

Getting evidence into obstetric and midwifery practice: reducing perineal trauma

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Abstract

Problem: Frequent obstetric perineal morbidity in a hospital setting with service providers inexperienced in getting evidence into practice.

Design: Clinical practice improvement methodology in a tertiary referral obstetric unit.

Strategies for change: To cease active instruction to push in the second stage of labour; encourage the adoption of the left lateral position when delivering on a bed; use of the vacuum extractor rather than forceps where instrumental delivery indicated.

Effects of change: Improved perineal outcomes with a 21.5% increase in intact perineum rate and a 100% reduction in fourth degree perineal tears.

Lessons learned: Clinical practice improvement methodology is a useful tool for getting evidence into practice, resulting in improved clinical outcomes.

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MATERNITY SERVICE PROVIDERS have been recognised as being slow to incorporate evidence into practice.^{1,2} Indeed, Cochrane himself observed that “of all medical specialities it is in obstetrics and gynaecology in which clinical practice is least likely to be supported by scientific evidence”.² Much of the required evidence for evidence-based obstetrical practice is now available and accessible.¹ However, despite this, transferring evidence from research into practice can be problematic. Haynes et al described three impediments to the implementation of evidence into clinical practice — mismatches between evidence and clinical circumstances, time pressures in clinical practice, and difficulties in acquiring new clinical skills.³

Evidence relating to perineal outcomes has been available for decades. In 1922, Johnston and Sidall compared the infection rate for women who had a

What is known about the topic?

While studies have suggested that encouraging the birthing woman to push as she feels appropriate, her position, and the type of instrument used for assisted delivery are associated with less perineal trauma, this evidence is not always incorporated into clinical practice.

What does this paper add?

This paper describes the use of clinical practice improvement methodology using “Plan, Do, Study, Act” (PDSA) to reduce perineal tears.

What are the implications for practitioners?

This study suggests that clinical evidence can be used to change clinical practice through clinical practice improvement methodology, as demonstrated by the improved perineal outcomes achieved in this case study. ♦

perineal shave in labour with a control group of women and found no evidence of benefit from perineal shaving.⁴ Despite this evidence, perineal shaving continued to be practised up to seven decades later. Perineal trauma can result in significant morbidity. Two Cochrane reviews have provided guidance for clinicians in relation to potential antecedents for perineal trauma.^{5,6} Incorporation of such evidence into clinical practice has been variable, and our project provided an opportunity to use clinical practice improvement meth-

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I Comparison of perineal trauma rates 2001

	NSW	RNSH	KGV	WH	NH	LH	JHH	RHW
Intact perineal rates	28.1%	15.1%	17.1%	22.0%	30.6%	28.4%	28.2%	22.1%
1st degree tears	27.9%	27.5%	39.9%	32.3%	34.2%	24.2%	38.8%	24.4%
2nd degree tears	22.7%	31.4%	32.4%	19.9%	16.9%	20.3%	20.5%	30.9%
3rd / 4th degree tears	1.4%	3.1%	2.9%	0.7%	1.4%	2.3%	1.5%	2.3%
Episiotomy	15.0%	11.3%	7.0%	18.1%	8.9%	18.1%	5.6%	19.4%
Tear and episiotomy	1.1%	0.2%	0.2%	0.3%	0.1%	0.2%	0.2%	0.9%
Vaginal births	64 486	1020	2638	2938	2414	2452	2556	2680

NSW = New South Wales. RNSH = Royal North Shore Hospital. KGV = King George V Memorial Hospital. WH = Westmead Hospital. NH = Nepean Hospital. LH = Liverpool Hospital. JHH = John Hunter Hospital. RHW = Royal Hospital for Women.

Source: NSW Mothers and Babies 2001 Report⁷

odology as a means of getting evidence into practice and improving clinical outcomes.

Context

Royal North Shore Hospital (RNSH) is the principal referral hospital for Northern Sydney Health and a major teaching and research hospital for the University of Sydney in New South Wales, Australia. Northern Sydney Health provides care chiefly to residents of 11 local government areas located north of Sydney Harbour. More than 760 000 people live within the boundaries of Northern Sydney Health (this represents about 12% of the population of NSW). The maternity unit also provides tertiary level obstetric and neonatal care for the state of NSW. Maternity services are provided for low-, medium- and high-risk pregnancies through a variety of models of care including team midwifery and shared care. RNSH has about 2000 births per annum.

Outline of problem

Data obtained from the NSW Mothers and Babies 2001 Report⁷ indicated that RNSH had the highest rate of perineal (genital tract) tears following childbirth among seven peer institutions in the state. The same data source indicated that RNSH had the highest rate of third and fourth degree perineal tears in the state (Box 1). The spectrum of perineal trauma ranges from a first degree tear,

which involves superficial tearing of the vagina and perineal skin, to a fourth degree tear, which extends through the rectal mucosa to expose the lumen of the rectum (Box 2). A reduction in the level of perineal trauma was considered a priority, as it is associated with significant morbidity.⁸⁻¹¹

The aim of the project was to achieve a 100% reduction in fourth degree tears and a 20% improvement in intact perineum rates over a 6-month period (November 2002–April 2003), compared with the previous 6 months (May 2002–October 2002), for first time mothers with one baby who were in spontaneous labour and did not require augmentation of labour. The project target group was limited to patients receiving their care through hospital-based models of care.

Assessment of problem

A multidisciplinary project team with fundamental knowledge was formed to investigate the

2 Definitions of perineal trauma

First degree: involves superficial tears to vagina and perineal skin

Second degree: involves the fascia and muscle of the perineal body

Third degree: involves the anal sphincter

Fourth degree: extends through the rectal mucosa to expose the lumen of the rectum

extent of the problem. The team included an obstetric consultant and registrar, midwife manager of labour ward, clinical midwifery consultant, student midwife educator, quality adviser, maternity data analyst and a consumer. The consumer was recruited as a volunteer through the antenatal clinic. The consumer attended all project team meetings and contributed useful insights into consumer expectations and the feasibility of the proposed interventions.

As part of an initiative of the Northern Centre for Healthcare Improvement and utilising clinical practice improvement (CPI) methodology,¹² a diagnostic phase was undertaken. This included:

- a flow chart of the process of labour and delivery;
- a cause and effect diagram relating to the high incidence of perineal trauma;
- a Pareto distribution chart of the causes of perineal trauma which indicated that staff education and obstetric procedures were the two areas that had the greatest perceived capacity for trialling evidence-based interventions. A Pareto chart is a graphical display of the relative weights or frequencies of competing choices or options. It is a bar chart, sorted from greatest to smallest that includes a cumulative total line. It is used to prioritise improvement efforts, and in this case was constructed using an informal data collection method (multivoting); and
- a list of customer and staff expectations of the process of labour and delivery (Box 3).

The prioritising of information using the above methods led to “Plan, Do, Study, Act” (PDSA) cycles of three evidenced-based interventions as follow.

PDSA Cycle 1

Review of the literature was by an electronic Medline search of the English language literature published between 1966 and 2000 using the keywords perineal trauma, perineal tears, obstetric lacerations, and pregnancy complications. The lead midwifery project team members conducted this review. The result of the review, combined with anecdotal evidence from the project team indicated that, in the second stage of labour,

3 Customer and staff expectations list

Patient

- Safe delivery of a healthy baby
- Adequately trained staff
- Individualised care
- Minimum degree of perineal trauma and need for analgesia
- Overall satisfaction

Doctors and midwives

- Well informed patient
- Increased perineal integrity
- Reduced impact on breastfeeding, bowel and bladder function
- Reduced occupational health and safety risks ◆

perineal trauma could be reduced if mothers were permitted to push when desired rather than actively instructed to push. Current practice encourages women to push as soon as the second stage of labour is diagnosed rather than allowing women to push when they have the desire to do so. The first intervention, therefore, was a trial of ceasing active instruction to push in the second stage of labour. This was observed to be a practical intervention when women were experiencing a rapid labour.

PDSA Cycle 2

Local obstetric data provided by the maternity data analyst indicated a possible correlation between the degree of perineal trauma sustained in the target group and the position adopted for delivery. This was supported by evidence from a Cochrane review.⁵ The second intervention, therefore, was for women choosing to deliver on a bed, to encourage the adoption of the left lateral position for delivery. This was observed to be a practical intervention when women were experiencing a rapid labour.

PDSA Cycle 3

Additional review of local data provided by the systems analyst revealed a likely connection between the type of instrument used for an assisted delivery and the level of perineal trauma sustained. The frequency and severity of perineal

trauma is greater with the use of obstetric forceps than with the vacuum extractor. Again, this was supported by evidence from a Cochrane review.⁶ The third intervention was, therefore, where instrumental delivery was indicated, and where no clear advantage of one instrument over another existed, to encourage the use of the vacuum extractor rather than forceps. The obstetric consultant ensured his availability during business hours to supervise all vacuum extraction deliveries, thereby increasing the potential for either teaching, acquiring or developing the clinical skills of junior medical staff.

Each intervention was undertaken following extensive education of labour ward staff by the midwife manager of the labour ward, clinical midwifery consultant, and student midwife educator. The clinical midwifery consultant devised specific data collection forms used to measure the effects of each intervention. Data items relating to the labour and birth, including length of the stages of labour, maternal position(s), analgesia used, accoucheur, labour and delivery

interventions, maternal perineal outcome and neonatal outcome, were collected at the point of care. The maternity data analyst entered the information obtained into the local database for analysis.

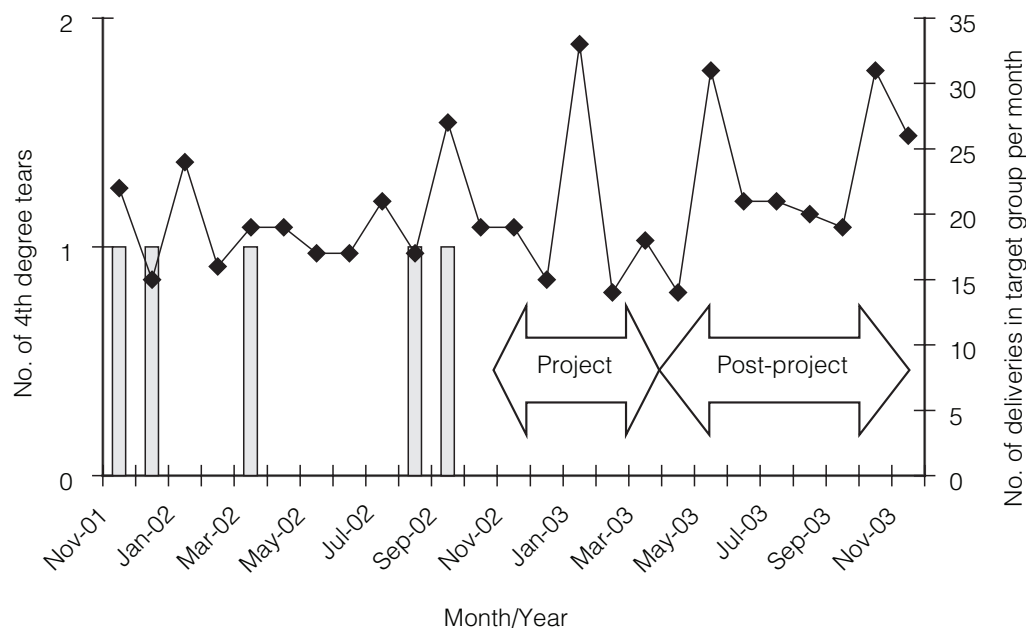
Local ethics committee approval was not required for this project as new interventions or therapy were not introduced. The project involved primarily behavioural change by the staff; however, all patients in the target group were informed of the project and its aims. Both patients and staff were aware that the proposed interventions were voluntary and all suggestions were made on the basis of available evidence.

Effects of the change

Analysis of the data collected over the timeframe of the project revealed that, in the target group:

- over the 6-month period of the project the rate of fourth degree tears decreased by 100% (Box 4). The rate of third degree tears did not increase during the same time period (third

4 Fourth degree tears by month in the target group



Source: local data, Nov 01–Nov 03.

degree tears were to be the subject of a follow-up project).

- over the same period the rate of intact perineums increased by 21.5% (from 27.4% to 33.3%) (Box 5)

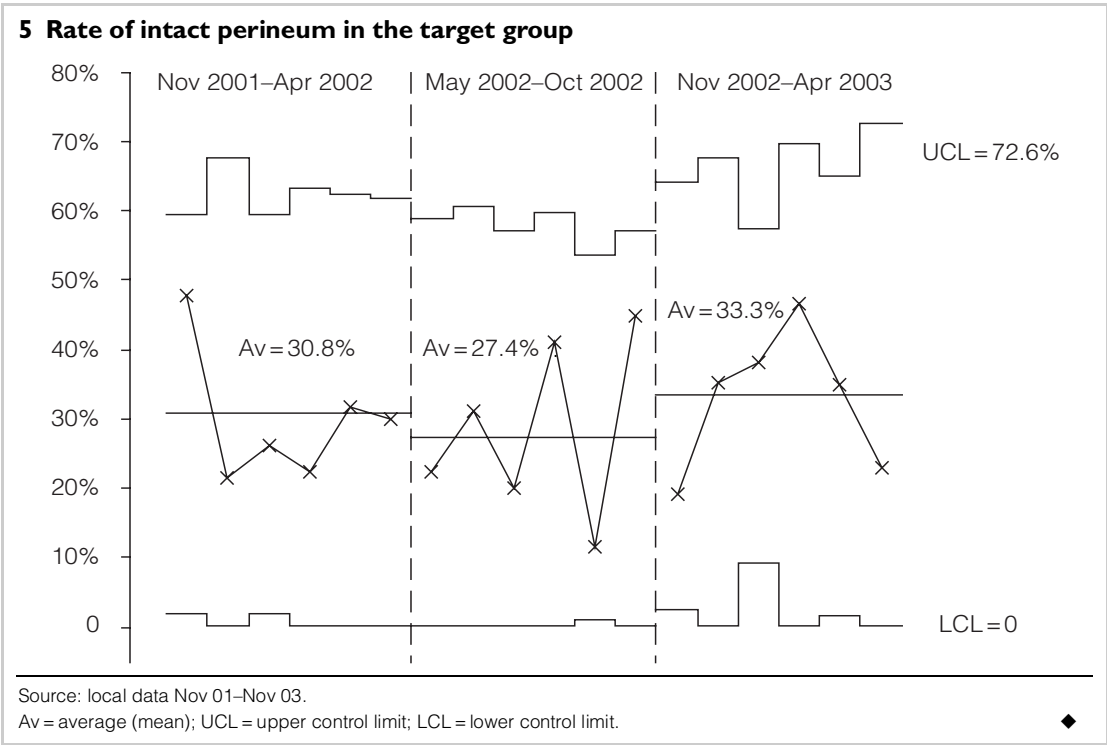
Note that the intact perineum rates quoted in Box 1 are for all deliveries and not just the target group. The exclusion from the target group of women undergoing induction of labour or augmentation of labour thus excluded women with a complicated pregnancy or labour that are otherwise associated with increased obstetric interventions. In further analysis of the data, the episiotomy rate for mothers in the target group actually fell from 7.4% in the 6 months before the project to 6.0% over the 6 months of the project. With respect to Box 5, while our primary comparison was with the immediate 6 months before the project, it can be seen that there was also an improvement of 8.1% (from 30.8% to 33.3%) on the corresponding 6 months 1 year earlier.

These results are aligned with the customer and staff expectations as described in the diagnostic

phase. By use of ongoing audit of maternal outcomes and examining the rate of admissions to the Neonatal Intensive Care Unit we were able to assess that these improvements were achieved with no demonstrable adverse effect on either mothers or babies. With respect to fourth degree tears, the results have been sustained in the 7 months following conclusion of the project. The success of this project has seen incorporation of the evidence-based interventions into standard clinical practice within our unit.

Strategies used for dissemination of results

The project results were disseminated at local, state and international forums. At a local level, the project leaders presented the findings of the project to medical, midwifery and allied health staff at departmental meetings. A storyboard was developed for a statewide quality improvement forum. The project was submitted for local and state quality awards and also accepted as a poster



presentation at the 9th European Forum on Quality Improvement in Health Care. Response at all levels was positive and enthusiastic — the strategies used for change were seen as practical and easy to implement, thereby, ensuring cooperation from staff.

Lessons learned

Clinical practice improvement methodology is a useful tool for getting evidence into practice and resulting in improved clinical outcomes. The use of PDSA cycles, as outlined in the CPI methodology, is an effective way to trial small changes within a short timeframe. With respect to the problem of getting evidence into clinical practice, this methodology would seem to address at least two of the impediments described by Haynes et al,³ namely, the short timeframe (time pressures in clinical practice) and a lack of intensive senior clinical support (difficulties in acquiring new clinical skills). The methodology is easily transferable across the health sector.

Competing interests

The authors declare that they have no competing interests.

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