

The Maternity Services Performance Indicator Project

The full published report on the Maternity Services Performance Indicator Project is available in PDF format. The full report describes the iterative process and methodology in detail. A summary is available below.

In June 2000, the Quality Branch of the Victorian Department of Human Services contracted the Royal Women's Hospital in Melbourne to develop a set of performance indicators for the state's public sector acute hospital-based maternity services. The Project was undertaken by the hospital in collaboration with the Centre for the Study of Mothers' and Children's Health and the Health Issues Centre.

The Project was undertaken between June 2000 and February 2001, and the resultant set of performance indicators developed will form one part of the Department's Acute Health Performance Indicator Strategy for Victoria. They span a range of domains of care, and address both process and outcome measures of the three phases of maternity care: antenatal, intrapartum and postnatal maternity care.

The key stages of the Project included a review of the national and international literature (both non-peer and peer-reviewed), as well as extensive consultation in the field, including a range of stakeholders, consumers and providers.

The strength of the recommended indicator set is drawn from its evidence base, the expertise of the Project Team and the comprehensive and iterative consultation process that was undertaken to develop the indicators.

From the outset, the Project Team recognised that the indicators needed to be relevant to the field as tools in improving the quality of care. Clinicians' experience and local knowledge were an invaluable complement to academically rigorous literature search and appraisal.

The Project Team envisages that any indicator program be dynamic and capable of responding to changes in practice and health priorities. To this end, the Department should institute an ongoing process of review and consultation with the field as to the indicator set and the indicator statements. It may be that following a 12-month period of data collection for a given indicator, performance is found to be high, and little will be achieved through ongoing data collection, monitoring and reporting. In this case, focus could be diverted to monitoring an area of poor performance. Similarly, amendments to the indicator statement may be required as changes in information systems and processes of care are instituted.

Summary of the Nine Recommended Indicators

Principle	Indicator	Implementation
Principle 1: Maternity services provide optimal safety for women and their babies.	1.1 Birthweight standardised perinatal mortality ratio.	Immediate
	1.2 The rate of term infants transferred or admitted to Level 2 or Level 3 nursery for reasons other than congenital abnormality.	Second phase
Principle 2: Maternity services ensure early detection and	2.1 The rate of administration of antenatal corticosteroids to women delivered or	Immediate

appropriate intervention.	transferred prior to 34 weeks' gestation.	
Principle 3: Maternity services provide appropriate clinical care.	3.1 The rate of vaginal birth a in the birth immediately following a primary Caesarean section.	Immediate
	3.2 Selected outcomes for standard primiparae.	Immediate
Principle 4: Maternity services promote parenting confidence and optimal health of mothers and their babies.	4.1 The proportion of women offered appropriate interventions in relation to smoking.	Third phase
	4.2 The provision of appropriate breastfeeding support and advice.	Immediate
Principle 5: Maternity services respond to the needs of a diverse range of women and are customer-focused.	5.1 The proportion of women who receive timely hospital antenatal clinical services.	Third phase
	5.2 The proportion of women from a non-English speaking background (NESB) without proficiency in English, who receive appropriate interpreter services.	Third phase

Indicator Statements for Victoria's Maternity Services

Principle 1: Maternity services provide optimal safety for women and their babies

Indicator 1.1 Birthweight standardised perinatal mortality ratio

Key Question	Does the perinatal care provided in this hospital result in acceptably low rates of perinatal mortality? How does this hospital compare with the state average, with respect to perinatal mortality, adjusted for birth weight (Birth Weight Standardised Perinatal Mortality Ratio = BWSMPR)?
Calculation formula	For each hospital, the BWSPMR is calculated in the following way. The number of perinatal deaths that occur of infants born in a given hospital are calculated (observed deaths). The expected number of perinatal deaths is determined by multiplying the number of births that occurred in each specified birthweight group, by the State perinatal mortality rate for that birthweight group (calculated by PDCU), and then the expected deaths are added to derive a total. The BWSPMR is calculated by dividing the observed deaths by the expected deaths, and multiplying by 100. Confidence intervals of 95% are constructed around the ratio. PDCU presents the ratio for each of the previous five years, and to add stability, also presents a pooled estimate for the five-year period. When the BWSPMR is greater than 100, this indicates that the hospital's perinatal mortality rate is higher than would be expected, taking into account the birthweight distribution at that hospital.
	$\frac{\text{Numerator}}{\text{Denominator}} \times 100$ <p style="text-align: center;">Observed deaths Expected deaths</p>

Anticipated benefit	<p>This indicator will enable identification of those hospitals where:</p> <ul style="list-style-type: none"> ▪ Care meets the statewide reference standard <p>or</p> <ul style="list-style-type: none"> ▪ More detailed evaluation is indicated because of a consistently raised SPMR. 						
Description and type	This is an outcome indicator.						
Purpose and rationale	<p>The standardisation is a risk-adjusted calculation, enabling hospitals with higher proportions of low birth-weight infants (and therefore higher likelihood of perinatal mortality) to be validly compared with hospitals with a different casemix.</p> <p>The purpose of collecting this indicator is to provided assurance that mortality rates are within an acceptable range and that both high-performing and poorly-performing services can be identified. Pooling the data over five years adds stability to the data and reduces the risk of over-interpretation of chance fluctuations.</p> <p>This indicator also takes into account the integrated system of care across Victoria. Crude (unadjusted) perinatal mortality rates do not take into account the regionalisation of perinatal care, in which hospitals provide care for women and babies for whom they have appropriate services available, transferring those who require a more intensive service to a higher level of care.</p> <p>The rationale for collecting this indicator is that care promoting the healthy survival of newborn babies is one of the primary objectives of a maternity service. Users of this indicator will be the services themselves, staff involved in the provision of maternity care, service users and potential service users (customers and their families), the Department of Human Services, and statewide bodies, such as the Consultative Council on Obstetric and Paediatric Mortality and Morbidity.</p>						
Evidence from the literature	There is no high level evidence which addresses the utility of this indicator — that is, does the reporting of standardised PMR encourage those hospitals with high standardised PMR to improve their outcomes? However, risk-adjusted comparisons are much more likely to be valid than those that do not take variations in casemix into account.						
References	<p>Kiely J.L., Kleinman, J.C. (1993) 'Birthweight adjusted infant mortality in evaluations of perinatal care: towards a useful summary measure' in <i>Statistics in Medicine</i> 12: 377–392.</p> <p>Knox, E.G., Lancashire, R., Armstrong, E.H. (1986) 'Perinatal mortality standards: construction and use of a health care performance indicator' in <i>Journal of Epidemiology and Community Health</i> 40: 193–204.</p> <p>Lumley, J. (1989) 'The safety of small maternity hospitals in Victoria 1982–84' in <i>Community Health Studies</i> XII: 386–393.</p> <p>Vandenbroucke, J.P. (1982) 'A short-cut method for calculating the 95% confidence interval of the standardised perinatal mortality ratio' in <i>American Journal of Epidemiology</i> 115: 303–4.</p>						
Definition of key data elements	<table border="0"> <tr> <td style="vertical-align: top;">Live birth</td> <td>The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams who, after being born, breathes or shows any evidence of life, such as a heartbeat.</td> </tr> <tr> <td style="vertical-align: top;">Stillbirth</td> <td>The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams, who did not, at any time after birth, breathe or show any evidence of life, such as a heartbeat.</td> </tr> <tr> <td style="vertical-align: top;">Neonatal death</td> <td>A death occurring within 28 days of birth in a baby who gestation is at least 20 weeks or, if gestation is unknown, weighing at least 400 grams. (Definitions from the National Perinatal Statistics Unit.)</td> </tr> </table>	Live birth	The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams who, after being born, breathes or shows any evidence of life, such as a heartbeat.	Stillbirth	The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams, who did not, at any time after birth, breathe or show any evidence of life, such as a heartbeat.	Neonatal death	A death occurring within 28 days of birth in a baby who gestation is at least 20 weeks or, if gestation is unknown, weighing at least 400 grams. (Definitions from the National Perinatal Statistics Unit.)
Live birth	The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams who, after being born, breathes or shows any evidence of life, such as a heartbeat.						
Stillbirth	The complete expulsion or extraction from its mother of a baby of at least 20 weeks gestation or, if gestation is unknown, weighing at least 400 grams, who did not, at any time after birth, breathe or show any evidence of life, such as a heartbeat.						
Neonatal death	A death occurring within 28 days of birth in a baby who gestation is at least 20 weeks or, if gestation is unknown, weighing at least 400 grams. (Definitions from the National Perinatal Statistics Unit.)						
Data source	PDCU currently calculates and provides birth weight adjusted SPMR to all hospitals having five or more perinatal deaths in the year of analysis.						

	Frequency data collection and review: annual, with pooling for previous five years.
Exclusions	Births and perinatal deaths to women transferred to another hospital for care.
Limitations	Currently the risk-adjusted SPMR corrects for birthweight only. This risk adjustment can be refined to exclude birth defects, and termination of pregnancies at gestational ages of 20 weeks and beyond.
Analysis considerations	<p>The BWSPMR is valid for comparing the hospital's performance with similar institutions, and with the State at large, but there is no 'gold standard'. It is also important to view Victoria's perinatal mortality rate compared to that of other states, and to the overall rate for Australia. International comparisons are made difficult because of marked differences in the cut-off point for births. For example:</p> <ul style="list-style-type: none">▪ Australia 20 weeks/400 grams▪ UK 24 weeks▪ Sweden and Holland 28 weeks for foetal deaths. <p>The broader the comparison, however, the greater is the likelihood of the introduction of confounding variables.</p>

Indicator 1.2 The rate of term infants transferred or admitted to special care nursery or neonatal intensive care unit for reasons other than birth defect

Key Question	Is the rate of admission of term inborn infants to special care nursery (SCN) or neonatal intensive care unit (NICU) for reasons other than birth defects, principally due to non-avoidable factors?
Calculation formula	<p>Level 3 hospital</p> <ul style="list-style-type: none"> ▪ Numerator: The number of inborn term infants admitted to its SCN or NICU, for reasons other than the management of birth defects. ▪ Denominator: The number of term infants born without major birth defect. <p>Level 2 hospital</p> <ul style="list-style-type: none"> ▪ Numerator: The number of inborn term infants admitted to its SCN or transferred to a NICU for reasons other than the management of birth defects. ▪ Denominator: The number of term infants born without major birth defect. <p>Level 1 hospital</p> <ul style="list-style-type: none"> ▪ Numerator: The number of inborn term infants transferred to a SCN or NICU for reasons other than the management of birth defects. ▪ Denominator: The number of term infants born without major birth defect.
Anticipated benefit	For institutions identified as having high rates of such admissions or transfers, practice improvements would result in improved outcomes.
Description and type	This is a process indicator acting as a proxy for the quality of antenatal and perinatal care.
Purpose and rationale	<p>Term infants born without birth defects are not normally expected to be admitted to a SCN or NICU.</p> <p>The indicator focuses on unplanned admission of term infants (without a birth defect), resulting from adverse events occurring in labour, or in the immediate neonatal period which require the facilities of SCN or NICU. This will include term infants with low five-minute Apgar scores, infants with birth trauma, infants with early seizures/HIE, IUGR and sepsis.</p> <p>This indicator will also highlight inappropriate transfers and inappropriate use of resources.</p>
References	<p>Australian Council of Health Care Standards (2000c) <i>Determining the potential to improve the quality of care in health care organisations</i>. Health Services Research Group, University of Newcastle. ISBN 1 8 75544 90 9.</p> <p>Joint Commission on Accreditation in Health Care Organisations (1992) <i>Development and application of indicators for continuous improvement in perinatal care</i>. ISBN 0 86688 281 2.</p>
Definition of key data elements	Major birth defects includes birth defects as listed in table 26, page 12–17 of the report by Riley, M. & Halliday, J., <i>Birth Defects in Victoria 1983–1998</i> , Perinatal Data Collection Unit, Victorian Department of Human Services, Melbourne, 2000 (excluding items 7525, 75260/3–5, 75261, 75262, 75430, 7545–7).
Data source	<p>The data/information subcommittee of the Neonatal Advisory Committee (of the Acute Health Division in the Department of Human Services) is working with the PDCU and VAED to resolve data collection problems relating to this indicator. It is expected that these can be resolved.</p> <p>Hospitals identify infants born at term (minimum 37 weeks gestation) without birth defect and admitted or transferred to a SCN or NICU.</p> <p>Frequency data collection and review: quarterly.</p>

Exclusions	Nil.
Limitations	The rate of term infants transferred to SCN or NICU (for reasons other than the management of birth defects) will be low (estimated $\approx 3\%$). Comparison of rates between individual institutions and the State, when the number of births is small (as in most Level 1 units) will need to be undertaken with caution. However, because the admission of a term infant to SCN or NICU is an indicator of concern for both the process and the outcome of care, each case deserves review, and this indicator will serve as a reminder of the importance of this need.
Analysis considerations	As this indicator will capture data for the two domains encompassing quality of care and appropriateness of transfers, significant variations will require further analysis.

Principle 2: Maternity services ensure early detection and appropriate intervention

Indicator 2.1 The rate of administration of antenatal corticosteroids to women delivered or transferred prior to 34 weeks' gestation

Key Question	Are women who give birth prior to 34 weeks gestation receiving an antenatal course of corticosteroids?
Calculation formula	<p>Level 1 and 2 hospitals</p> <ul style="list-style-type: none">▪ Numerator: The number of women who are transferred to a Level 3 hospital prior to 34 weeks' gestation and have received an initial dose of corticosteroid.▪ Denominator: The total number of women who are transferred prior to 34 weeks' gestation to a Level 3 hospital. <p>Level 3 hospital</p> <ul style="list-style-type: none">▪ Numerator: The number of women who give birth prior to 34 weeks' gestation who have received a completed course of corticosteroids (excluding transfers).▪ Denominator: The total number of women who give birth prior to 34 weeks' gestation (excluding transfers).
Anticipated benefit	There will be an increase in the proportion of women who give birth prior to 34 weeks gestation who have received a completed course of corticosteroids, thus improving neonatal outcome.
Description and type	This is a process indicator measuring compliance with internationally accepted best practice.
Purpose and rationale	<p>The purpose of this indicator is to identify the proportion of women who give birth prior to 34 weeks gestation who receive a completed course of corticosteroids. In Victoria, a Level 1 or 2 maternity service should give the first dose of corticosteroids to women at risk of pre-term birth, prior to transfer to a Level 3 hospital. A Level 3 hospital would ensure women at risk of pre-term birth receive a completed course of corticosteroids.</p> <p>The administration of a single course (two doses, 24 hours apart) of corticosteroids to women at risk of birth prior to 34 weeks has been shown to improve neonatal outcome significantly. There is Level 1 evidence that such treatment helps to mature the baby's lung and prevent death. There are also demonstrated protective effects on other systems, such as reducing necrotising enterocolitis and intraventricular haemorrhage.</p> <p>Clinical and administrative managers are the users of this indicator.</p>
Evidence from the literature	<p>The literature review identified documentation of 18 trials assessing the effects of corticosteroids administered to pregnant women to accelerate foetal lung maturity prior to pre-term birth. Conclusion: A single course of corticosteroids given prior to pre-term birth (as a result of either pre-term labour or elective pre-term birth) is effective in preventing respiratory distress syndrome and reducing neonatal mortality (Crowley, 2000).</p> <p>The practice of repeating the course of corticosteroids (weekly) to women who remain at risk of birth prior to 34 weeks has become widespread practice. However, there is no high level evidence to support this, and there are concerns that repeated courses may not only fail to add benefit, they may be associated with risks to both foetal/neonatal and maternal welfare. This practice should be restricted within randomised trials, which are being undertaken to address these</p>

	concerns.
References	Crowley, P. (2000) 'Prophylactic corticosteroids for pre-term birth, in <i>Cochrane Review Issue 3</i> : Oxford: Update Software. The Cochrane Library.
Definition of key data elements	Corticosteroids: betamethasone. Completed course of corticosteroids: The administration of two doses each of 11.4 milligrams of betamethasone given 24 hours apart.
Data source	Hospitals identify infants born prior to 34 weeks' gestation and audit relevant medication charts for corticosteroid administration. Frequency data collection and review: six-monthly.
Exclusions	Women with contraindications to corticosteroid therapy. Foetal death <i>in utero</i> .
Limitations	This indicator increases the current data burden, as medication charts will need to be reviewed, but in that it is a robust proxy for evidence based perinatal care, this practice warrants monitoring.
Analysis considerations	Nil.

Principle 3: Maternity services provide appropriate clinical care

Indicator 3.1 The rate of vaginal birth in the birth immediately following a primary Caesarean section

Key Question	Do maternity hospitals provide appropriate care for women with a previous primary Caesarean section?
Calculation formula	<p>VBAC planned</p> <ul style="list-style-type: none"> ▪ Numerator: The number of women (para 1) whose previous birth was a Caesarean section who enter labour at term with a plan for a vaginal birth. ▪ Denominator: The total number of women (para 1) at term whose previous birth was a Caesarean section. <p>VBAC achieved</p> <ul style="list-style-type: none"> ▪ Numerator: The number of women (para 1) whose previous birth was a Caesarean section who enter labour at term with a plan to deliver vaginally and who achieve this. ▪ Denominator: The total number of women (para 1) at term whose previous birth was a Caesarean section and who enter labour with a plan for a vaginal birth.
Anticipated benefit	<p>To increase the proportion of women offered a vaginal birth after Caesarean section (VBAC) at term, and to increase the proportion who achieve a safe vaginal birth, with the added benefit of decreased maternal morbidity and a reduction in unnecessary Caesarean sections.</p> <p>This will encourage hospitals to establish protocols for facilitating an informed decision regarding a plan for VBAC, formally recording that decision, and data recording mechanisms for VBAC.</p>
Description and type	This is a process indicator.
Purpose and rationale	<p>The principal quality dimensions addressed by this performance indicator include:</p> <ul style="list-style-type: none"> ▪ Offering VBAC as an option for those women who wish to choose it. ▪ Appropriate management of women who plan labour after a previous primary Caesarean section. ▪ Facilities for immediate recourse to Caesarean section or laparotomy. ▪ Education of the women and staff with regards to vaginal birth after Caesarean section. <p>The purpose of this indicator is to identify the proportion of women with a history of a primary Caesarean section in a previous birth who are offered the option of VBAC and who achieve a term vaginal birth. This reflects appropriate management of these high risk women.</p> <p>Maternity consumers, clinical and administrative managers are the users of this indicator.</p>
Evidence from the literature	<p>A recent Victorian study compared outcomes of 4,663 women undergoing repeat elective section with those of 1,482 women attempting VBAC. Uterine rupture occurred in two per 1,000 VBACs, compared to nil with elective Caesarean section. This study found no difference in risk-adjusted perinatal mortality in women undergoing VBAC compared to those undergoing repeat elective Caesarean section (Stone, Halliday, Lumley, Brennecke, 2000).</p> <p>A meta-analysis of observational data comparing VBAC with planned vaginal birth, involving 47,682 women, suggested that among women undergoing a trial of labour, compared to those having a repeat elective caesarean section there</p>

were increased risks of uterine rupture, perinatal mortality and low Apgar scores. Although these differences were statistically significant the actual rates of these complications were very low. Because these are observational data the results need cautious interpretation (Mozurkewich and Hutton, 2000).

References

Appleton, B., Targett, C., Rasmussen, M., Readman, E., Sale, F., Permeze, I M. and the VBAC Study Group. (2000) 'Vaginal Birth after Caesarean Section: an Australian Multicentre Study' in *Australian and New Zealand Journal of Obstetrics and Gynaecology* 40(1): 87–91.

Flamm, B.L., Goings, J.R., Liu, Y., Wolde-Tsadiq, G. (1994) 'Elective Repeat Cesarean Delivery versus Trial of Labour: A prospective Multicentre Study' in *Obstetrics & Gynecology* 83: 927–932.

Miller, D.A., Diaz, F.G., Paul, R.H. (1994) 'Vaginal Birth after Cesarean: A 10-Year Experience' in *Obstetrics & Gynecology* 84(2): 255–8.

Mozurkewich, E.L., Hutton, E.K. (2000) 'Elective repeat Cesarean delivery versus trial of labor: A meta-analysis of the literature from 1989 to 1999' in *American Journal of Obstetrics and Gynecology* 183(5): 1187–1197.

Stone, C., Halliday, J., Lumley, J., Brennecke, S. (2000) 'Vaginal births after Caesarean (VBAC): a population study' in *Paediatric and Perinatal Epidemiology* 14(4): 340–8.

Targett, C. (1988) 'Caesarean Section and Trial of Scar' in *Australian and New Zealand Journal of Obstetrics and Gynaecology* 28: 249–62.

Definition of key data elements	Planned vaginal birth after a previous Caesarean section	Includes women who have a recorded intention for vaginal birth after a previous primary Caesarean section.
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Vaginal birth	Includes women who have a spontaneous cephalic birth or forceps birth or ventouse extraction at gestational age of 37 weeks or greater.
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Vaginal birth after a previous Caesarean section	Women who have a spontaneous cephalic birth or forceps birth or ventouse extraction following a previous primary Caesarean section, and having no intervening pregnancies of 20 weeks gestation or greater.
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Data source	PDCU will identify and track outcomes for women (para 1) at term whose previous birth was a Caesarean section and who experience labour. Period of data collection: six-monthly.
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Exclusions	Breech presentation.
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Limitations	Plan for VBAC is not always recorded.
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Analysis considerations	<p>In promoting this indicator, the Project Team is aware of the ongoing debate about relative maternal and neonatal risks of repeat elective Caesarean section compared to a planned VBAC. A recent meta-analysis of the literature concluded that the trade-off is between increased satisfaction (overall) for women choosing VBAC, with slightly increased risk of uterine rupture with VBAC and the attendant complications of perinatal mortality/morbidity, and maternal haemorrhage and hysterectomy, compared to increased length of hospital stay, and the other attendant risks of Caesarean section. The perioperative morbidity for intrapartum Caesarean section was also higher than for elective Caesarean section (Mozurkewich and Hutton, 2000).</p> <p>This trade-off needs to be discussed in the informed consent discussions in VBAC programs. Being mindful of that, the purpose of this indicator is to identify the proportion of women with a history of a primary Caesarean section in a previous birth who are offered the option of VBAC and who achieve a term vaginal birth. Such an offer is considered best practice.</p>
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Indicator 3.2 Outcomes for standard primiparae

Key Question	How does this hospital achieve outcomes for standard primiparae compared to the overall rates for standard primiparae in Victorian hospitals?	
Calculation formula	<p>Induction of labour</p> <ul style="list-style-type: none"> ▪ Numerator: The number of standard primiparae undergoing induction of labour. ▪ Denominator: The number of standard primiparae who give birth. <p>Caesarean section</p> <ul style="list-style-type: none"> ▪ Numerator: The number of standard primiparae undergoing Caesarean section. ▪ Denominator: The number of standard primiparae who give birth. <p>Perineal tear</p> <ul style="list-style-type: none"> ▪ Numerator: The number of standard primiparae who sustain a third- or fourth-degree tear. ▪ Denominator: The number of standard primiparae who give birth vaginally. 	
Anticipated benefit	The standard primipara is, by definition, a low risk parturient, and intervention rates should be low in this population. While there is no 'gold standard', if an institution were shown to have unusually high rates of interventions for this population, this would require exploration and justification. By reducing unnecessary obstetrical intervention in this population, the overall rates of obstetrical intervention will diminish.	
Description and type	These are outcome indicators.	
Purpose and rationale	<p>Use of the standard primipara (rather than the whole obstetric population) as the basis for internal hospital comparison of mortality care controls for substantial difference in casemix (pre-risk adjustment), and increases the validity of those comparisons.</p> <p>A 'cascade' effect of intervention has been described starting with induction of labour and progressing through augmentation, epidural anaesthesia to increased risk of operative vaginal delivery or Caesarean section. This effect is greater for nulliparous women (Dublin et al, 2000). By reducing the number of nulliparous women who have induced labour, the number of women undergoing unnecessary operative birth and other interventions will be reduced.</p>	
Evidence from the literature	<p>Cohort studies (Level 111–2) from the UK and US have been published, but as with most quality activities, the utility of this exercise has not been addressed in an assessment comparing participating hospitals with controls.</p> <p>There have been no controlled trials in which a population of women without predefined clinical indication were randomised to induction or expectant management. The evidential base for the 'cascade' effect comes from consistent findings from retrospective analyses (Level 3).</p>	
References	<p>Cleary, R., Beard, R.W., Shapple, J., Coles, J., Griffin, M., Joffe, M., Welsh, A. (1996) 'The standard primipara as a basis for inter-unit comparisons of maternity care' in <i>British Journal of Obstetrics and Gynaecology</i> 103: 223–229.</p> <p>Dublin S, Lydon-Rochelle M, Kaplan RC, Watts DH, Critchlow CW. (2000) Maternal and neonatal outcomes after induction of labor without an identified indication. <i>American Journal of Obstetrics and Gynecology</i> 183(4): 986–994.</p>	
Definition of key data elements	Standard primipara	20–34 years of age, not small for gestational age (SGA) (greater than 10th percentile, singleton pregnancy, at term (37–41 weeks gestation), with a cephalic presentation and free of medical complications of pregnancy.
	Third-degree tear	Tear of the perineum into the anal sphincter, which does not extend to the rectal mucosa.

	Fourth-degree tear	Tear of the perineum into the anal sphincter, which extends to the rectal mucosa.
Data source	PDCU would enable identification of the standard primiparae and linkage to the specified outcomes. Frequency data collection and review: annual.	
Exclusions	All women who do not fit definition of standard primipara (see definition).	
Limitations	There may be subgroups within this population who, despite this risk adjustment, still may be at increased risk of intervention. This may need to be taken into account in comparisons.	
Analysis considerations	Nil.	

Principle 4: Maternity services promote parenting confidence and optimal health of mothers and their babies

Indicator 4.1 The proportion of women offered appropriate interventions in relation to smoking

Key Question	Does the hospital help pregnant women to quit smoking and to reduce the risk of smoking-associated adverse health outcomes for the baby?
Calculation formula	<p>Ask/assess/advise/assist</p> <ul style="list-style-type: none">▪ Numerator: Within a defined timeframe, the number of women at the first hospital antenatal appointment who are asked about smoking status, assessed as to motivation to quit and offered advice and assistance at the first visit.▪ Denominator: Within the same defined timeframe, the total number of women at the first hospital antenatal appointment. <p>Ask again</p> <ul style="list-style-type: none">▪ Numerator: Within the same defined timeframe, number of women identified as smokers at the first hospital antenatal appointment who are asked again about smoking status by 20 weeks' gestation.▪ Denominator: Within the same defined timeframe, total number of women identified as smokers at the first hospital antenatal appointment.
Anticipated benefit	On the basis of Level 1 evidence, smoking cessation intervention will result in a higher rate of smoking cessation, a decrease in smoking relapse and an increase in the mean birthweight of babies born to women receiving advice and assistance. This evidence also indicates that costs to the hospital will be reduced.
Description and type	This is a process indicator.
Purpose and rationale	<p>This indicator assesses the performance of a maternity hospital in providing smoking cessation advice, assistance and follow-up during routine antenatal care. It aims to reduce the rate of smoking amongst women who are pregnant and improve the perinatal outcomes for their babies.</p> <p>A hospital is an ideal setting for smoking cessation or reduction education programs, because it provides an opportunity for the provision of advice and assistance.</p> <p>Clinicians and health promotion staff are the users of these data.</p>
Evidence from the literature	<p>There is evidence that advice to quit by a clinician increases abstinence rates, on average, by 3% (US Department of Health and Human Services, 2000). However, 25% of pregnant women have already quit before the first antenatal visit.</p> <p>Smoking during pregnancy is probably the most important preventable cause of unfavourable reproductive outcomes amongst women in the Western world. Level 1 evidence indicates that smoking cessation programs during pregnancy have a beneficial impact on birthweight.</p> <p>Systematic reviews and studies on interventions have concluded that the use of multiple strategies, and a cognitive behavioural approach, enhances the impact of a smoking cessation/reduction intervention. A cognitive behavioural approach focuses on restructuring the person's beliefs about their smoking and about their ability to quit, while emphasising the development and implementation of appropriate coping strategies. Coping strategies may be</p>

cognitive in nature (for example, telling yourself that you can quit smoking if you want to) or behavioural in nature (for example, replacing smoking with other activities).

About one-quarter of women who smoked prior to pregnancy say that they have quit by their first antenatal visit. One-fifth of 'spontaneous quitters' are still actively smoking, but about one-third of these will quit by late pregnancy. Amongst the spontaneous quitters, one-fifth will start smoking again by late pregnancy. From these observations, spontaneous quitters are a group likely to benefit from advice/support to stay quit.

References

Donatelle, R.J., Prows, S.L., Champeau, D., Hudson, D. (2000) 'Randomised controlled trial using social support and financial incentives for high risk pregnant smokers: Significant Other Supporter (SOS) program' in *Tobacco Control* 9 (Suppl 3): iii67–69.

Johnson, J.L., Ratner, P.A., Bottorff, J.L., Hall, W., Dahinten, S. (2000) 'Preventing smoking relapse in post-partum women' in *Nursing Research* 49(1): 44–52.

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Definition of key data elements

Smokers: Self-declared smokers, who have smoked at least part of one cigarette in the week prior to the first antenatal visit.

Spontaneous quitters: Women who indicate that they have been smokers but say at the time of their first antenatal appointment that they have given up smoking because of their pregnancy.

Five-step interventions:

1. Step one — ASK: All women should be screened at every antenatal visit to detect current or recent smoking status.
 2. Step two — ASSESS: All 'squitters' (spontaneous quitters) and smokers should be assessed at every antenatal visit with regard to their motivation to quit or abstain.
 3. Step three — ADVISE: All quitters and smokers should be advised at every antenatal visit:
 - To quit.
 - About the risks to their own and the baby's health. The high risk of having a sickly baby due to low birthweight, prematurity or intra-uterine growth retardation.
 - About the obstetric implications of continuing to smoke, including spontaneous abortion, stillbirth, perinatal mortality and SIDS.
 - The benefits of quitting at any stage in the pregnancy.
 4. Step four — ASSIST: All spontaneous quitters and smokers should be assisted to quit or remain abstinent.
 - a) Provide written material on the:
 - Effects of smoking on mother and baby.
 - Role of the partner in helping to reduce the health risks to the baby.
 - Ways to quit and stay quit.
 - Where to go to seek extra support.
-

	<p>b) Where appropriate, arrangements should be made for the women to receive additional support. This may involve:</p> <ul style="list-style-type: none"> ▪ Staff providing routine antenatal care. ▪ Referral to in-house services. ▪ Referral to external agencies where specific assistance (including counselling) around quitting (and other potentially related issues) can be accessed. <p>5. Step five — ASK AGAIN: All spontaneous quitters and smokers should be followed up at least once prior to 20 weeks, preferably at each antenatal visit. (Refer to Victorian Three Centres Consensus Guidelines on Antenatal Care Draft Smoking Cessation Guidelines)</p>
Data source	<p>Audit hospital antenatal medical record of 25% of those women who have given birth for evidence that:</p> <ul style="list-style-type: none"> ▪ The woman was identified as a spontaneous quitter or continuing smoker at the first visit. ▪ Spontaneous quitters and smokers are given advice (including appropriate written material). ▪ Arrangements made for additional support. ▪ Reassessment of smoking status at least once prior to 20 weeks gestation. <p>Frequency data collection and review: six-monthly.</p>
Exclusions	<p>Women who receive non-hospital antenatal care. Women presenting for their first visit after 20 weeks gestation. Transfer to another hospital.</p>
Limitations	<p>Identification of all spontaneous quitters may be inconsistent. Need to be able to ascertain that all continuing smokers are identified.</p>
Analysis considerations	<p>Nil.</p>
Other Considerations and General Discussion	<p>When screening women for smoking status, use a multiple answer format rather than a narrow closed question, such as ‘Do you smoke?’ (See attached suggested format)</p> <p>Consistency in the way questions are asked to elicit smoking status is vital. Simplicity and clarity in the details of the intervention are also essential. Clear recording of interventions in the medical record will facilitate auditing. There may a separate sheet generated for recording interventions around smoking.</p> <p>Also refer to the Victorian Three Centres Consensus Guidelines on Antenatal Care Draft Smoking Cessation Guidelines.</p>
Attachment to draft indicator 4.1	<p>Suggested format for ASKING about smoking behaviour of pregnant women. Please note:</p> <p>This is a potential format only and the exact wording should depend on how the ‘script’ is to be used, for example, in a face-to-face setting or a written form self-completing or assist form.</p> <p>Specifically, it would be important to know whether simply reading out the various categories work, or whether this confuses some or all patients. The format should be piloted before being finalised.</p> <p>ALL pregnant women should be screened for smoking behaviour, using the same question format to ensure that all possible smoking situations can be identified and appropriate ADVICE and ASSISTance can be provided.</p> <p>This question format relates to ASKING or screening smoking behaviour only. It should be remembered that a format needs to be developed for ASSESSing motivation to quit, for identifying and recording the ADVICE and ASSISTance that were provided, and for recording the results of ASKING AGAIN.</p> <p>ASK ALL WOMEN about current smoking status:</p>

1. Which statement best describes you now?

- a) I smoke regularly now — about the same amount a BEFORE I found out I was pregnant.
- b) I smoke regularly now, but more than BEFORE I found out I was pregnant.
- c) I smoke some now, but I have cut down SINCE I got pregnant.
- d) I stopped smoking AFTER I found out I was pregnant, and I am not smoking now.
- e) I stopped smoking WHEN I planned to get pregnant and I am not smoking now.
- f) I stopped smoking BEFORE I planned to get pregnant and I am not smoking now.
- g) I have NEVER smoked.

2. Does your partner smoke?

Yes No

Interpreting Responses

- Women who answer a), b) and c) are current smokers.
- Women who answer d) and e) are spontaneous quitters, or squitters.
- Women who answer f) are ex-smokers.
- Women who answer g) are women who have never smoked.

This should be followed by a series of tailored questions to assess the extent of current and past smoking behaviour of members of each relevant group, and their motivation to quit.

Indicator 4.2 The provision of appropriate breastfeeding support and advice

Key Question	Does the hospital provide information and support on breastfeeding in accordance with the Baby Friendly Hospital Initiative (BFHI), which is based on the WHO 10 Steps to Successful Breastfeeding?
Calculation formula	Numerator: Number of WHO 10 Steps approved at time of assessment. Denominator: (WHO) 10 Steps. This is an organisational assessment of which an assessment of 10/10 is considered best practice.
Anticipated benefit	Increase the number of women and their families receiving advice, care and support consistent with the WHO 10 Steps to Successful Breastfeeding.
Description and type	This is a rate-based indicator, which is an administrative/clinical measure for care and the process of care delivery on a range of parameters.
Purpose and rationale	The indicator supports the implementation of care practices for women who wish to breastfeed their baby to ensure: <ul style="list-style-type: none"> ▪ Breastfeeding initiation is enhanced. ▪ Breastfeeding advice and support is in line with the WHO 10 Steps. ▪ Babies separated from their mother (due to illness/prematurity) receive breast milk.
Evidence from the literature	Randomised trial of hospitals in Belarus showing a major impact on breastfeeding and infant health (decreased infections, atopy) associated with implementing BFHI.
References	National Health and Medical Research Council (1997b) <i>Infant Feeding Guidelines for Health Workers</i> . Commonwealth of Australia, Canberra. Saadeh, R. (Ed.) (1993) <i>Breastfeeding: the technical basis and recommendations for action</i> . World Health Organisation, Geneva. World Health Organisation (1998) <i>Evidence for the 10 Steps to Successful Breastfeeding</i> . Division of Child Health and Development (WHO/CHD/98.9). Kramer, M.S., Chalmers, B., Hodnett, E.D., Sevkovskaya, Z. et al (2001) 'Promotion of Breastfeeding Intervention Trial (PROBIT)' in <i>JAMA</i> 285: 413–420.
Definition of key data elements	Nil.
Data source	Assessment and documentation in line with WHO accreditation governed and coordinated by the Australian College of Midwives Incorporated (ACMI): Annual self-assessment using BFHI Self-Assessment Tool. Formal three-yearly assessment by BFHI Accredited Assessors.
Exclusions	Nil.
Limitations	Accreditation enables risk-adjustment and focuses on process issues associated with breastfeeding, rather than on the percentage of women successfully breastfeeding.
Analysis considerations	As part of the analysis of indicator results, the organisation must attempt to determine factors preventing the implementation of the WHO 10 Steps for Successful Breastfeeding.
Other considerations	Attachment to draft indicator 4.2 — WHO 10 STEPS

**and general
discussion**

Step 1 Have a written breastfeeding policy that is routinely communicated to all health care staff. Availability of current evidence-based policy.

Step 2 Train all health care staff in skills necessary to implement this policy. Evidence of attendance at lectures.

Step 3 Inform all pregnant women about the benefits and management of breastfeeding. Pamphlets, brochures, classes.

Step 4 Help mother initiate breastfeeding within a half-hour of birth. Audit of practice, patient survey.

Step 5 Show mothers how to breastfeed even if they should be separated from their infants. Audit of practice, patient survey.

Step 6 Give newborn infants no food or drink other than breastmilk unless medically indicated. WHO definition includes paediatric management of infant, infant/maternal history.

Step 7 Practise rooming-in, allow mothers and infants to remain together 24 hours a day. Audit of hospital policy and practice.

Step 8 Encourage breastfeeding on demand. Patient surveys and reviews of infant feed charts may not show evidence of on-demand feeding.

Step 9 Give no artificial teats or pacifiers to breastfeeding infants. Audit of cots, patient surveying, survey of kiosk, etc.

Step 10 Foster the establishment of breastfeeding groups and refer mothers to them on discharge from the hospital or clinic. Presence of groups.

Principle 5: Maternity services respond to the needs of a diverse range of women and are customer-focused

Indicator 5.1 The proportion of women who receive timely hospital antenatal clinical services

Key Question	Does the hospital provide antenatal care in a timely and efficient way?
Calculation formula	Numerator: Within a defined timeframe, the number of women waiting more than 30 minutes from hospital antenatal appointment time to time attended by a clinician. Denominator: Within a defined timeframe, the number of women presenting for hospital antenatal appointment.
Anticipated benefit	Several studies have identified waiting times as a factor in maternal satisfaction. It is anticipated that by using this indicator there should be a reduction in the percentage of women who wait for more than 30 minutes from time of appointment to the time attended by the clinician.
Description and type	This is a process indicator as a proxy for customer service.
Purpose and rationale	The purpose of this indicator is to measure the proportion of women who wait more than 30 minutes at a hospital antenatal clinic from the time of their appointment to the time attended by the clinician. It is a measure of organisational efficiency as well as a key component in patient satisfaction. Administrative and clinical managers and consumers are the users of the indicator results.
Evidence from the literature	Several studies have examined antenatal care and client satisfaction, and have identified waiting times as a critical component.
References	Brown, S., Dawson, W., Gunn, J., McNair, R. (1999) <i>Review of Shared Obstetric Care: summary report</i> . Centre for the Study of Mothers' and Children's Health, La Trobe University, Carlton. Department of Human Services. (1997b) <i>Non-Admitted Patient Services: A Literature Review and Analysis</i> . Victorian Government Department of Human Services, Melbourne. Health Department of Victoria (1990) <i>Having a Baby in Victoria: Final Report of the Ministerial Review of Birthing Services in Victoria</i> . Women's Health Unit, Health Department Victoria. National Health and Medical Research Council (1998) <i>Options for Effective Care in Childbirth</i> . Commonwealth of Australia, Canberra. National Health Strategy. (1992) <i>Background Paper No. 10. A study of Hospital Outpatient and Emergency Department Services</i> . Senate Community Affairs References Committee (1999) <i>Rocking the Cradle: A report into childbirth procedures</i> . Commonwealth of Australia, Canberra.
Definition of key data elements	Nil.
Data source	Outpatient booking systems. Frequency data collection and review: six-monthly.
Exclusions	Non-hospital attendances (for example, women attending shared care practitioners).

Limitations	Not all facilities record arrival times and clinician attendance times. Not all facilities have computerised booking systems. Some hospitals may need to institute manual audits. Visiting medical officers often have to leave the clinic to attend private deliveries. Data is reliant on the clinician recording the time of consultation beginning.
Analysis considerations	Women have identified that being informed of any increase in waiting time results in a greater degree of satisfaction than waiting without any explanation.

Indicator 5.2 The proportion of women from a non-English speaking background (NESB) without proficiency in English, who receive appropriate interpreter services

Key Question	Do women from NESB have access to professional interpreter services at hospital antenatal and postnatal appointments?
Calculation formula	<p>Antenatal appointment</p> <ul style="list-style-type: none"> ▪ Numerator: Within a defined timeframe, the number of women without proficiency in English, who receive professional interpreter services for hospital antenatal appointments. ▪ Denominator: Within the same defined timeframe, the total number of women without proficiency in English requiring interpreter services. <p>Postnatal appointment</p> <ul style="list-style-type: none"> ▪ Numerator: Within a defined timeframe, the number of women without proficiency in English who receive professional interpreter services for hospital postnatal appointment. ▪ Denominator: Within the same defined timeframe, the number of women without proficiency in English requiring interpreter services.
Anticipated benefit	It is anticipated that the incidence of women not receiving professional interpreter services when they are required can be reduced. This will ensure women who are not proficient in English receive accurate and appropriate information through the use of professional (rather than non-professional) interpreter services.
Description and type	This is a process indicator.
Purpose and rationale	<p>The purpose of this indicator is to identify the percentage of women accessing maternity services who require interpreter services, and are able to access them.</p> <p>The indicator supports an assessment of informed decision making and equity in access to services. NESB women require adequate information to ensure informed decision making from a medical, legal and ethical perspective. The literature recommends that women be offered the use of professional interpreters — as opposed to relying on family members and other staff.</p> <p>Administrative and clinical managers and consumers are the users of the indicator results.</p>
Evidence from the literature	Several studies have identified the need for women from NESB have access to professional interpreting services.
References	<p>Borg, V., Abela, C. (1994) 'The right of NESB patients to be properly informed about medical treatment' in <i>Journal of Post Migration</i>, 94: 12–15.</p> <p>Health Department of Victoria (1990) <i>Having a Baby in Victoria: Final Report of the Ministerial Review of Birthing Services in Victoria</i>. Women's Health Unit, Health Department of Victoria, Melbourne.</p> <p>National Health and Medical Research Council (1998) <i>Options for Effective Care in Childbirth</i>. Commonwealth of Australia, Canberra.</p> <p>Senate Community Affairs References Committee. (1999) <i>Rocking the Cradle: A report into childbirth procedures</i>. Commonwealth of Australia, Canberra.</p>
Definition of key data elements	<p>Professional interpreter service:</p> <ul style="list-style-type: none"> ▪ Interpreters employed by the hospital <p>or</p> <ul style="list-style-type: none"> ▪ Where interpreters are not employed by the hospital, they are accessed

	by the hospital through telephone services or Central Health Interpreting Service (CHIS).
Data source	<p>The collection and recording of information relevant to this indicator varies from hospital to hospital. The process of trialling this indicator will identify how linkages will be made between patient unit record number, proficiency in English, use of interpreter services and occasions of service.</p> <p>Data may be accessed through linking data from sources including the patient registration database, outpatient booking systems, individual hospital interpreter service databases and CHIS records.</p> <p>Frequency data collection and review: six-monthly.</p>
Exclusions	Hospitals do not have ready access to data through linking proficiency in English and the receipt of professional interpreter services.
Limitations	<p>Data accuracy will be critical:</p> <ul style="list-style-type: none"> ▪ Accurate identification that interpreter services are required. ▪ The incidence/proportion of women using interpreting services. ▪ The number of times an interpreter was booked/requested ▪ The number of times an interpreter was booked but the service was not provided. <p>It may be difficult to capture and record use of telephone services or CHIS.</p> <p>This indicator could not be applied to the number of NESB women (up to 55%) who attend 'shared care' programs.</p> <p>Most postnatal appointments are performed by the woman's local general practitioner, not at the birth hospital.</p>
Analysis considerations	Postnatal women are not identified in the current booking system; most postnatal appointments do not occur at the birth hospital.
Other considerations and general discussion	<p>Availability of interpreters for all languages.</p> <p>Organisation-based factors.</p>