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ANNUAL REPORT: 2015

Caesarean-Section Surgical Site Infection Surveillance

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

APPENDIX A:

Abertawe Bro Morgannwg University Health Board

VERSION 1

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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 Abertawe Bro Morgannwg 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*
1333	1333	1331 (99.8)	1330	99.8 (1330/1333)

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.

All data items were completed above 85%.

Table 1.2 % completion of the SSI field on the C-section surveillance form (inpatient and post-discharge) for Abertawe Bro Morgannwg UHB.

Data Item	No. completed	No. expected	% complete
Inpatient SSI (Yes/No)	1331	1333	99.8
If Yes, SSI type	4	5	80.0
If Yes, Infection date	4	5	80.0
Post-discharge SSI* (Yes/No)	1329	1331	99.8
If Yes, Infection date	49	51	96.1
If Yes, SSI type	50	51	98.0

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

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 Abertawe Bro Morgannwg UHB.

No. of surveillance forms returned to WHAIP	No. of valid surveillance forms returned to WHAIP*	No. of C sections reported to PEDW	% compliance
1333	1330	1536	86.6

Figure 1.1 displays the compliance trend for 2008-2015. There was a period of over-compliance from 2011 to 2013, indicating the possibility of coding issues. Compliance rates have fallen since.

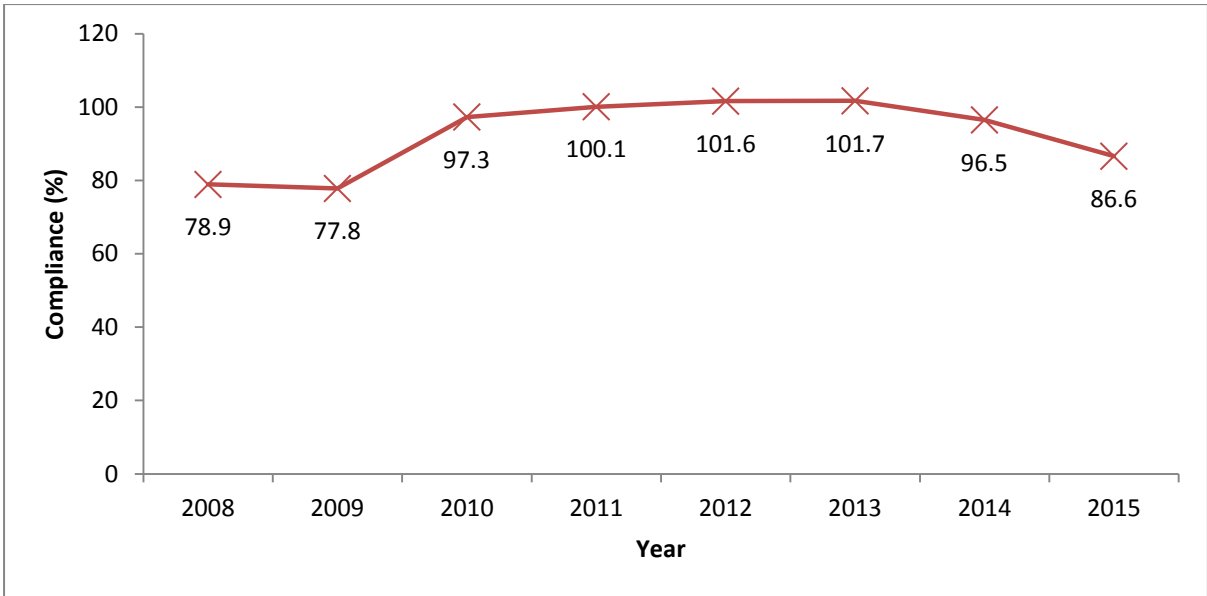


Figure 1.1 Trend rate for compliance from 2008 to 2015 for Abertawe Bro Morgannwg UHB.

Summary:

99.8% of data received could be used for analysis.

Data items on the form were all completed well, with no items below 85% completion.

Compliance has decreased since 2013, and is currently 86.6%.

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 Abertawe Bro Morgannwg UHB.

	No. of procedures analysed	No. of SSI*	SSI rate (%)* (95% CI)
Inpatient	1331	5	0.38 (0.05-0.70)
Post-discharge	1229	51	4.15 (3.11-5.42)
Overall**	1331	56	4.21 (3.13-5.29)

*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.

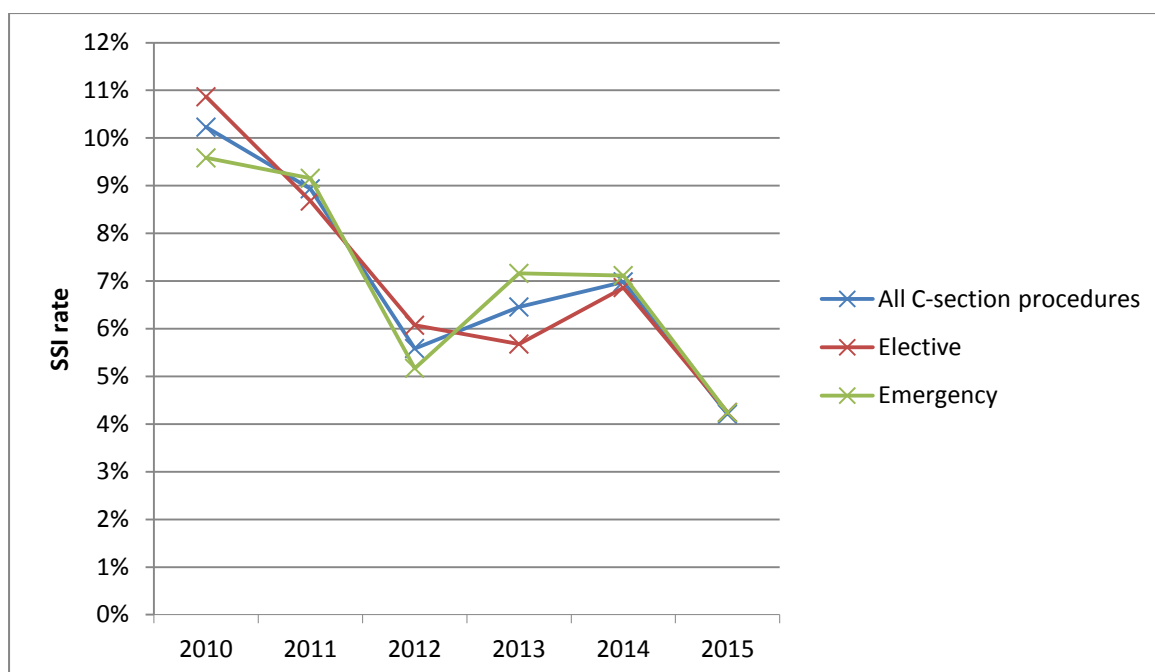


Figure 2.1 Overall, elective and emergency procedures SSI rates for 2010-2015 for Abertawe Bro Morgannwg UHB.

Table 2.2 Overall SSI rate for 2010-2015 for Abertawe Bro Morgannwg UHB.

Operation type	Year	No. of procedures	No. of SSI	%SSI (95% CI)
All C-section procedures	2015	1331	56	4.21 (3.13-5.29)
	2014	1389	97	6.98 (5.64-8.32)
	2013	1518	98	6.46 (5.22-7.69)
	2012	1683	94	5.59 (4.49-6.68)
	2011	1578	141	8.94 (7.53-10.34)
	2010	1447	148	10.23 (8.67-11.79)
Elective	2015	589	25	4.24 (2.62-5.87)
	2014	612	42	6.86 (4.86-8.87)
	2013	722	41	5.68 (3.99-7.37)
	2012	774	47	6.07 (4.39-7.75)
	2011	726	63	8.68 (6.63-10.73)
	2010	727	79	10.87 (8.6-13.13)
Emergency	2015	731	31	4.24 (2.78-5.7)
	2014	759	54	7.11 (5.29-8.94)
	2013	796	57	7.16 (5.37-8.95)
	2012	909	47	5.17 (3.73-6.61)
	2011	852	78	9.15 (7.22-11.09)
	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 Abertawe Bro Morgannwg UHB.

SSI type	%
Superficial infections	76.8
Deep seated infections	17.9
Organ/space infections	0.0
Unknown	5.4

Table 2.4 Overall SSI rate (%) broken down by SSI type in 2015 for Abertawe Bro Morgannwg UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	43	3.23 (2.28-4.18)
Deep seated infections	10	0.75 (0.29-1.22)
Organ/Space infections	0	0.00 (0.00-0.28)
Unknown	3	0.23 (0.00-0.48)

Table 2.5 Post-discharge SSI rate (%) broken down by SSI type in 2015 for Abertawe Bro Morgannwg UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	39	3.17 (2.19-4.15)
Deep seated infections	10	0.81 (0.31-1.32)
Organ/Space infections	0	0.00 (0.00-0.30)
Unknown	0	0.00 (0.00-0.30)

Summary:

The SSI rate following C-section procedures in 2015 was 4.2% compared to 7.0% and 6.5% in 2014 and 2013, respectively.

Most common infection type is superficial (76.8% of infections).

Overall SSI rate, broken down by SSI type: 3.2% superficial, 0.8% 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 2012 and 2014.

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

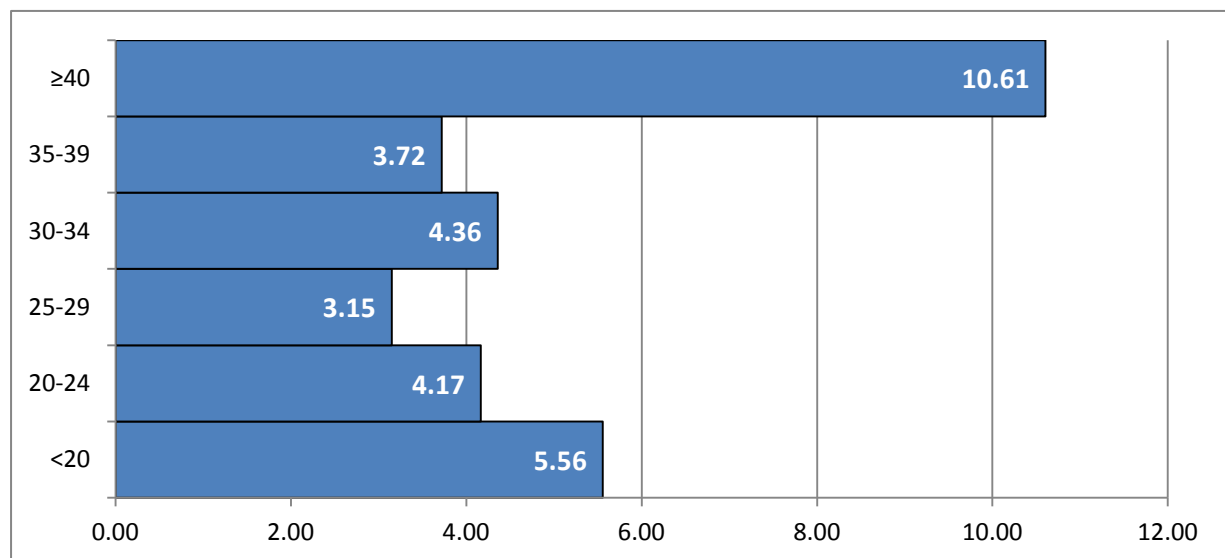


Figure 3.1 Pyramid plot showing age and corresponding SSI rate (%) for Abertawe Bro Morgannwg UHB.

Table 3.1 C-section SSI by age in 2015. Procedures where age information was not provided were excluded for Abertawe Bro Morgannwg UHB.

Age group	No. of valid procedures	No. of SSI	% SSI (95% CI)
<20	36	2	5.56 (0.00-13.04)
20-24	168	7	4.17 (1.14-7.19)
25-29	381	12	3.15 (1.40-4.90)
30-34	436	19	4.36 (2.44-6.27)
35-39	242	9	3.72 (1.33-6.10)
≥40	66	7	10.61 (3.18-18.03)

Incidence of SSI by BMI

Table 3.2 C-section SSI rates by BMI in 2015 for Abertawe Bro Morgannwg UHB. Procedures where BMI information was not provided were excluded.

BMI category		No. of procedures	No. of SSI	% SSI (95% CI)
Underweight	<18.5	12	0	0.00 (0.00-0.00)
Healthy weight	18.5-24.9	415	9	2.17 (0.77-3.57)
Overweight	25.0-29.9	441	12	2.72 (1.2-4.24)
Obese	≥30.0	461	35	7.59 (5.17-10.01)

Summary:

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

There was a significant increase in the SSI rate for obese patients in 2015, compared with healthy weight and overweight patients.

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 Abertawe Bro Morgannwg UHB. Procedures where this information was not provided were excluded.

Operation type	No. of procedures	No. of SSI	% SSI (95% CI)
Elective procedure	589	25	4.24 (2.62-5.87)
Emergency procedure	731	31	4.24 (2.78-5.70)

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 Abertawe Bro Morgannwg UHB. Procedures where no antibiotics given were excluded.

Timing of antibiotic prophylaxis	No. of procedures	%
Prior to incision	1206	93.6
After incision	83	6.4

Table 4.2.2 C-section SSI by antibiotic prophylaxis in 2015 for Abertawe Bro Morgannwg 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	1206	51	4.23 (3.09-5.36)
Yes, after incision	83	3	3.61 (0.00-7.63)
No	3	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 Abertawe Bro Morgannwg UHB. Procedures where this information was not available were excluded.

Type of wound closure	No. of procedures	%
Dissolvable suture	1214	92.5
Removable suture	81	6.2
Staples	18	1.4

Table 4.4 C-section SSI rates by type of skin closure in 2015 for Abertawe Bro Morgannwg 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	1214	49	4.04 (2.93-5.14)
Removable suture	81	6	7.41 (1.70-13.11)
Staples	18	1	5.56 (0.00-16.14)

Summary:

Antibiotic prophylaxis was given to 99.8% of patients.

93.6% of patients received their antibiotic prophylaxis prior to incision, with the remainder receiving antibiotics after incision.

98.7% of wounds were closed with sutures, with the remaining few using staples. Most sutures used were of the dissolvable variety.