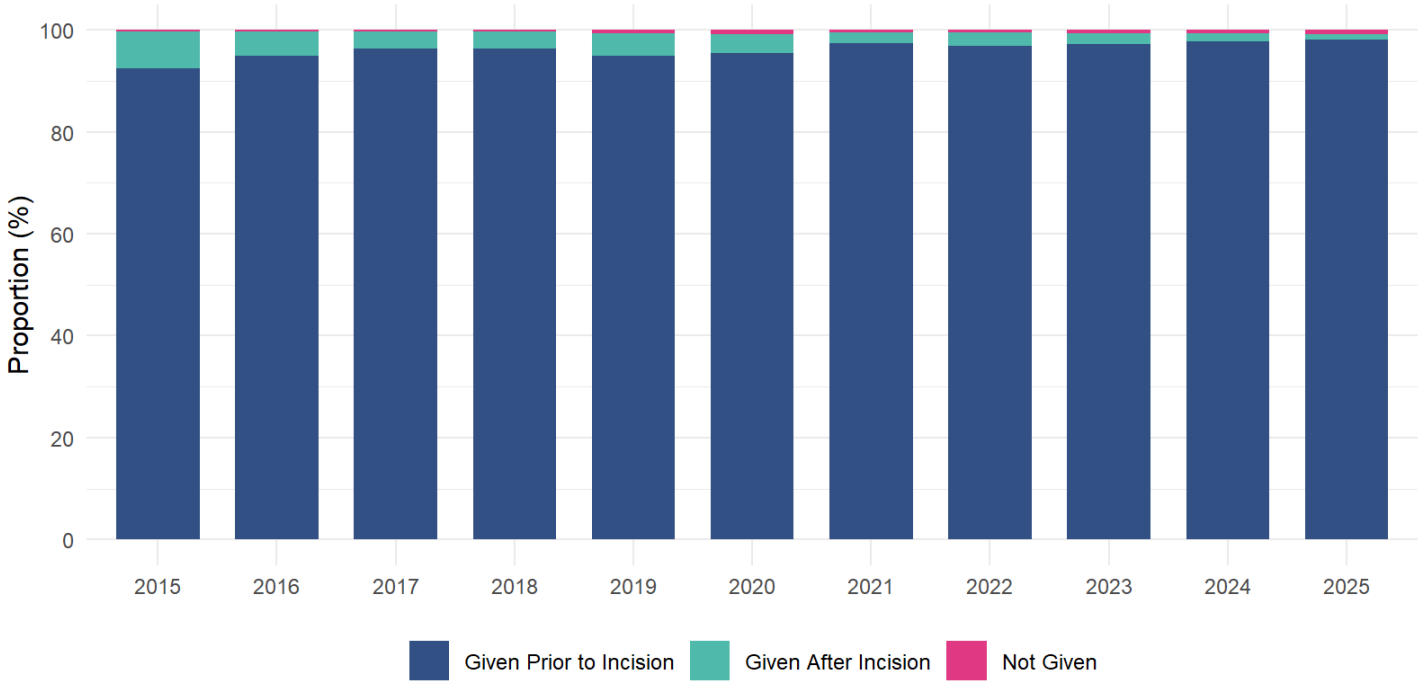


Figure 9. Graph showing proportion of procedures by timing of prophylactic antibiotics, 2015 - 2025.

Table 10. Proportion of procedures by timing of prophylactic antibiotics, 2025.

Prophylactic Antibiotics	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
Given Prior to Incision	7,490	285	3.81 (3.37 - 4.24)
Given After Incision	83	3	3.61 (0.00 - 7.63)
Not Given	70	5	7.14 (1.11 - 13.18)
Unknown	2,730	31	1.14 (0.74 - 1.53)

For procedures where timing of antibiotic prophylaxis was recorded, 99.08% of women were given prophylactic antibiotics and, of these, 98.90% were given prior to surgical incision. In 2025, there was a higher SSI rate when antibiotics were not given, but this was not significant (3.53% difference between the highest and lowest rates, p = 0.324). Therefore, comparison of SSI rates should be interpreted with caution due to the small proportion of procedures where antibiotics were administered after incision.

We continue to recommend that antibiotics are administered prior to incision where possible, in accordance with NICE guidelines (National Institute for Health and Care Excellence, 2019). It is also worth taking into consideration that the serum half-life of Cefuroxime is 80 minutes, and NICE recommend that a repeat dose is administered when the length of the procedure exceeds this time. (In the case of women on second line antibiotics, both Clindamycin and Gentamicin have a serum half-life of two hours).

1st line	If allergic to penicillin
Cefuroxime 1.5g IV **+** **Metronidazole 500mg IV**	**Clindamycin 600mg IV/PO** **+** **Gentamicin 1.5mg/kg IV**

Incidence of SSI by Skin Closure Type

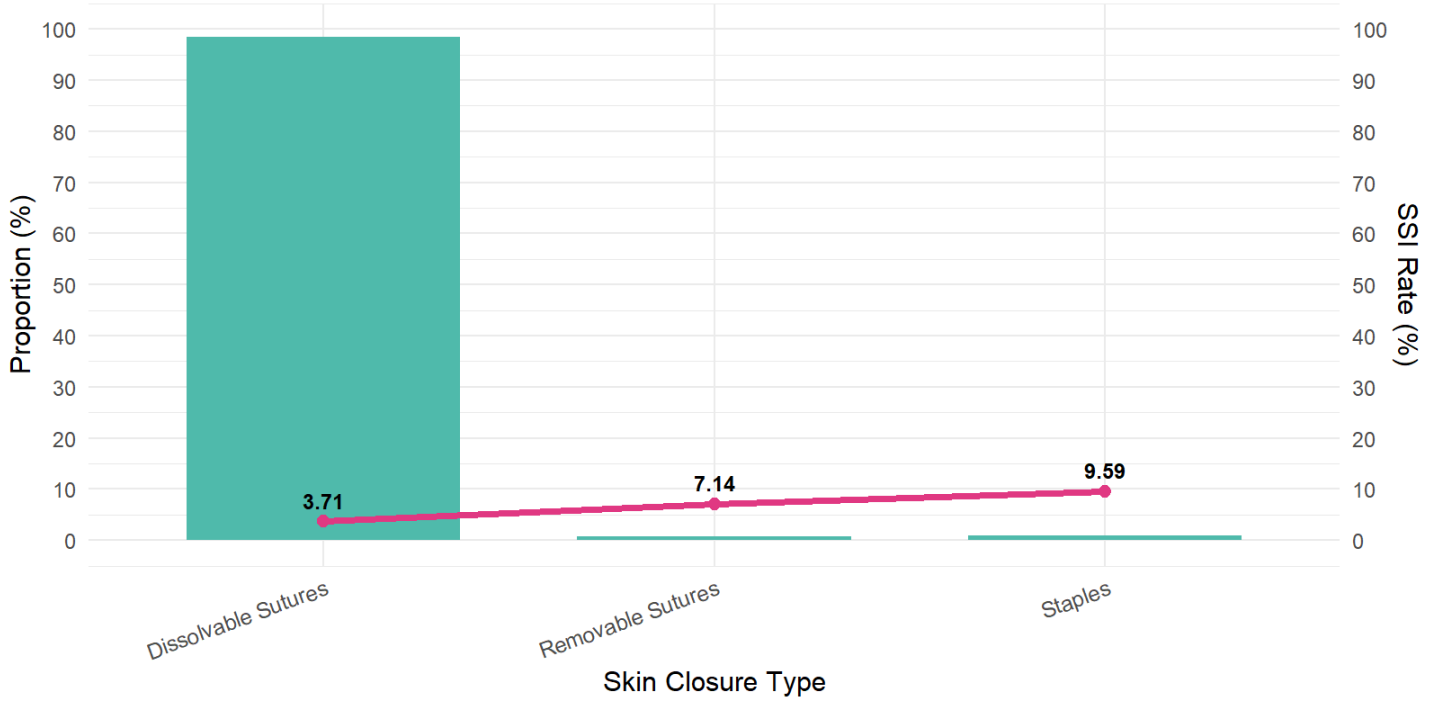


Figure 10. Graph showing proportion of procedures and incidence of SSI by type of skin closure used, 2025.

In **2025**, the most commonly used closure type was **dissolvable sutures**. Dissolvable sutures were used in **98.43%** of procedures, removable sutures in **0.68%**, staples in **0.89%**, and glue in **0.00%**. The SSI rate among procedures closed with staples was significantly different compared with other closure types (p = 0.022).

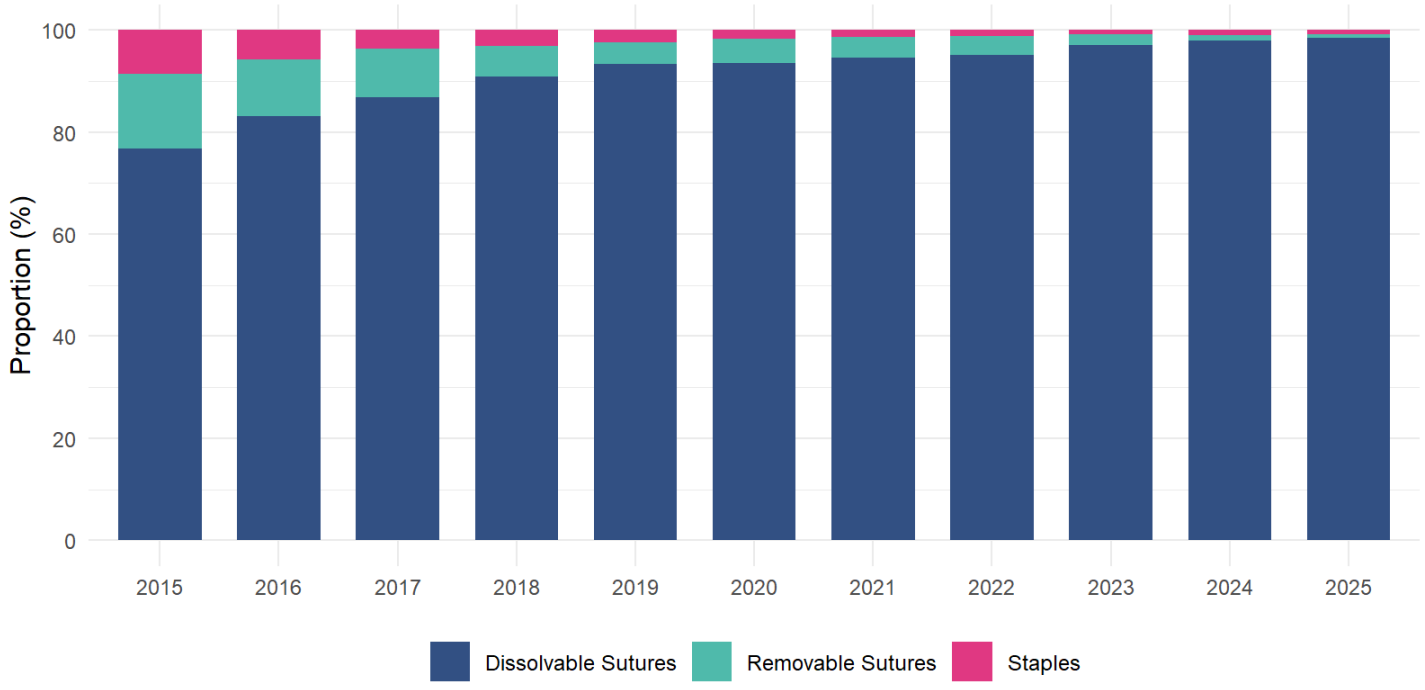


Figure 11. Graph showing proportion of procedures by type of skin closure used, 2015 - 2025.

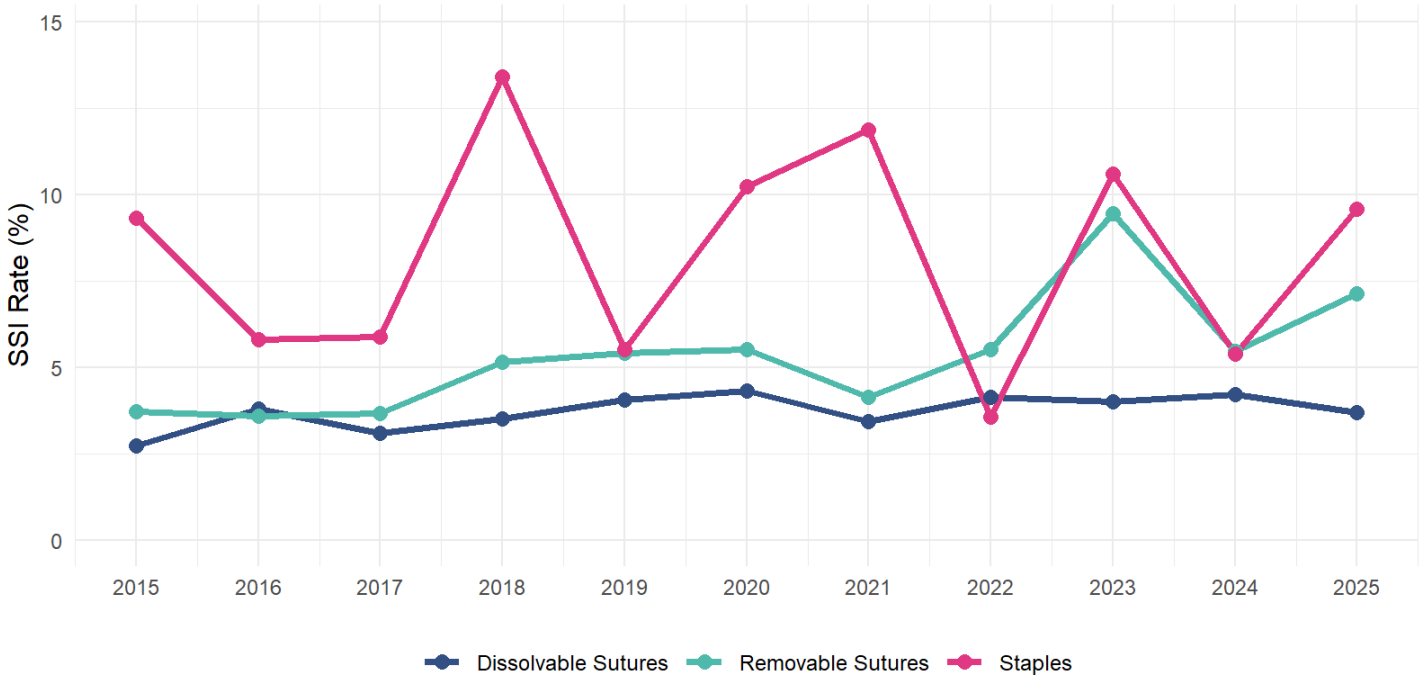


Figure 12. Graph showing incidence of SSI by type of skin closure used, 2015 - 2025.

Table 11. Incidence of SSI by type of skin closure, 2025.

Type of Wound Closure	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
Sutures (All Types)	8,160	305	3.74 (3.33 - 4.15)
Dissolvable Sutures	8,104	301	3.71 (3.30 - 4.13)
Removable Sutures	56	4	7.14 (0.40 - 13.89)
Staples	73	7	9.59 (2.83 - 16.34)
Unknown	2,140	12	0.56 (0.24 - 0.88)

Incidence of SSI by Skin Closure Type, BMI ≥30

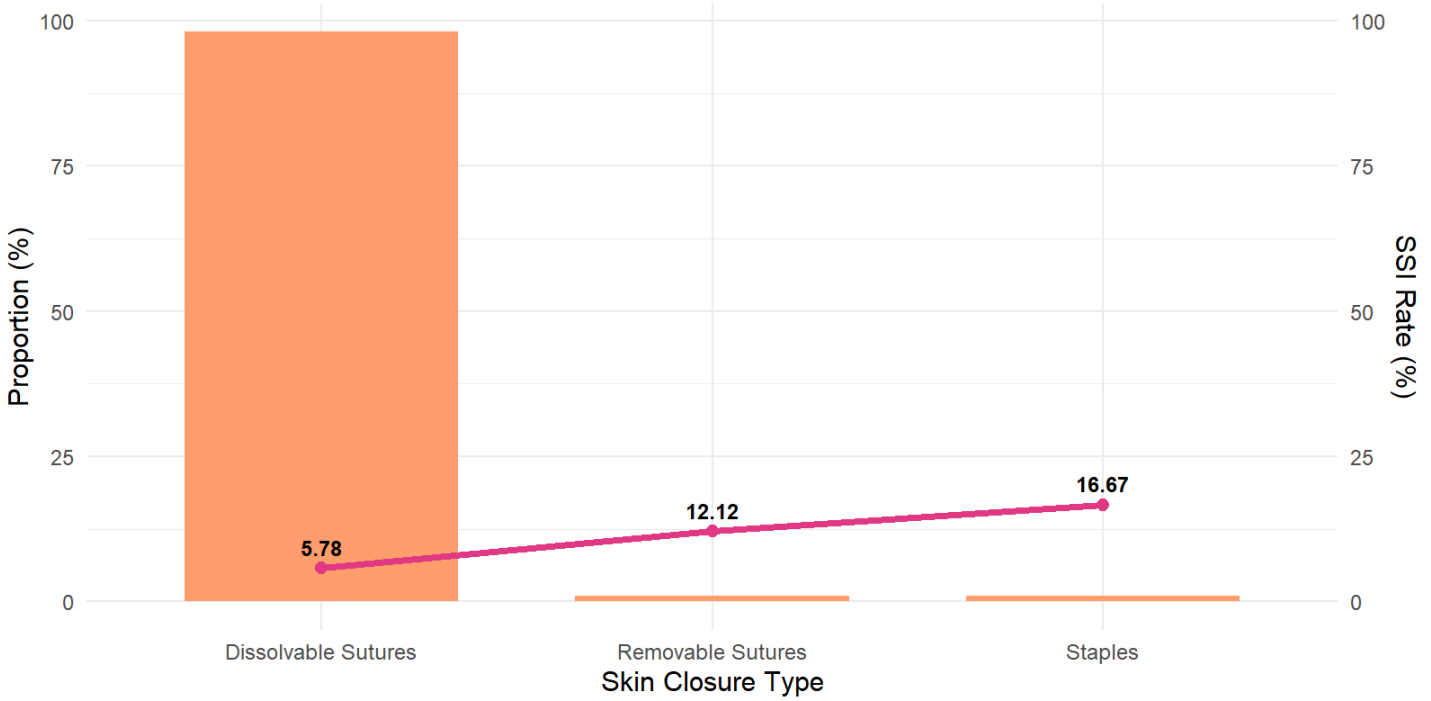


Figure 13. Graph showing the incidence of SSI by skin closure used in women with BMI ≥30, 2025.

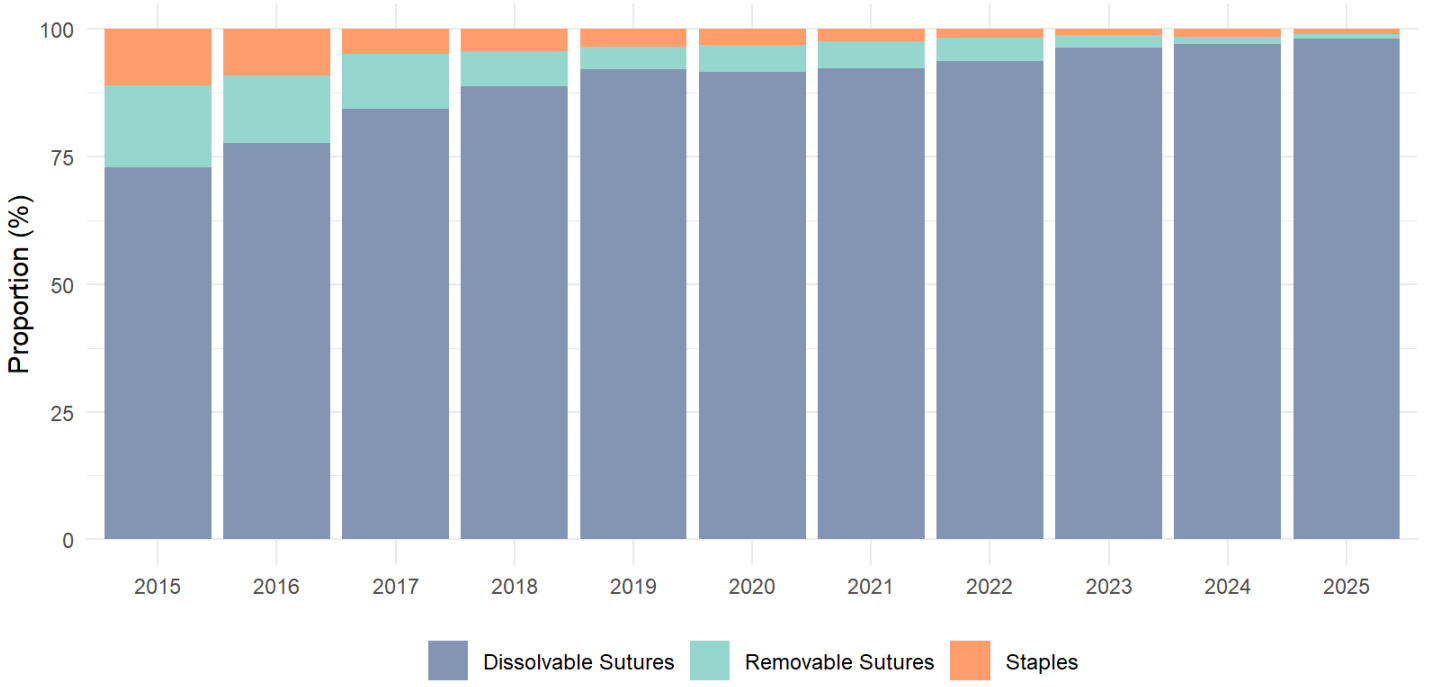


Figure 14. Graph showing proportion of all procedures by type of skin closure used in women with BMI≥30, 2015 - 2025.

In **2025**, when the woman is obese (BMI ≥30), **98.07%** of procedures are closed with dissolvable sutures with just **1.01%** being closed with staples.

For all procedures, there are **fewer** instances where staples are used as the method of closure for C-birth procedures. For example, in **2024** staples were used for **45** procedures with a **6.67%** SSI rate and in **2025** they were used for **36** procedures with an SSI rate of **16.67%**. The SSI rate where staples were used as a method of closure was **significantly higher** when BMI ≥30 (p = **0.017**).

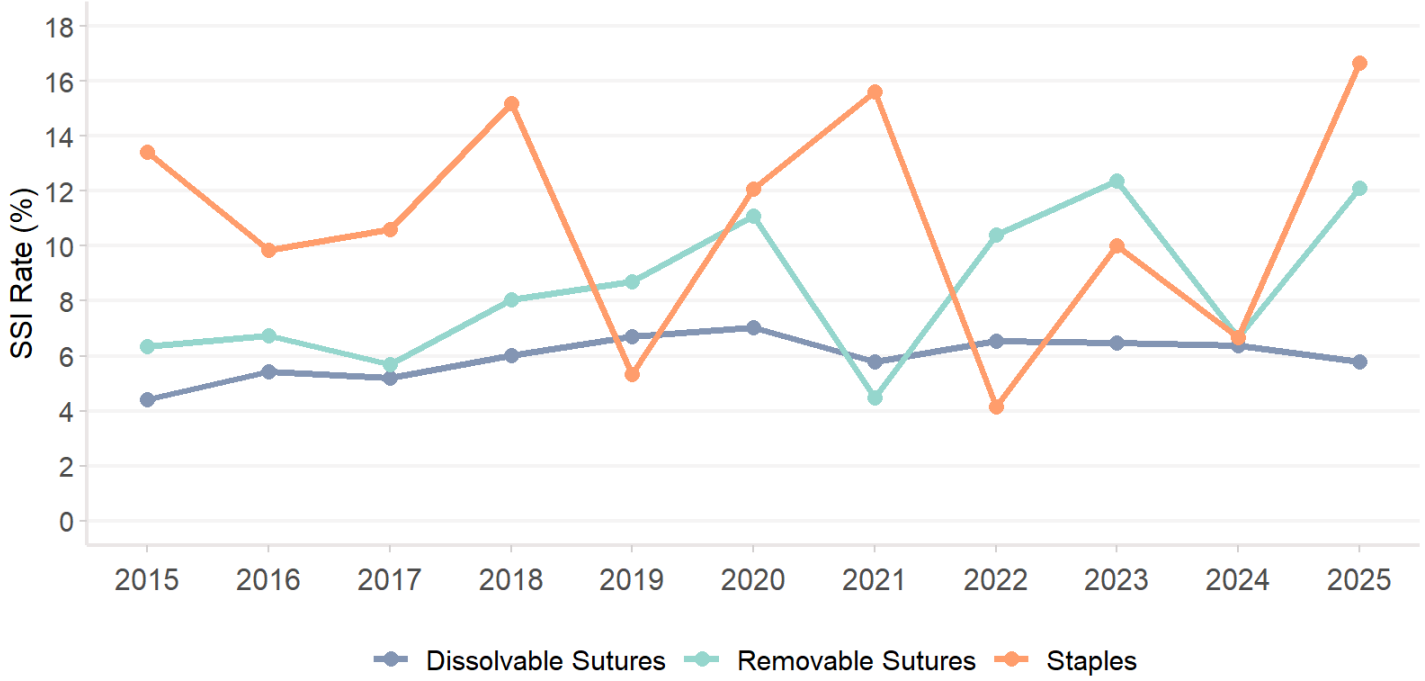


Figure 15. Graph showing incidence of SSI by type of skin closure used in women with BMI≥30, 2015 - 2025.

Table 12. Incidence of SSI by type of skin closure in women with BMI≥30, 2025.

Type of Wound Closure	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
Sutures (All Types)	3,546	207	5.84 (5.07 - 6.61)
Dissolvable Sutures	3,513	203	5.78 (5.01 - 6.55)
Removable Sutures	33	4	12.12 (0.99 - 23.26)
Staples	36	6	16.67 (4.49 - 28.84)
Unknown	258	6	2.33 (0.49 - 4.16)

Figures 12 and 15 show the trend in SSI rates by skin closure type from 2015 - 2025. The peaks in SSI rate for staple use in 2018 and 2021 occurred because of increased staple use, which was discussed with the relevant hospitals resulting in a drop in staple use and SSI rate in the subsequent following years.

SECTION 5: DETAILS OF THE MICROBIOLOGICAL RESULTS

This section provides information about the types of organisms and the proportion reported for SSIs.

From 2025 onwards, microbiological reporting focuses on whether *Staphylococcus aureus* was identified and, where present, its flucloxacillin susceptibility profile. Other organism categories are not presented in this section.

In 2025, there were 324 reported SSIs. Of these, 93 had *S. aureus* identified, representing 28.70% of reported SSIs. The remaining 231 SSIs, representing 71.30%, did not have an *S. aureus* result recorded.

Among all reported SSIs, 90 had a swab result recorded as *Staphylococcus aureus* flucloxacillin sensitive, representing 27.78% of SSIs. A further 3 had a result recorded as *Staphylococcus aureus* flucloxacillin resistant, representing 0.93% of SSIs.

Among SSIs where *S. aureus* was identified, 96.77% were flucloxacillin sensitive and 3.23% were flucloxacillin resistant.

SECTION 6: POST-PROCEDURE DETAILS & ONSET OF INFECTION

This section deals with the time period after the procedure has occurred and the time to onset of infection.

Length of Stay in Hospital

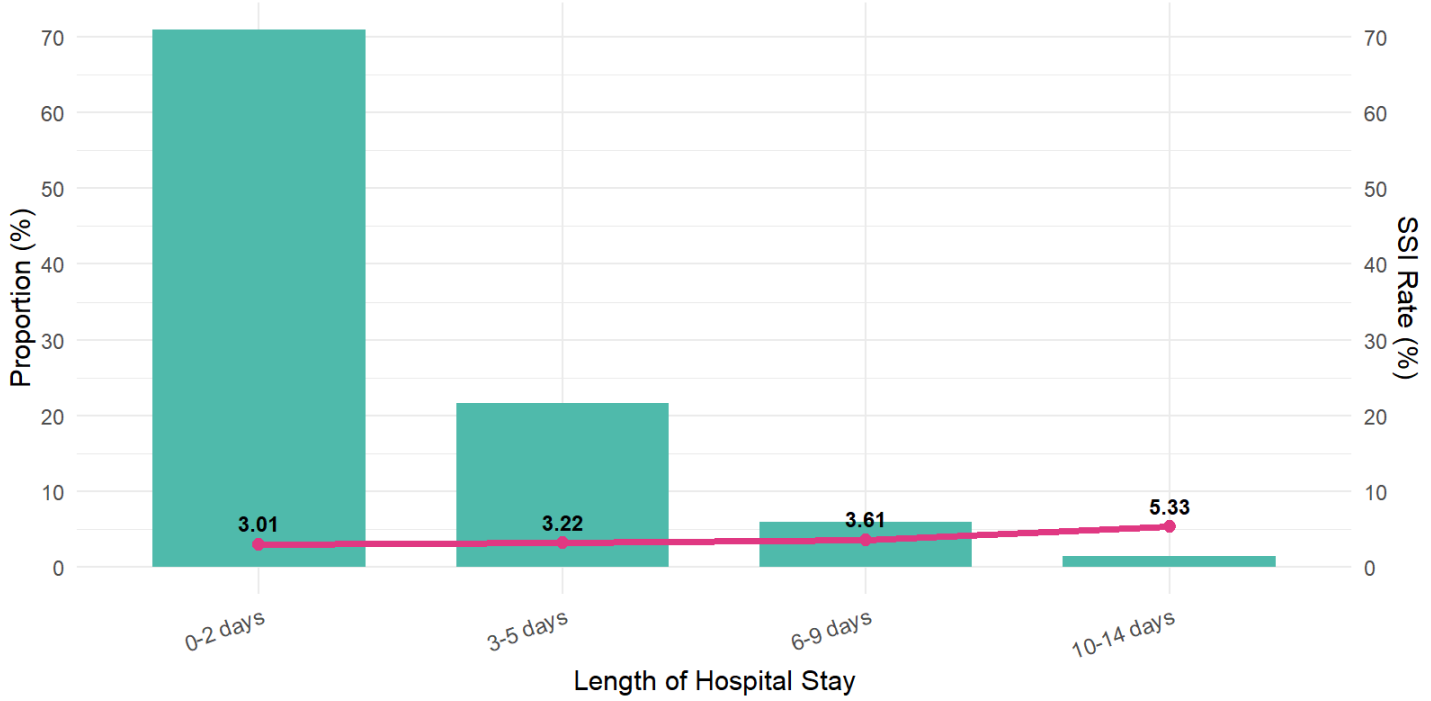


Figure 16. Graph showing incidence of SSI by length of hospital stay, 2025.

Table 13. Incidence of SSI by length of hospital stay, 2025.

Length of Hospital Stay	No. of Procedures	No. of SSIs	SSI Rate (%) (95% CI)
0-2 days	7,247	218	3.01 (2.61 - 3.40)
3-5 days	2,206	71	3.22 (2.48 - 3.96)
6-9 days	610	22	3.61 (2.13 - 5.09)
10-14 days	150	8	5.33 (1.74 - 8.93)
Unknown	160	5	3.12 (0.43 - 5.82)

For all women undergoing a C-birth, the mean hospital stay following the procedure is 2.5 days (median of 2). When only women who have had an SSI are included, this increases to a mean of 2.8 days (median of 2). As the length of hospital stay increases, there is an associated increase in the SSI rate. This would suggest that those who have been discharged from the hospital later are more likely to develop an SSI, not necessarily because of the length of stay itself, but due to the same factors that resulted in the extended stay. Similarly to the previous year, length of hospital stay was not significantly associated with SSI rate in 2025 ($p = 0.315$), with the highest SSI rate seen where length of hospital stay was 10-14 days (5.33%). However, it is worth noting that the proportion of procedures in each group decreases as the length of stay increases, because most women are discharged between 0–2 days.

Time to Onset of Infection

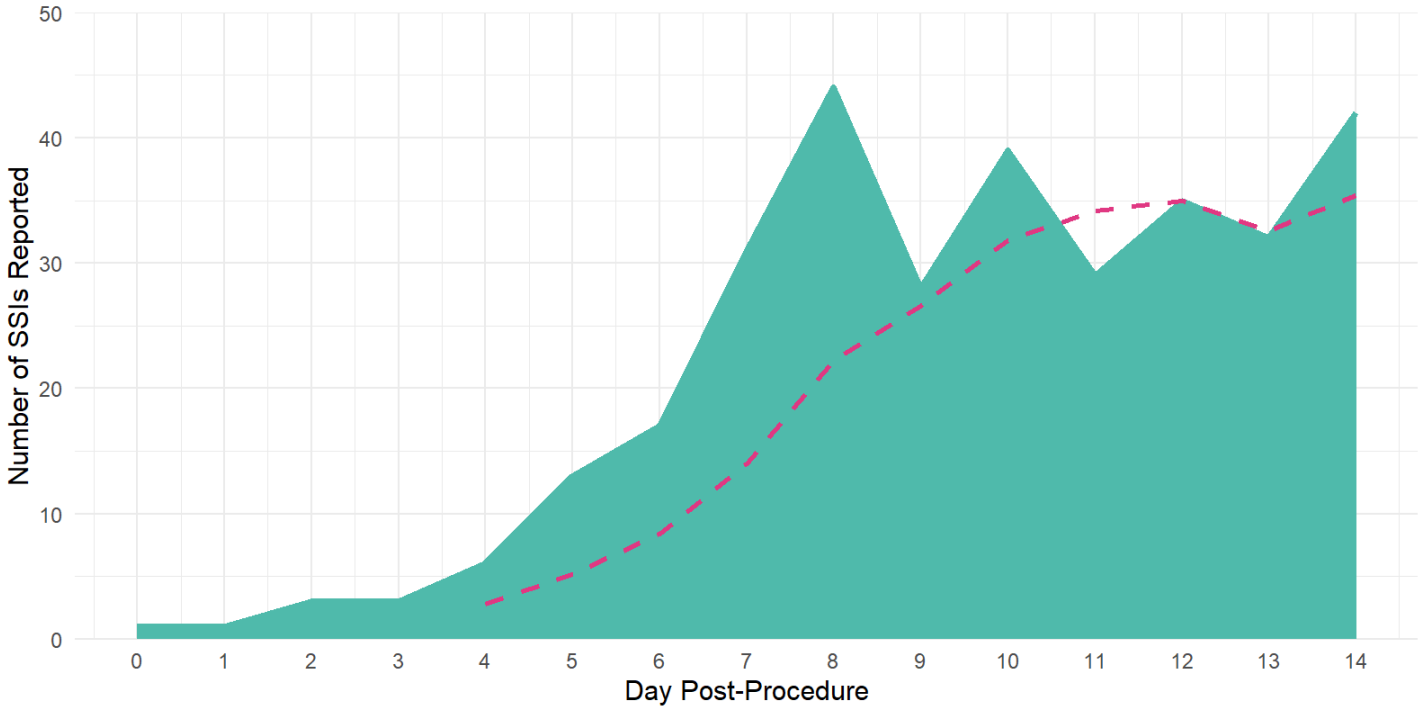


Figure 17. Graph showing number of SSIs up to 14 days post-procedure. Blank infection dates excluded, 2025.

While SSIs can be reported on our forms up to 30 days post-procedure, we are only including those up to 14 days for consistency across Wales. There were **0 (0.00%)** infections where the date of onset was not recorded. Within the first 14 days, the mean time to infection was **9.8** days, with a median of **10**. The greatest number of infections were reported on day **8** (n = **44**). The area graph indicates peaks in SSIs at day **14** (n = **42**) and **10** (n = **39**). This might reflect a follow-up from midwifery care around day 10. The pink dotted line represents the 5-day moving average.

Anonymised Hospital SSI Rates

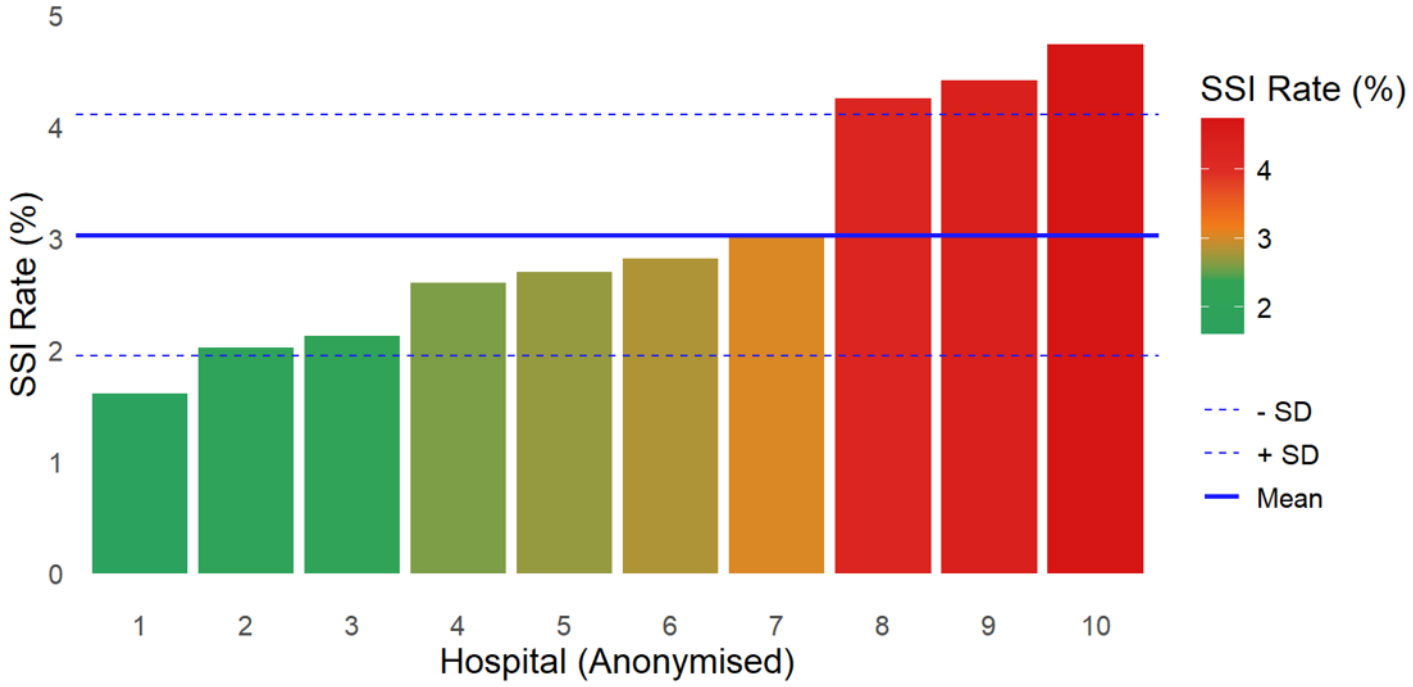


Figure 18. Anonymised SSI rates for each hospital participating in the C-birth surveillance scheme as of 2025, from the lowest to highest rate.

Figure 18 shows anonymised SSI rates for each hospital reporting C-birth procedures in **2025**. The solid blue line represents the mean (**3.03%**), and the dashed blue lines represent the + and – standard deviation (**1.08%**). At the highest end, the rate is **4.74%**, compared to **1.61%** at the lowest end. A total of **4** hospitals had an SSI rate above the mean. In the graph, hospital seven has a rate of 3.04%, just 0.01% above the mean.

DISCUSSION

Compliance with the C-birth SSI surveillance is now being measured by evaluating the number of valid forms returned, with a valid form being defined as a procedure where an SSI is recorded, or one where there is confirmation of no SSI on both inpatient and post-discharge fields. In previous years, the Patient Episode Database Wales (PEDW) figures have been used as a denominator, but inaccuracies could have led to overestimation of the numbers. Compliance increased in 2025 with 99.11% of valid forms being returned compared to 95.31% returned in 2024. Annual epidemiological outputs should be interpreted with the caveat that provisional imputed records were included for expected hospital-months where data had not been received by the reporting deadline. Compliance and form completion measures are based on submitted hospital data only.

The overall SSI rate for 2025 was 3.12% (2.79-3.46), a decrease from 3.42% (3.04-3.79) in 2024. This change was not statistically significant (p = 0.270). There has been a 0.29% reduction in SSI rate, equating to 30 less infections based on 2015 rates. In 2024 the SSI rate was higher than it was ten years ago, but this has improved in 2025. Emergency procedures have seen a decrease in SSI rates compared to 2024, from 4.53% to 4.01%. Elective procedures have seen a decrease in SSI rates compared to 2024, from 4.91% to 2.83% in 2025.

Time to onset of infection has been categorised into 'Early onset' (0–5 days) and 'Late onset' (6–14 days). In 2025, 27 SSIs were early onset (8.33%) and 297 were late onset (91.67%). The majority of SSIs were diagnosed between the 8th and 12th day, which could indicate that the SSIs are occurring in the community rather than in hospitals. The mean time to infection was 9.8 days, with the greatest number of SSIs being diagnosed on day 8 (n = 44) followed by days 14 (n = 42), 10 (n = 39) and 12 (n = 35). Diagnosis of an SSI in the 6–14-day period could reflect the pattern of follow-up to midwifery care, where the woman can be assessed for any signs or symptoms of an SSI.

Across the years, a general trend has been observed in which higher BMIs are significantly associated with an increased risk of SSI. In 2025, the mean BMI for all procedures was 30.0, when including only procedures that had an SSI associated with them, this increases to 34.5. Obese women have an SSI rate of 5.70% while women with a healthy weight have an SSI rate of 1.77%. Younger women aged <20 years had an SSI rate of 2.22%, and those between 20 and 24 had an SSI rate of 4.86%. The SSI rate changes for women aged 25–29 (4.30%) and continues to decrease slightly, with those aged 30–34 having a rate of 3.53% and those aged 35–39 2.45%. Those aged ≥40 had an SSI rate of 2.24%. It should be noted that the <20 and ≥40 age groups are the smallest. A statistically significant relationship was identified between age group and SSI risk (p = 0.002).

Since 2015, PHW has been monitoring the use of staples in post procedure closure. There is only a small number of procedures where staples are used, with the majority being used in women with a BMI above 30. The SSI rate is highest in all women when staples are used (9.59%), followed by removable sutures (7.14%) and dissolvable sutures (3.71%). It is important to note that there are a small number of procedures where removable sutures and staples are used. The SSI rate where staples were used as a method of closure was significant for all BMIs (p = 0.022) and significant for procedures where BMI ≥30 (p = 0.017). The data over recent years indicates a positive shift towards the use of dissolvable sutures rather than removable sutures and staples and we continue to *recommend that staples are not used as a routine method of closure.*

For procedures where timing of antibiotic prophylaxis was recorded, 99.08% of women in Wales were given antibiotic prophylaxis for their procedure, with 98.90% having it administered prior to incision. As in 2024, in 2025 there was a higher SSI rate when antibiotics were not given, but this was

not significant (3.53% difference between the highest and lowest rates, p = 0.324). There are a small number of procedures where prophylactic antibiotics are not given (n = 70), but in recent years, hospitals appear to be adopting recommendations in line with NICE and All Wales Medicines Strategy Group (AWMSG) and administering prophylactic antibiotics prior to procedures.

The proportion of deep infections has decreased compared to 2024, with deep SSIs making up 26.54% (n = 86) compared to 2024 where they accounted for 31.51% of all infections (n = 98). Organ/space SSIs remain rare, with no organ/space infections (0.00%) reported in 2025.

Length of hospital stay was not significantly associated with SSI rate in 2025 (p = 0.315). The mean hospital stay following the procedure was 2.5 days and increased to 2.8 days when only women who have had an SSI were included. The highest SSI rate was seen where length of hospital stay was 10-14 days (5.33%).

The microbiological results provided for procedures where an SSI was diagnosed were analysed according to whether *Staphylococcus aureus* was identified and, where present, its flucloxacillin susceptibility profile. In 2025, there were 324 reported SSIs. Of these, 93 had *S. aureus* identified, representing 28.70% of reported SSIs. The remaining 231 SSIs (71.30%) did not have an *S. aureus* result recorded. Among all reported SSIs, 90 had a swab result recorded as *S. aureus* flucloxacillin sensitive (27.78%), and 3 had a result recorded as *S. aureus* flucloxacillin resistant (0.93%). Among SSIs where *S. aureus* was identified, 96.77% were flucloxacillin sensitive and 3.23% were flucloxacillin resistant.

In conclusion, there was a decrease in SSI rate in 2025 compared to 2024, (3.12% from 3.42%). This represents a 0.29% reduction in infection rates compared to 2015. Despite still seeing a regular occurrence of SSIs (1 in 32) in women post-surgery, these rates are far below those in 2007/2008. PHW will continue to work together with all hospitals in Wales to strive to continue the progress made and reduce infections further.

NEXT STEPS

The Annual CBSSI report is intended to be flexible, evolving in response to stakeholder feedback, service requirements and dynamic areas of interest. Future reports may include additional analysis and potential refinements to support interpretation.

Potential additions include:

- Further exploration of emergency procedures, stratifying by the reason for the emergency c-birth. This could help to identify whether SSI rates vary between different emergency situations, providing more clinical context. Subject to data availability and quality, linkage with datasets such as PEDW and BadgerNet may support this work.

- Expansion of hospital-level analysis within the appendix to provide more detailed breakdowns of SSI rates. This may include:

    - SSI rates by infection type

    - SSI rates by BMI category

  There will be ongoing review of the report's content to ensure the most useful and actionable information is included.

REFERENCES

Horan, T. C., Gaynes, R. P., Martone, W. J., Jarvis, W. R., & Emori, T. G. (1992). CDC definitions of nosocomial surgical site infections, 1992: A modification of CDC definitions of surgical wound infections. Infection Control & Hospital Epidemiology, 13(10), 606-608.

Jenks, P. J., Laurent, M., McQuarry, S., & Watkins, R. (2014). Clinical and economic burden of surgical site infection (SSI) and predicted financial consequences of elimination of SSI from an English hospital. Journal of Hospital Infection, 86(1), 24-33.

National Institute for Health and Care Excellence. (2019). Retrieved June 1, 2018, from Surgical site infections: prevention and treatment: https://www.nice.org.uk/guidance/ng125

Plowman, R. (2000). The socioeconomic burden of hospital acquired infection. Euro surveillance: bulletin Européen sur les maladies transmissibles, 5(4).

Sykes, P. K., Brodribb, R. K., McLaws, M. L., & McGregor, A. (2005). When continuous surgical site infection surveillance is interrupted: The Royal Hobart Hospital experience. American Journal of Infection Control, 60(2), 422-427.

van Walraven, C., & Musselman, R. (2013). The Surgical Site Infection Risk Score (SSIRS): A Model to Predict the Risk of Surgical Site Infections. PLoS One, 8(6), e67167.

Zejnullahu, V.A., Zejnullahu, V.A., Isjanovska, R. and Sejfija, Z. 2019. Surgical siteinfections after cesarean sections at the University Clinical Center of Kosovo: Rates, microbiological profile and risk factors. BMC Infectious Diseases 19(1), pp. 1–9. doi: 10.1186/s12879-019-4383-7.

Zuarez-Easton, S., Zafran, N., Garmi, G. and Salim, R. 2017. Postcesarean wound infection: prevalence, impact, prevention, and management challenges. International Journal of Women's Health 9, pp. 81–88. Available at: http://dx.doi.org/10.2147/IJWH.S98876.

GIG CYMRU NHS WALES

Iechyd Cyhoeddus Cymru
Public Health Wales

Gweithio gyda'n gilydd i greu Cymru iachach

Working together for a healthier Wales