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Public Health
Wales

ANNUAL REPORT: 2015

Caesarean-Section Surgical Site Infection Surveillance

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

APPENDIX E:

Cwm Taf

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 Cwm Taf 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*
1037	1037	1037 (100.0)	1034	99.7 (1034/1037)

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 83.6%.

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

Data Item	No. completed	No. expected	% complete
Inpatient SSI (Yes/No)	1037	1037	100.0
If Yes, SSI type	2	2	100.0
If Yes, Infection date	1	2	50.0
Post-discharge SSI* (Yes/No)	1034	1037	99.7
If Yes, Infection date	50	56	89.3
If Yes, SSI type	56	56	100.0

*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 Cwm Taf UHB.

Data Item	No. completed	No. expected	% complete
BMI	867	1037	83.6

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 Cwm Taf UHB.

No. of surveillance forms returned to WHAIP	No. of valid surveillance forms returned to WHAIP*	No. of C sections reported to PEDW	% compliance
1037	1034	1031	100.3

Figure 1.1 displays the compliance trend for 2008-2015. Since 2011, Cwm Taf has been over 100% compliant, or near 100% compliant, which suggests that there may be clinical coding issues at the health board.

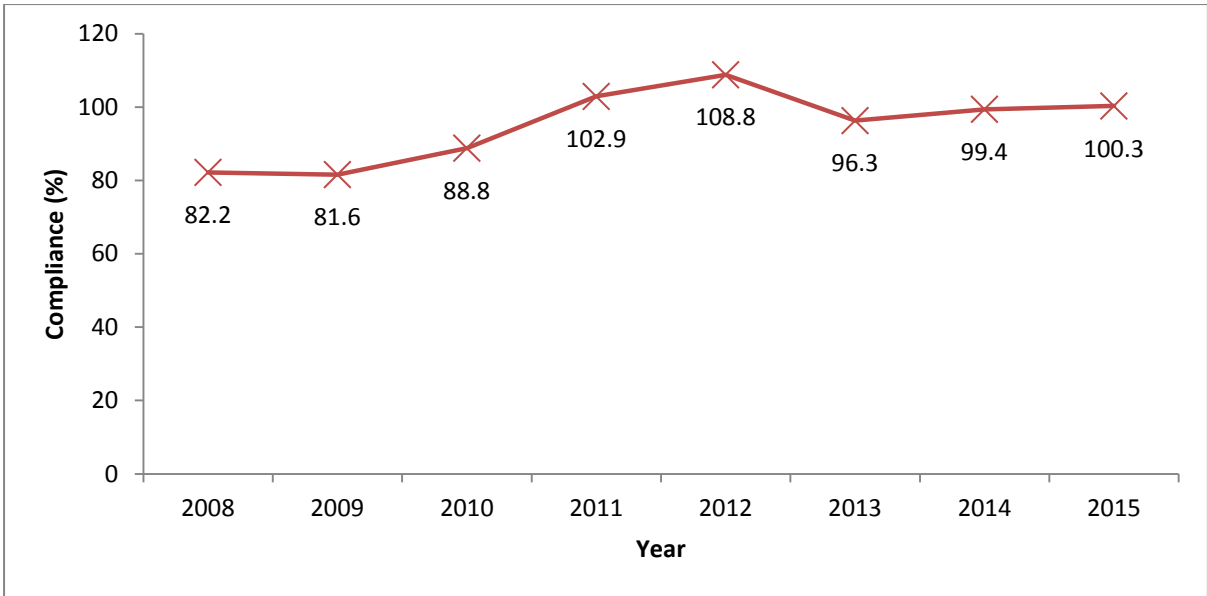


Figure 1.1 Trend rate for compliance from 2008 to 2015 for Cwm Taf UHB.

Summary:

99.7% of data received could be used for analysis.

Data items on the form were all completed well, except BMI, with a rate of 83.6% completion.

Compliance has been very near or over 100% since 2011, suggesting possible coding issues at the health board.

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 Cwm Taf UHB.

	No. of procedures analysed	No. of SSI*	SSI rate (%)* (95% CI)
Inpatient	1037	2	0.19 (0.07-0.46)
Post-discharge	1034	56	5.42 (4.12-6.98)
Overall**	1034	58	5.61 (4.21-7.01)

*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.

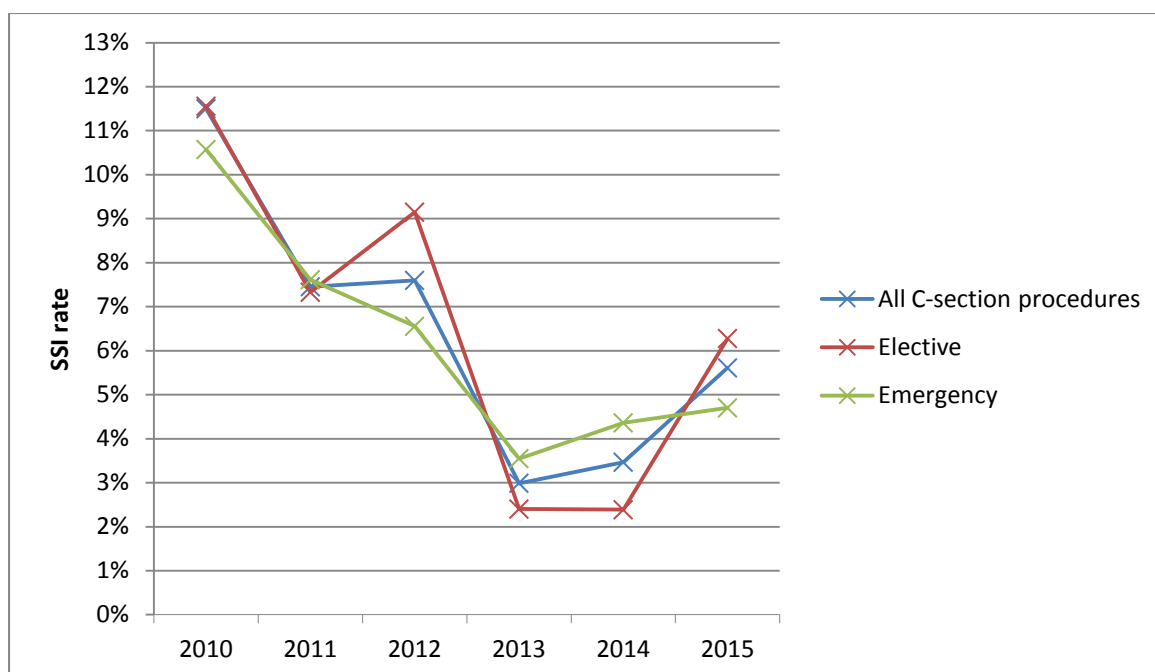


Figure 2.1 Overall, elective and emergency procedures SSI rates for 2010-2015 for Cwm Taf UHB.

Table 2.2 Overall SSI rate for 2010-2015 for Cwm Taf UHB.

Operation type	Year	No. of procedures	No. of SSI	%SSI (95% CI)
All C-section procedures	2015	1034	58	5.61 (4.21-7.01)
	2014	1154	40	3.47 (2.41-4.52)
	2013	1171	35	2.99 (2.01-3.96)
	2012	1237	94	7.60 (6.12-9.08)
	2011	1194	89	7.45 (5.96-8.94)
	2010	1087	125	11.5 (9.60-13.4)
Elective	2015	446	28	6.28 (4.03-8.53)
	2014	461	11	2.39 (0.99-3.78)
	2013	458	11	2.40 (1.00-3.80)
	2012	470	43	9.15 (6.54-11.76)
	2011	423	31	7.33 (4.85-9.81)
	2010	424	49	11.56 (8.51-14.6)
Emergency	2015	553	26	4.70 (2.94-6.47)
	2014	642	28	4.36 (2.78-5.94)
	2013	648	23	3.55 (2.12-4.97)
	2012	656	43	6.55 (4.66-8.45)
	2011	683	52	7.61 (5.62-9.60)
	2010	577	61	10.57 (8.06-13.08)

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 Cwm Taf UHB.

SSI type	%
Superficial infections	60.3
Deep seated infections	29.3
Organ/space infections	0.0
Unknown	10.3

Table 2.4 Overall SSI rate (%) broken down by SSI type in 2015 for Cwm Taf UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	35	3.38 (2.28-4.49)
Deep seated infections	17	1.64 (0.87-2.42)
Organ/Space infections	0	0.00 (0.00-0.36)
Unknown	6	0.58 (0.12-1.04)

Table 2.5 Post-discharge SSI rate (%) broken down by SSI type in 2015 for Cwm Taf UHB.

SSI type	No. SSI	% SSI (95% CI)
Superficial infections	34	3.29 (2.2-4.38)
Deep seated infections	16	1.55 (0.80-2.30)
Organ/Space infections	0	0.00 (0.00-0.36)
Unknown	0	0.00 (0.00-0.36)

Summary:

The SSI rate following C-section procedures in 2015 was 5.6% compared to 3.5% and 3.0% in 2014 and 2013, respectively.

Most common infection type is superficial (60.3% of infections).

Overall SSI rate, broken down by SSI type: 3.4% superficial, 1.6% 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

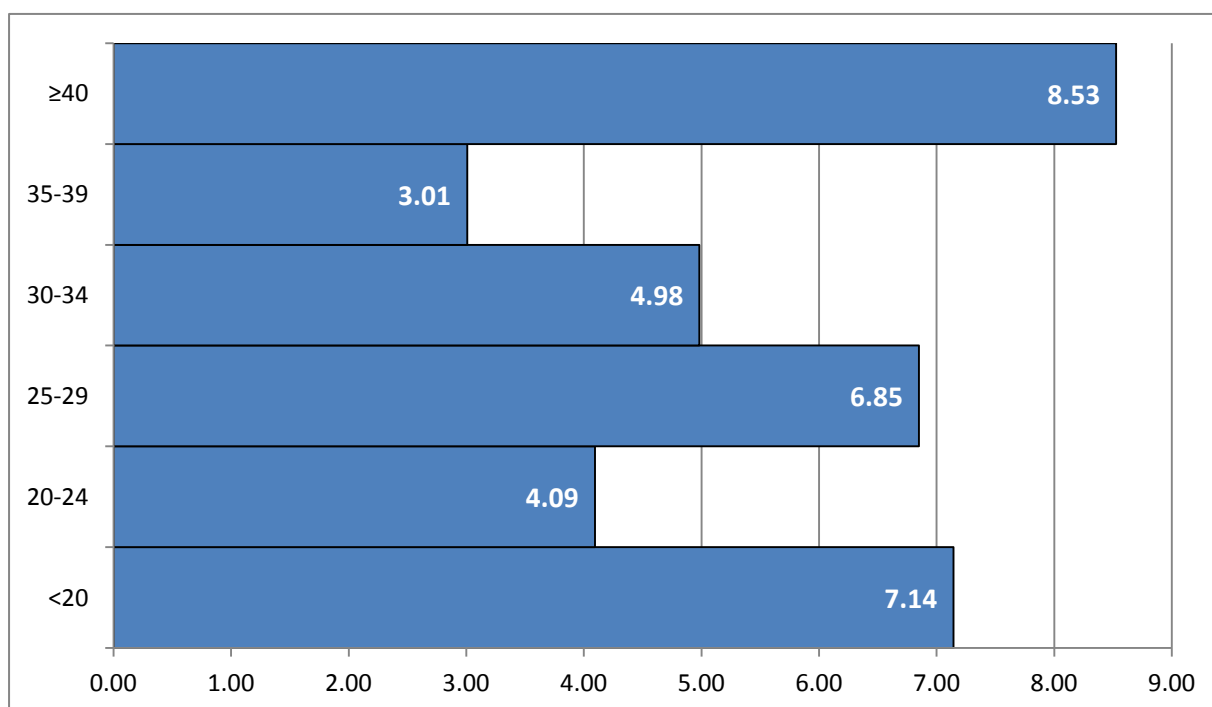


Figure 3.1 Pyramid plot showing age and corresponding SSI rate for Cwm Taf UHB (%).

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

Age group	No. of valid procedures	No. of SSI	% SSI (95% CI)
<20	28	2	7.14 (0.00-16.68)
20-24	171	7	4.09 (1.12-7.06)
25-29	292	20	6.85 (3.95-9.75)
30-34	281	14	4.98 (2.44-7.53)
35-39	133	4	3.01 (0.10-5.91)
≥40	129	11	8.53 (3.71-13.35)

Incidence of SSI by BMI

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

BMI category		No. of procedures	No. of SSI	% SSI (95% CI)
Underweight	<18.5	14	0	0.00 (0.00-0.00)
Healthy weight	18.5-24.9	244	13	5.33 (2.51-8.15)
Overweight	25.0-29.9	238	8	3.36 (1.07-5.65)
Obese	≥30.0	538	37	6.88 (4.74-9.02)

Summary:

There is no significant difference in SSI rate between age 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 Cwm Taf UHB. Procedures where this information was not provided were excluded.

Operation type	No. of procedures	No. of SSI	% SSI (95% CI)
Elective procedure	446	28	6.28 (4.03-8.53)
Emergency procedure	553	26	4.70 (2.94-6.47)

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 Cwm Taf UHB. Procedures where no antibiotics given were excluded.

Timing of antibiotic prophylaxis	No. of procedures	%
Prior to incision	830	91.81
After incision	74	8.19

Table 4.2.2 C-section SSI by antibiotic prophylaxis in 2015 for Cwm Taf 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	830	46	5.54 (3.99-7.10)
Yes, after incision	74	5	6.76 (1.04-12.48)
No	2	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 Cwm Taf UHB. Procedures where this information was not available were excluded.

Type of wound closure	No. of procedures	%
Dissolvable suture	712	70.1
Removable suture	229	22.6
Staples	74	7.3

Table 4.4 C-section SSI rates by type of skin closure in 2015 for Cwm Taf 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	712	39	5.48 (3.81-7.15)
Removable suture	229	12	5.24 (2.35-8.13)
Staples	74	4	5.41 (0.25-10.56)

Summary:

Antibiotic prophylaxis was given to 99.8% of patients.

91.8% of patients received their antibiotic prophylaxis prior to incision, with the remainder receiving antibiotics after incision.

92.7% of wounds were closed with sutures, with the remaining few using staples. Most sutures used were of the dissolvable variety.