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Wales

## **ANNUAL REPORT: 2015**

### **Caesarean-Section Surgical Site Infection Surveillance**

**(Includes data from 01/01/2015 - 31/12/2015)**

### **APPENDIX B:**

**Aneurin Bevan**

**University Health Board**

**VERSION 1**

**Issued 16/09/2016**

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## Section 1: Results

### Surveillance form returns

**Table 1.1** Number of inpatient, post-discharge and valid forms returned for the surveillance in 2015 for Aneurin Bevan UHB.

No. of inpatient forms returned	No. of expected post-discharge forms	No. of post-discharge forms returned (% forms returned)	No. of valid forms used for data analysis*	% of valid forms used for data analysis*
1473	1473	1466 (99.5)	1400	95.0 (1400/1473)

The SSI rate provided throughout this report is based on the overall infection rate (infections captured before or after discharge) unless otherwise stated. To obtain the overall SSI rate, only valid forms were used in data analysis.

\*Valid forms are forms where the SSI field is completed on the main (inpatient) form, or the infection data is subsequently updated at completion of a post-discharge form. A blank SSI field cannot be assumed to mean there is no infection, so these forms are considered invalid.

$$\% \text{ of valid forms} = \frac{\text{Number of valid forms analysed}}{\text{Number of inpatient forms received}} \times 100$$

### Completion rates of surveillance forms

Details on the completion of the SSI field on the inpatient and post-discharge form for all Wales is shown in table 1.2. Table 1.3 displays other data items on the inpatient and post-discharge form that have a completion of less than 85%.

The procedure date has not been included as a data item in table 1.2 and 1.3 since all data extractions are based on a record having a procedure date.

BMI was only completed to the level of 22.4%.

**Table 1.2** % completion of the SSI field on the C-section surveillance form (inpatient and post-discharge) for Aneurin Bevan UHB.

Data Item	No. completed	No. expected	% complete
Inpatient SSI (Yes/No)	1203	1473	81.7
If Yes, SSI type	2	5	40.0
If Yes, Infection date	2	5	40.0
Post-discharge SSI* (Yes/No)	1399	1466	95.4
If Yes, Infection date	55	57	96.5
If Yes, SSI type	52	57	91.2

\*Number expected is based on the number of post-discharge forms received.

**Table 1.3** Data items on the C-section SSI surveillance form with less than 85% completion for Wales in 2015 for Aneurin Bevan UHB.

Data Item	No. completed	No. expected	% complete
BMI	330	1473	22.4

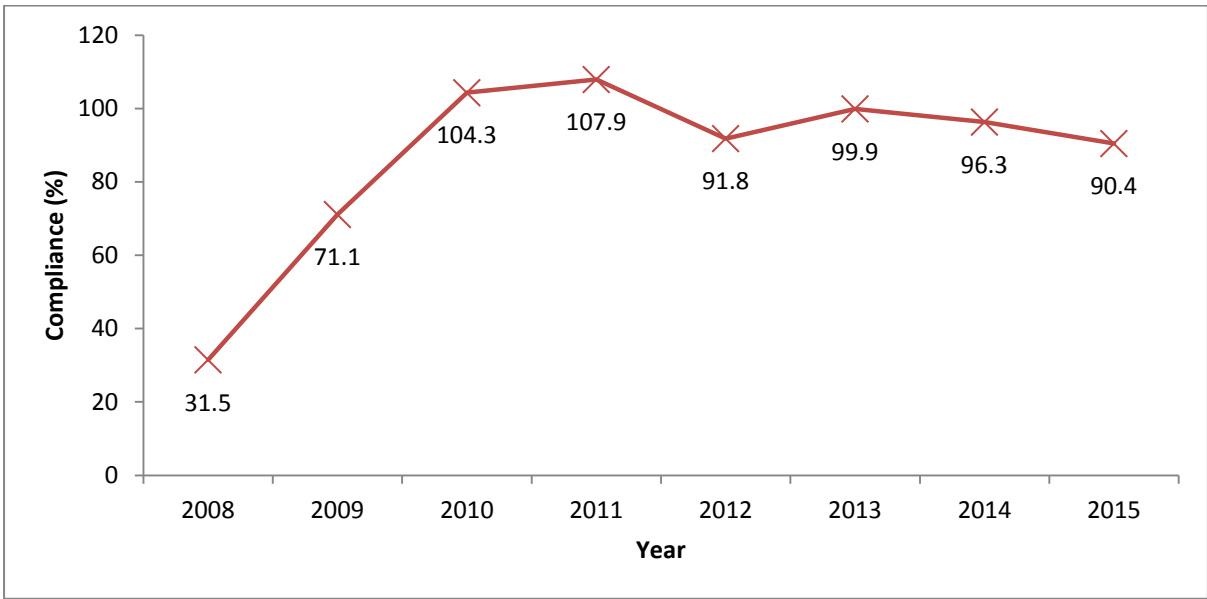
## Surveillance compliance

Table 1.4 shows the compliance of Wales in the mandatory C-section surveillance for 2015. The table includes the number of surveillance forms returned to WHAIP for 2015 and the number of valid surveillance forms returned (as detailed in table 1.1). The compliance figure is derived from the number of valid surveillance forms returned to WHAIP divided by the number of C-sections reported to NWIS.

**Table 1.4** Coverage of the C-section SSI surveillance compared to procedures reported to NWIS in 2015 for Aneurin Bevan UHB.

No. of surveillance forms returned to WHAIP	No. of valid surveillance forms returned to WHAIP*	No. of C sections reported to PEDW	% compliance
1473	1400	1548	90.4

Figure 1.1 displays the compliance trend for 2008-2015. There was a period of over-compliance from 2010 to 2011, indicating the possibility of coding issues. Compliance rates have fallen since, but are still above 90%.



**Figure 1.1** Trend rate for compliance from 2008 to 2015 for Aneurin Bevan UHB.

**Summary:**

99.8% of data received could be used for analysis.

Most data items on the form were all completed well, but BMI completion was poor at 22.4%.

Compliance has decreased since 2011, but is still excellent with the rate being over 90%.

## Section 2: SSI rate

### Incidence of inpatient, post-discharge and overall SSI

Table 2.1 provides the inpatient and post-discharge SSI rates post C-section surgery. All rates are based on valid forms only.

The SSI rates calculated in the remainder of this report are based on an overall rate unless otherwise specified. Since the length of hospital stay after a C-section is generally between two and four days, the majority of SSIs will be captured post-discharge in the community.

**Table 2.1** Incidence of inpatient and post-discharge SSIs in 2015 for Aneurin Bevan UHB.

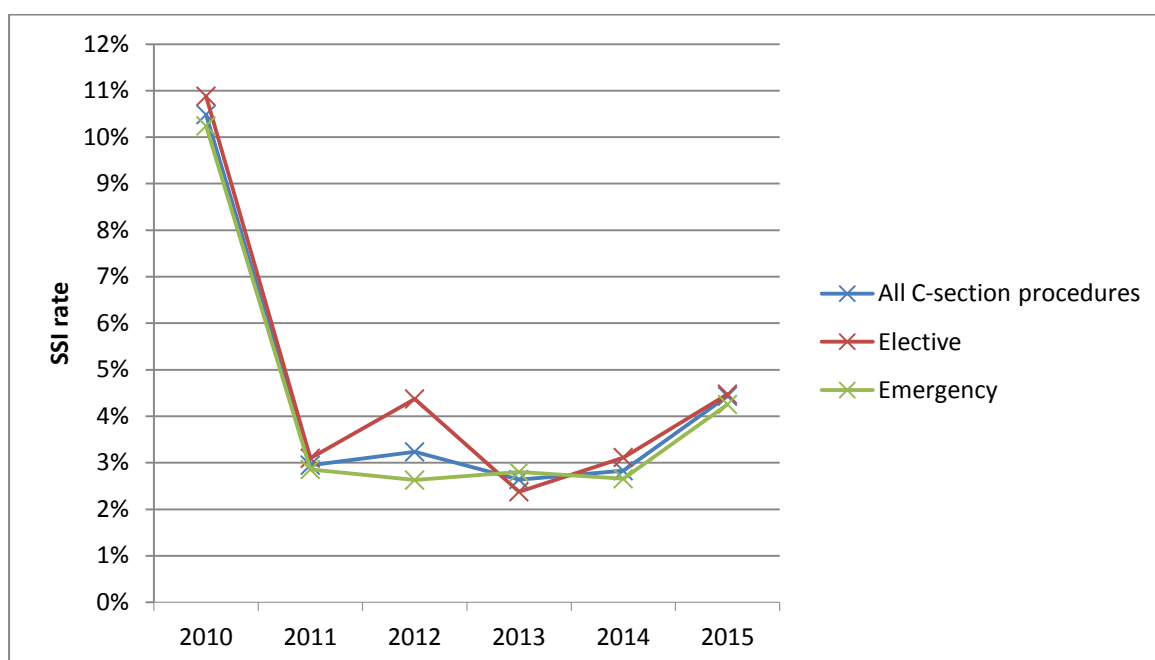
	No. of procedures analysed	No. of SSI*	SSI rate (%)* (95% CI)
Inpatient	1203	5	0.42 (0.05-0.78)
Post-discharge	1399	57	4.07 (3.10-5.25)
Overall**	1414	62	4.38 (3.32-5.45)

\*Figures based on valid surveillance forms only. This only includes procedures with either an SSI field completed on the inpatient form or where the infection data is updated post-discharge.

\*\*Overall SSI rate is based on the valid forms rule as described in this document, and is not simply based on addition of the inpatient SSIs to the post-discharge SSIs.

### Incidence of SSIs over time

It is important to note that, initially, not all health boards were participating in the surveillance, and some health boards were participating but with low compliance rates. Data became more reliable from 2010 onwards when all health boards were participating. Table 2.2 provides the overall SSI rate for 2010 – 2015 and broken down by elective and emergency procedures. Figure 2.1 provides the SSI trend over the same time period.



**Figure 2.1** Overall, elective and emergency procedures SSI rates for 2010-2015 for Aneurin Bevan UHB.

**Table 2.2** Overall SSI rate for 2010-2015 for Aneurin Bevan UHB.

Operation type	Year	No. of procedures	No. of SSI	%SSI (95% CI)
<b>All C-section procedures</b>	2015	1399	62	4.43 (3.35-5.51)
	2014	1555	44	2.83 (2.01-3.65)
	2013	1667	44	2.64 (1.87-3.41)
	2012	1515	49	3.23 (2.34-4.13)
	2011	1526	45	2.95 (2.10-3.80)
	2010	1526	160	10.48 (8.95-12.02)
<b>Elective</b>	2015	581	26	4.48 (2.79-6.16)
	2014	610	19	3.11 (1.74-4.49)
	2013	631	15	2.38 (1.19-3.57)
	2012	526	23	4.37 (2.63-6.12)
	2011	581	18	3.1 (1.69-4.51)
	2010	579	63	10.88 (8.34-13.42)
<b>Emergency</b>	2015	799	34	4.26 (2.86-5.65)
	2014	941	25	2.66 (1.63-3.68)
	2013	1036	29	2.8 (1.79-3.80)
	2012	989	26	2.63 (1.63-3.63)
	2011	945	27	2.86 (1.79-3.92)
	2010	720	69	9.58 (7.43-11.73)

## 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, which all have specific definitions. Table 2.3 breaks down the infections by type of SSI. Tables 2.4 and 2.5 show the overall infection rate and the post-discharge infection rate broken down by SSI type.

**Table 2.3** Types of SSI for C-section procedures carried out in 2015 for Aneurin Bevan UHB.

SSI type	%
Superficial infections	79.4
Deep seated infections	9.5
Organ/space infections	0.0
Unknown	11.1

**Table 2.4** Overall SSI rate (%) broken down by SSI type in 2015 for Aneurin Bevan UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	50	3.54 (2.57-4.5)
Deep seated infections	6	0.42 (0.09-0.76)
Organ/Space infections	0	0.00 (0.00-0.26)
Unknown	7	0.5 (0.13-0.86)

**Table 2.5** Post-discharge SSI rate (%) broken down by SSI type in 2015 for Aneurin Bevan UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	48	3.43 (2.48-4.38)
Deep seated infections	6	0.43 (0.09-0.77)
Organ/Space infections	0	0.00 (0.00-0.26)
Unknown	0	0.00 (0.00-0.26)



**Summary:**

The SSI rate following C-section procedures in 2015 was 4.4% compared to 2.8% and 2.6% in 2014 and 2013, respectively.

Most common infection type is superficial (79.4% of infections).

Overall SSI rate, broken down by SSI type: 3.5% superficial, 0.4% deep seated, and 0 organ/space infections.

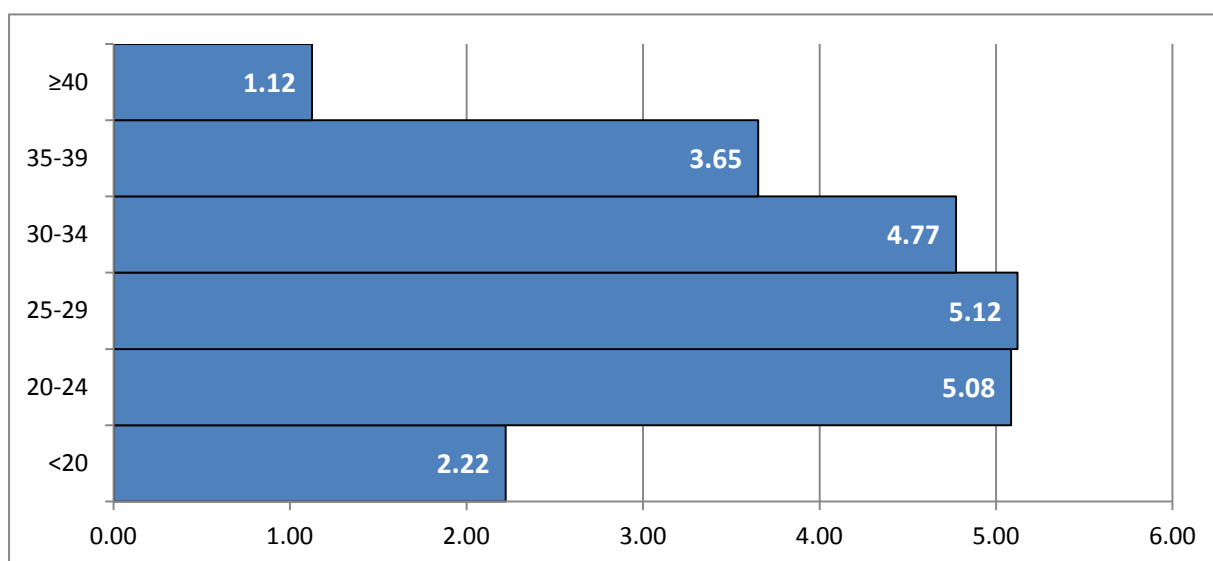
Both elective and emergency SSI rates are substantially lower than the 2010 rate, but both rates increased between 2013 and 2015.

## Section 3: General demographics

This section gives information about the age groups and BMI of patients and the number of SSIs associated with each category.

Figure 3.1 provides a pyramid plot showing the age and SSI rates and table 3.1 provides the number of SSI by the specified age groups. Table 3.2 displays the number of SSIs by BMI category.

### Incidence of SSI by age



**Figure 3.1** Pyramid plot showing age and corresponding SSI rate (%) for Aneurin Bevan UHB.

**Table 3.1** C-section SSI by age in 2015 for Aneurin Bevan UHB. Procedures where age information was not provided were excluded.

Age group	No. of valid procedures	No. of SSI	% SSI (95% CI)
<20	45	1	2.22 (0.00-6.53)
20-24	236	12	5.08 (2.28-7.89)
25-29	371	19	5.12 (2.88-7.36)
30-34	440	21	4.77 (2.78-6.76)
35-39	219	8	3.65 (1.17-6.14)
≥40	89	1	1.12 (0.00-3.31)

## Incidence of SSI by BMI

**Table 3.2** C-section SSI rates by BMI in 2015 for Aneurin Bevan UHB. Procedures where BMI information was not provided were excluded.

BMI category		No. of procedures	No. of SSI	% SSI (95% CI)
Underweight	<18.5	7	0	0.00 (0.00-0.00)
Healthy weight	18.5-24.9	100	3	3.00 (0.00-6.34)
Overweight	25.0-29.9	87	2	2.30 (0.00-5.45)
Obese	≥30.0	1206	57	4.73 (3.53-5.92)

### Summary:

There was a significant difference in the SSI rates between women aged 40 or over, women aged under 20; and all other groups. There was no difference between the other groups.

There is no significant difference in the SSI rate between the different BMI groups.

## Section 4: Details of the surgical procedure

The following section provides SSI rates associated with specific variables, including the type of operation (elective or emergency), use of and timing of antibiotic prophylaxis and skin closure types.

### Incidence of SSI following elective and emergency procedures

**Table 4.1** C-section SSI in elective and emergency surgical procedures in 2015 for Aneurin Bevan UHB. Procedures where this information was not provided were excluded.

Operation type	No. of procedures	No. of SSI	% SSI (95% CI)
Elective procedure	581	26	4.48 (2.79-6.16)
Emergency procedure	799	34	4.26 (2.86-5.65)

### Incidence of SSI by timing of antibiotic prophylaxis

**Table 4.2.1** Percentage (%) of C-section procedures by timing of antibiotic prophylaxis in 2015 for Aneurin Bevan UHB. Procedures where no antibiotics given were excluded.

Timing of antibiotic prophylaxis	No. of procedures	%
Prior to incision	1087	84.3
After incision	202	15.7

**Table 4.2.2** C-section SSI by antibiotic prophylaxis in 2015 for Aneurin Bevan UHB. Procedures where no antibiotic information given were excluded.

Was prophylactic antibiotic given?	No. of procedures	No. of SSI	% SSI (95% CI)
Yes, prior to incision	1087	54	4.97 (3.68-6.26)
Yes, after incision	202	5	2.48 (0.33-4.62)
No	4	0	0.00 (0.00-0.00)

### Incidence of SSI by wound closure type

**Table 4.3** Percentage (%) of C-section procedures by type of skin closure in 2015 for Aneurin Bevan UHB. Procedures where this information was not available were excluded.

Type of wound closure	No. of procedures	%
Dissolvable suture	821	80.7
Removable suture	192	18.9
Staples	4	0.4

**Table 4.4** C-section SSI rates by type of skin closure in 2015 for Aneurin Bevan UHB. Procedures where closure type information is missing were excluded.

Type of wound closure	No. Of procedures	No. Of SSI	% SSI (95% CI)
Dissolvable suture	821	22	2.68 (1.58-3.78)
Removable suture	192	14	7.29 (3.61-10.97)
Staples	4	0	0.00 (0.00-0.00)

**Summary:**

Antibiotic prophylaxis was given to 99.7% of patients.

94.3% of patients received their antibiotic prophylaxis prior to incision, with the remainder receiving antibiotics after incision.

91.4% of wounds were closed with sutures, with the remaining few using staples. Most sutures used were of the dissolvable variety.