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Title – An audit and trial aiming to reduce the rate of surgical site infections for women having a caesarean section.

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### Key words

Caesarean section

Surgical site infections

Wound dressings

### Abstract

Surgical site infection (SSI) following caesarean section remains a common cause of morbidity following caesarean section (CS) (Gould, 2007). In order to ensure best practice, Lancashire teaching hospitals NHS trust decided to audit the rate of SSI following CS. The audit results revealed that women who had the wound covered for a longer time, were less likely to develop a wound infection. A trial was then completed, using two different wound dressings. Following the results of the trial, new wound dressings were introduced for all women having a CS, with the dressings remaining in place for five days.

### Introduction

Although birth by caesarean section (CS) is a common procedure, SSI represents one of a number of potential complications of caesarean section (Wloch et al, 2012). Mortality due to severe maternal sepsis has increased in the UK and is now the leading cause of direct maternal death in the UK (UKOSS, 2015). Health care practitioners should be aware of this risk of sepsis following birth by CS. Midwives, doctors and other health professionals need to “think sepsis” and aim to reduce the risks for women developing sepsis following CS (MBRRACE, 2014).

### Aim

The type of wound dressing used following CS and the length of time that the wound dressing is left in place, may contribute to an increased risk of infection. Lancashire teaching hospitals NHS trust decided to complete an audit to identify the number of women who developed a SSI following birth by CS. The audit would also identify how many of these women required readmission to hospital for treatment for the SSI.

### Method

A selected team of Midwives were approached to complete the audit. It was decided that the audit was to be completed as a retrospective audit. A six month audit period was used to ensure that there was sufficient data to support any change in practice. All the case notes of women who had given birth by CS during this time period, were reviewed - a total of 505 case notes.

A multidisciplinary approach was used when completing this audit. The infection prevention and control (IPC) team worked together with the audit team. The IPC team had access to a database, which recorded all wound swabs taken by staff caring for women. They could also identify the results of the swabs, together with what treatment was required to treat the infection.

### Limitations

There were limitations to the audit. The audit team only audited case notes from a six month period, which would limit the data obtained. The list of case notes to be audited, was obtained using a computerised electronic record, completed by the Midwives following birth. This system relies upon the midwives completing the birth record accurately and documenting the type of birth the woman had. The birth record may be incorrectly documented as a CS, when in fact birth may have been vaginal, although this is unlikely to happen, due to further review of the case notes by the audit team.

### Results

A total of 263 elective CS case notes and 242 emergency CS case notes were audited. The audit team completed the audit proforma designed specifically for this audit.

The team found a total number of 63 confirmed infections from wound swabs taken from the site of the CS, giving the overall SSI rate for women with CS at 12.7%. There was minimal difference between the SSI rates for women having elective or emergency CS. The overall rate is higher than the 9.6% found by Wloch et al (2012). Only one woman was readmitted to hospital for treatment of the surgical site wound infection during the six month audit period, which is a reassuring finding for this NHS trust.

A finding from the audit results, demonstrated that women who had their CS wound covered for a longer period of time, were less likely to develop a wound infection. The trust currently use a non-woven dressing, which is removed approximately 24 hours after the CS, as recommended by NICE (2008). Part of the case note audit looked at the time of the CS and compared this to the date and time the wound dressing was removed. Some women, for various reasons, had the wound dressing in place for longer than the recommended 24 hours. The audit found that these women were less likely to develop a CS wound infection.

### Trial

It was decided, following the results of the audit that a trial was to be commenced. The trial involved leaving the wound dressing in place for 5 days, using two different types of waterproof interactive dressings. The first dressing was Opsite post op visible and the second dressing was Mepilex safetac. The cost of both dressings was very similar. By choosing two dressings that are similar in cost, this ensured that the decision to implement one of the dressings, was not based on cost alone, but with best practice being put ahead of financial gain.

The trial for each dressing was commenced on a Monday morning and was planned to finish on the Sunday evening of the same week. During the first week, 20 women had a CS and the Opsite post op visible was used for every CS. Consent was gained from the women and a proforma was completed for each women. The woman was approached prior to discharge home, to see if any problems had arisen with the wound dressing. The proforma was then returned to the audit team following

discharge from the community midwife. The second trial was completed the following week, with Mepilex Safetac dressing used to cover the wound.

### Results of the trial

The trial of the second dressing involved 17 women however, it was clear that the Mepilex safetac dressing was not as successful as the Opsite post op visible. Three of the Mepilex dressings had come off within 24 hours of being applied and it was obvious that a few more dressings had come off before the full five days was over.

The results demonstrated that two women developed SSI during the trial. One woman had the Opsite post op visible dressing applied and one woman had the Mepilex dressing applied. There were no postnatal readmissions during the audit period. This is excellent news for both wound dressings, as it appears that covering the wound for longer has decreased the risk of developing a SSI. However, the audit results are difficult to compare as some of the Mepilex dressings, did not remain in place for the full five days. The trust will also have to consider that the number of women participating in the trial is low, compared with the initial audit. A further audit with a larger number of participants should be taken to ensure that the results match the initial audit.

### Change in practice

Following the completion of the audit, the trust has taken a proactive step to try and reduce the rate of infections. The trust has decided to use the Opsite post op visible dressing for all women having a CS, with an aim to re-audit the rates of SSI from CS within a 12 month period, to ensure that the rate of CS wound infections remains low.

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