Statewide Maternity and Neonatal Network VLAD Working Group

Summary of Activities To-Date: November 2008- July 2009

Background

The Variable Life Adjusted Display (VLAD) monitoring methodology was introduced in Queensland Health in 2007. The initial suite of clinical indicators included Selected Primiparae Induction of Labour, Selected Primiparae Caesarean Section (Public and Private Hospitals monitored separately) and Third and Fourth Degree Perineal Tears (First Births). Following implementation of the indicators, clinical staff raised questions about the responsive potential of the Perineal Tear indicator. In December 2007, the Patient Safety and Quality Board recommended a review of the Maternity Indicators, and the Perineal Tear indicator was suspended until the review was complete.

In mid-2008, the Statewide Maternity and Neonatal Clinical Network was approached to form a reference group to undertake the Maternity indicator review. Through an Expression of Interest process, the working group was formed in September 2008. The membership included rural and metropolitan midwives, midwifery educators, data analysts, perinatal data collection staff, an obstetrician, a consumer, and a rural General Practitioner Obstetrician. Importantly, the Chair of the working group was also a member of the Statewide Maternity and Neonatal Clinical Network (SMNCN) Steering Committee, and this facilitated support from, and communication with the parent committee. The first Maternity Indicator Review workshop was held in November 2008, followed by monthly meetings throughout 2009. (For full membership and meeting details, see Appendix A)

Indicator Selection Criteria

The criteria used to evaluate the clinical indicators throughout the review process were:

- **Clinical significance**: The significance in terms of burden to the health system and individual patients
- **Volume**: Sufficiency of patient numbers to provide a statistically reliable measure
- **Indicator clarity**: The indicator definition must be clearly defined and reliable
- **Responsive potential**: The disease, condition or procedure type has to be able to be systematically improved
- **Systematic Data Collection:** The data used to derive the indicators must be collected systematically across hospitals e.g. Perinatal Data Collection

Indicator Review process

The review process was an iterative process of statistical and clinical debate and discussion.
Using the indicator selection criteria outlined above as a framework, each indicator was rigorously evaluated. Issues requiring a decision were raised at the monthly meeting, and these issues were then formulated into an electronic survey to allow quantitative analysis of the responses. Collated responses and relevant data analysis would then be presented at the next meeting to enable a consensus decision to be made. Where possible, the VLAD indicator definition was aligned to an existing definition, however the main priority for the indicator definition was clinical relevance and potential to improve clinical outcomes.

In some situations, rather than amend the indicator definition, the group agreed that provision of additional data fields in the background data would be of value. This information would provide staff who are reviewing a VLAD trend, or responding to a flag with additional contextual information e.g. provision of 'Reason for Caesarean Section' data field in the background data for the Caesarean section indicator.

Results of the Review

The status of each of the indicators discussed in the review process is outlined in the table below.

Clinical Indicator	Status
Selected Primiparae Induction of Labour	Revised
Selected Primiparae Caesarean Section (Public)	Revised
Selected Primiparae Caesarean Section (Private)	Revised
First Births Third and Fourth degree Perineal Tears	Revised
Selected Primiparae Episiotomy (Public)	New
Selected Primiparae Episiotomy (Private)	New
Instrumental Delivery (Public)	New

Instrumental Delivery (Private)	New
Apgar <7 at 5 minutes	New – in progress
Admissions to Special Care Nursery	Review in 2010
Post Caesarean Infection	Review in 2010
Vaginal Birth following Caesarean Section (VBAC)	Review in 2010
Post Partum Haemorrhage	No further progress

Proposed Implementation of Revised and New Indicators

The new indicators and revised existing indicators will be launched in October 2009, in conjunction with the launch of the new VLAD Information System. In order to evaluate their effectiveness, the indicators will be implemented for a minimum of 12 months. This will provide enough feedback from hospitals to determine whether the indicators are proving clinically useful and relevant and if the indicator definitions require further refinement. Throughout the implementation period, the Clinical Practice Improvement Centre will collate feedback regarding the indicators, in preparation to re-convene a SMNCN VLAD working group towards the end of 2010. The Clinical Practice Improvement Centre will continue to provide advice to clinicians and quality staff in conducting reviews for the new and revised indicators. Any comments or questions can be sent to VLAD_Queries@health.qld.gov.au.

Relevant Documents and Useful links

- Supporting Excellence in Maternity Care: The Core Maternity Indicators Project http://safetyandquality.gov.au/internet/safety/publishing.nsf/Content/com-pubs_InfoStrategy
- Womens' Hospital Australasia: http://www.wcha.asn.au/index.cfm/spid/1_10.cfm
- http://www.nice.org.uk/nicemedia/pdf/CG070NICEGuideline.pdf

Available on request:

- Obstetrics Version 6: ACHS Clinical Indicator Users' Manual 2008
- Queensland Centre for Mothers and Babies: Perineal Tear Literature Review

A note regarding Gestational Weeks and Completed Weeks:

The first suite of indicators used the definition "37-41 completed weeks", in accordance with the ACHS indicator definition. Within the Perinatal Data Collection, this definition captured babies from 37 weeks and 0 days to 41 weeks and 6 days gestation. During this review, clinical staff suggested that it would be more clinically relevant if the VLAD indicators excluded babies that were ≥ 41 weeks and 3 days (or 40 weeks plus 10 days) gestation, since interventions in this group are clinically appropriate. To ensure clarity regarding the inclusion criteria, the non-technical definition will be changed to "37 weeks and 0 days to 40 weeks and 6 days". Since gestational weeks are rounded down to the nearest week at the time of completion of the Perinatal Data form, the technical code for this definition will change from "gest_weeks ≥37 and ≤ 41" to "gest_weeks ≥37 and ≤ 40".

Selected Primiparae Induction of Labour

This indicator is recommended by the Australian Council on Healthcare Standards (ACHS), National Core Maternity Indicators Project (NCMIP) and Womens' Hospitals Australasia (WHA). The rationale for monitoring this outcome is well documented in the Core Maternity Indicators Project Report. There was strong agreement from the VLAD Working Group that the indicator should continue to be used, with modifications as outlined in the table below.

The aim of this indicator is to detect rates of induction that are higher or lower than state average, and to risk adjust for those clinical conditions where induction of labour is clinically appropriate or necessary. The performance of this indicator should be evaluated in the context of the performance of the other selected primiparae intra-partum indicators (Caesarean section, Instrumental Delivery, Episiotomy and Perineal tear).

Selected Primiparae Induction of Labour

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	**Technical Code**	**Changes to the Indicator** *(Rationale in italics)*	**Technical Code**
Outcome (numerator)	Onset of labour was induced	Labour_onset =2	Unchanged	Labour_onset =2
Inclusion and Exclusion Criteria (denominator - Selected Primiparae patients)	Mother's age 20-34yrs	moth_age_at_brth≥ 20 and ≤ 34	Unchanged	moth_age_at_brth≥ 20 and ≤ 34
	No previous deliveries	1 Jan 2005 - 30 June 2007: pre_baby_alive <1 and pre_baby_not_alive <1 1 July 2007 - present: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1	No previous pregnancy ≥ 20 weeks gestation" - *to improve inclusion clarity & align with ACHS*	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1
	Singleton	plur =1	Unchanged	plur =1
	37-41 completed weeks	gest_weeks ≥37 and ≤ 41	37 weeks and 0 days to 40 weeks and 6 days- *more clinically relevant*	gest_weeks ≥37 and ≤ 40
	Vertex Presentation	pres=1	Add Cephalic presentation - *to align with ACHS definition*	Pres=1 or 3
	New criteria		Exclude Obstetric Cholestasis – *greater than 80% of mothers with this condition had an induction*	Exclude K831 and O266
Risk adjustment criteria	Baby Weight Group	Weight in grams	Remove - *unable to accurately predict weight prior to delivery*	**Not Applicable**
	Gestational diabetes	Pre Jul 2008: O2441, O2442, O2449; Post Jul 2008: O2442, O2443, O2444, O2449	Unchanged	Pre Jul 2008: O2441, O2442, O2449 Post Jul 2008: O2442, O2443, O2444, O2449

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	Technical Code	Changes to the Indicator *(Rationale in italics)*	Technical Code
	Pre-existing hypertension complicating pregnancy, childbirth and puerperium with superimposed proteinuria	O11-O1199	Combine with gestational hypertension/pre-eclampsia/eclampsia– include hypertensive disorders (including chronic renal disease) - *related disorders*	O10-O16, excluding O12
	Gestational hypertension /pre-eclampsia/eclampsia	O13-O1699	See above	See above
	Prolonged rupture of membranes (onset of labour is ≥ 1 day)	O4211, O4212, O429	Change to Premature rupture of membranes, including length of time unknown, onset of labour within 24 hours; labour delayed by therapy	O42.11, O42.12, O42.9, O42.0, O42.2
	New Criteria		Signs of foetal hypoxia	O363, O680 to O692 (excluding P200 to P209)
			Foetal demise	O364
			Intra Uterine Growth Restriction (including suspected)	O365
			Antepartum Haemorrhage not elsewhere classified	O46

Diabetes, Isoimmunisation, Chorioamnionitis, were proposed by the working group as risk adjusters but were deemed unsuitable for inclusion as they either had no influence on the decision to perform an induction, had a low prevalence, statistically insignificant or not able to be captured accurately in the data collection.

Selected Primiparae Caesarean Section, Public Hospitals

This indicator is recommended by the ACHS and NCMIP. The rationale for monitoring this outcome is well documented in the NCMIP Report. There was strong agreement from the VLAD Working Group that the indicator should continue to be used, with modifications as outlined in the table below.

The aim of this indicator is to detect rates of Caesarean section that are higher or lower than state average, and to risk adjust for those clinical conditions where Caesarean section is clinically appropriate or necessary. The performance of this indicator should be evaluated in the context of the performance of the other selected primiparae intra-partum indicators (Induction of Labour, Instrumental Delivery, Episiotomy and Perineal tear).

Selected Primiparae Caesarean Section

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	Technical Code	Changes to the Indicator *(Rationale in italics)*	Technical Code
Outcome (numerator)	Method of delivery was lower section Caesarean section or classical Caesarean section	Pre July 2006: Deliv_code=4 or 5 Post July 2006: Deliv_code = 04 or 05	Unchanged	Pre July 2006: Deliv_code=4 or 5 Post July 2006: Deliv_code = 04 or 05
Inclusion and Exclusion	Mother's age 20-34yrs	moth_age_at_brth≥ 20 and ≤ 34	Unchanged	moth_age_at_brth≥ 20 and ≤ 34

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	**Technical Code**	**Changes to the Indicator** *(Rationale in italics)*	**Technical Code**
Criteria (denominator-Selected Primiparae patients)	No previous deliveries	1 Jan 2005 - 30 June 2007: pre_baby_alive <1 and pre_baby_not_alive <1 1 July 2007 - present: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1	No previous pregnancy ≥ 20 weeks gestation" - *to improve inclusion clarity & align with ACHS*	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007 all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1
	Singleton	plur =1	Unchanged	plur =1
	37-41 completed weeks	gest_weeks ≥37 and ≤ 41	37 weeks and 0 days to 40 weeks and 6 days *more clinically relevant*	gest_weeks ≥37 and ≤ 40
	Vertex Presentation	pres=1	Add Cephalic - *to align with ACHS definition*	Pres=1 or 3
Risk adjustment criteria	Baby Weight Group	Weight in grams	Remove - *unable to accurately predict weight prior to delivery*	**Not Applicable**
	Gestational diabetes	Pre July 2008: O2441, O2442, O2449 Post Jul 2008: O2442, O2443, O2444, O2449	Unchanged	Pre July 2008: O2441, O2442, O2449 Post Jul 2008: O2442, O2443, O2444, O2449
	Pre-existing hypertension complicating pregnancy, childbirth and puerperium with superimposed proteinuria	O11-O1199	Combine with gestational hypertension/pre-eclampsia/eclampsia– include hypertensive disorders (including chronic renal disease) - *related disorders*	O10-O16, excluding O12
	Gestational hypertension /pre-eclampsia	O13-O1699	See above	See above
	Prolonged rupture of membranes (where onset of labour is ≥ 1 day)	O4211, O4212, O429	Change to Premature rupture of membranes, including length of time unknown, onset of labour within 24 hours; labour delayed by therapy	O42.11, O42.12, O42.9, O42.0, O42.2
	Placenta Praevia (with and without haemorrhage)	O44-O46	Technical codes refined (premature separation of placenta, and antepartum haemorrhage not elsewhere specified removed)	O440-O441
	Sexually transmitted	A50-A64	Herpes Simplex only –	A60, N770

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	Technical Code	Changes to the Indicator *(Rationale in italics)*	Technical Code
	diseases		*clinically and statistically relevant STD*	

Mental Illness and Body Mass Index were suggested as risk adjusters for Caesarean section, but were deemed unsuitable for inclusion due to data definitional issues.

Additional data fields to be provided for this indicator:

- "Reason for C-Section": data from this free text field on the PDC form is translated into ICD-10 codes prior to distribution of the data. These codes will be provided in the background data that accompanies the VLAD. To assist staff conducting a VLAD response to interpret the ICD-10 codes, the definition of the relevant codes will also be provided.
- "State average Caesarean section rate" (public and private combined): to promote awareness within private facilities of the overall Caesarean section rate in Queensland.

Selected Primiparae Caesarean Section Indicator, Private hospitals

The indicator definition for private hospitals is identical to the public hospital indicator detailed above. However, due to the large difference in the rate of Caesarean section in public and private hospitals, it is necessary to monitor public and private hospitals separately. It was acknowledged that the rate of Caesarean section in the private sector is of concern, but that this group is not in a position to impact on this phenomenon.

Selected Primiparae Third and Fourth Degree Perineal Tears

Third and Fourth Degree Perineal Tears indicator is recommended by the ACHS, NCMIP and WHA. The ACHS applies this indicator to selected primiparae and the NCMIP applies this indicator to *all first births.* To enable the VLAD Maternity indicators to be used as a 'suite' of parallel indicators, this indicator applies only to selected primiparae. The rationale for monitoring this outcome is well documented in the NCMIP Report. Although this indicator was previously the subject of debate, there was strong agreement from the VLAD Working Group that the indicator should be reinstated, with modifications as outlined in the table below.

Selected Primiparae Third and Fourth Degree Perineal Tears

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	Technical Code	Changes to the Indicator *(Rationale in italics)*	Technical Code
Outcome (numerator)	Third and fourth degree tears for women giving birth vaginally	perinm = "4" or "5"	Unchanged	perinm = "4" or "5"
Inclusion and Exclusion Criteria (denominator-Selected Primiparae patients)	Mother's age	All age groups	Changed to 20-34 yrs	moth_age_at_brth≥ 20 and ≤ 34
	No previous deliveries	1 Jan 2005 - 30 June 2007: pre_baby_alive <1 and pre_baby_not_alive <1 1 July 2007 - present: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1	No previous pregnancy ≥ 20 weeks gestation" - *to improve inclusion clarity & align with ACHS*	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007 - present: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and

Indicator Information	Existing Definition		Revised Definition	
	Non-technical definition	**Technical Code**	**Changes to the Indicator** *(Rationale in italics)*	**Technical Code**
				live_still_abort <1
	Singleton	plur =1	Unchanged	plur =1
	37-41 completed weeks	gest_weeks ≥37 and ≤ 41	37 weeks and 0 days to 40 weeks and 6 days *more clinically relevant*	gest_weeks ≥37 and ≤ 40
	Method of delivery: All women who gave birth vaginally – includes unassisted births and instrumental births	Pre July 2006: deliv_code ≠ 4 or 5 Post July 2006: deliv_code ≠ 04 or 05	Unchanged	Pre July 2006: deliv_code ≠ 4 or 5 Post July 2006: deliv_code ≠ 04 or 05
	Vertex Presentation	pres=1	Add Cephalic - *to align with ACHS definition*	Pres=1 or 3
Risk Adjustment Criteria	Mothers age	<20 Years 20 - 24 Years 25 - 29 Years 30 - 34 Years 35+ Years	Now limited to mothers 20-34 years	20 - 24 Years, 25 - 29 Years, 30 - 34 Years
	Baby Weight Group	2499g or less 2500 - 2999g 3000 - 3499g 3500 - 3999g 4000 - 4499g 4500 g or more	Changed grouping categories	3499g or less, 3500 - 3999g 4500g or more
	New Criteria		Instrumental delivery	deliv_code in ('02','03','2','3')

N. B. Head circumference and shoulder dystocia were suggested as risk adjusters but head circumference was not statistically significant when all other risk adjusters were considered and shoulder dystocia was not significant in isolation. Hand presentation and compound presentation were suggested as risk adjusters but data quality for these items precludes their use.

Note
3rd Degree Perineal Tear - Tear or laceration involving the anal sphincter or recto vaginal septum
4th Degree Perineal Tear - Third degree tear or laceration also involving the anal mucosa or rectal mucosa

<u>Additional data fields to be provided for this indicator:</u>
"Mother's country of birth": this information would be provided to allow staff conducting a review to determine whether mother's of certain ethnic origin are experiencing a different rate of perineal tears as the literature suggests women of certain ethnic origins are more likely experience a tear. E.g. Asian women giving birth to large babies or North African women with a history of Female Genital Mutilation.

Evidence regarding the responsive potential of this indicator
Due to the previous feedback from clinicians that third and fourth degree perineal tears may not be preventable, the SMNCN VLAD Working Group requested the Queensland Centre for Mothers and Babies to conduct a literature review around this topic. The review was completed in May 2009 and circulated to the membership of the working group and the Chair of the SMNCN.

New Indicator: Selected Primiparae Episiotomy

The Episiotomy indicator is recommended by the ACHS, NCMIP and WHA. The ACHS applies this indicator to selected primiparae and the NCMIP applies this indicator to *all first births.* To enable the VLAD Maternity indicators to be used as a 'suite' of parallel indicators, this indicator will apply only to selected primiparae. The rationale for monitoring this outcome is well documented in the Core Maternity Indicators Project Report. Details of the indicator are outlined in the table below.

Selected Primiparae Episiotomy

Indicator Information	Definition	
	Non Technical Definition	Technical Code
Outcome (numerator)	Episiotomies for women giving birth vaginally – unassisted	epstmy = '2'
Inclusion and Exclusion Criteria (denominator- Selected Primiparae patients)	Mother's age 20-34 yrs	moth_age_at_brth≥20 and ≤ 34
	Cephalic or Vertex	Pres=1 or 3
	No previous pregnancy ≥ 20 weeks gestation	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1
	37 weeks and 0 days to 40 weeks and 6 days	gest_weeks ≥37 and ≤ 40
	Singleton	plur =1
	Method of delivery: Vaginal (non-instrumental)	1 Jan 2005 – 30 Jun 2006 deliv_code = 1, 1 Jul 2006-present deliv_code = 10
Risk adjustment criteria	Foetal distress	O68

Shoulder dystocia and occipitoposterior presentation were suggested as a risk adjuster but were not significant.

Instrumental Deliveries are excluded from the denominator of this indicator due to the increased likelihood and clinical appropriateness of an episiotomy with this type of delivery. There was agreement that it was more important to detect high rates of episiotomy in spontaneous births, and that a separate indicator should be developed to report instrumental birth rates as this would help facilities to understand their local patterns of outcomes.

The data analysis revealed significant differences in episiotomy rates in public and private facilities (private rate is approximately double the public rate). This difference was evident for both spontaneous and instrumental deliveries. Due to this difference, the episiotomy indicator will be reported separately (as Caesarean sections are currently reported). The average public hospital Episiotomy Rate will also be provided to private hospitals. It was also noted that a low Episiotomy rate is just as significant as a high Episiotomy rate. Therefore it is important that both upper and lower level flags are reviewed with the same rigour.

<u>Additional data fields to be provided for this indicator:</u>
"Third or Fourth Degree Perineal Tear" (Yes/No): to assist staff conducting a VLAD response to determine women that have experienced both an episiotomy and perineal tear. To ensure data clarity, this information will relate only to third and fourth degree tears.
"Method of Birth": to distinguish between forceps and vacuum deliveries as it would be expected to have a higher rate of episiotomies for forceps deliveries.

New Indicator: Selected Primiparae Instrumental Delivery

As described above, this indicator was developed in association with the perineal tear and episiotomy indicators. The VLAD working group agreed that it was clinically appropriate to exclude instrumental deliveries from the episiotomy indicator and to risk adjust for this type of delivery for the perineal tear indicator. There was also agreement that facilities should be aware of their instrumental delivery rate, and that this rate should be reviewed in the context of the other intra-partum indicators. The use of a suite of intra-partum indicators provides facilities (indirectly) with their rate of selected primiparae spontaneous vaginal deliveries (which is one of the ten recommended National Core Maternity Indicators). The details of the indicator are outlined in the table below

Selected Primiparae Instrumental Delivery

Indicator Information	Definition	
	Non Technical Definition	Technical Code
Outcome (numerator)	Method of delivery was instrumental	Pre July 2006: deliv_code = 2 ,3 Post July 2006: deliv_code = 02, 03
Inclusion and Exclusion Criteria (denominator- Selected Primiparae patients)	Mother's age 20-34 yrs	moth_age_at_brth≥ 20 and ≤34
	No previous pregnancy ≥ 20 weeks gestation	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1
	Singleton	plur =1
	37 weeks and 0 days to 40 weeks and 6 days	gest_weeks ≥37 and ≤ 40
	Vaginal delivery	Pre July 2006: deliv_code = 1,2 ,3 Post July 2006: present deliv_code = 02, 03, 10
	Cephalic or Vertex	Pres=1 or 3
Risk adjustment criteria	Foetal distress	O68
	Shoulder dystocia	O66.0

Occipitoposterior presentation was suggested as a risk adjuster but was not significant.

The data analysis revealed significant differences in instrumental rates in public and private facilities. Due to this difference, the instrumental indicator will be reported separately (in the same way Caesarean sections are currently reported).

Additional data field to be provided for this indicator:
"Reason for Forceps/Vacuum": This information would provide contextual information to the staff conducting a VLAD review.
"Method of Birth": to distinguish between forceps and vacuum deliveries
The average public hospital Instrumental Rate will also be provided to private hospitals.

New Indicator: Apgar <7 at 5 minutes

The APGAR indicator is recommended by the ACHS, NCMIP and WHA. ACHS and NCMIP measure Apgar <7 (or ≤ 6) at 5 minutes and WHA measure Apgar ≤ 4 at 5 minutes. The rationale for monitoring this outcome is well documented in the Core Maternity Indicators Project Report. Since the initial workshop in November 2008, there was strong clinician support for an Apgar indicator. The draft indicator definition is detailed in the table below.

Apgar <7 at 5 minutes

Indicator Information	Definition	
	Non Technical Definition	Technical Code
Outcome (numerator)	Live term infants with an APGAR score of ≤ 6 at 5 minutes	0 <= apgar2 <7
Inclusion and Exclusion Criteria (denominator)	Mother's age 20-34 yrs	moth_age_at_brth≥ 20 and ≤ 34
	No previous pregnancy > 20 weeks gestation	Pre July 2007: pre_baby_alive <1 and pre_baby_not_alive <1 Post July 2007: all_live <1 and all_still <1 and live_still <1 and live_abort <1 and still_abort <1 and live_still_abort <1
	37 weeks and 0 days to 40 weeks and 6 days	gest_weeks ≥37 and ≤ 40
	Singleton	plur =1
	Live births	born_alive =1
Risk adjustment criteria	Systemic Opioid	To be confirmed
	Maternal General Anaesthetic	
	Antepartum Haemorrhage	

Congenital anomalies, number of antenatal visits, cord complications, delivery type, foetal compromise in labour, hypertonic uterine activity, birth weight, pregnancy induced hypertension, placental conditions, small for gestational age and premature rupture of membranes were all considered for risk adjustment but were deemed clinically inappropriate, or unable to be defined.

Preliminary data analysis indicated that the rate of babies with an Apgar <7 at 5 mins is 1-2%. Due to this low frequency, it may be preferable to generate the VLAD without control limits, or to simply report the monthly rate and encourage maternity units to review this rate as part of a suite of quality activities. It was acknowledged that due to the low frequency of this outcome, it may be addressed through a Root Cause Analysis or some other focussed audit tool. The method of reporting this indicator is to be explored further.

Appendix A: Meetings of the SMNCN VLAD Working Group

CPIC: Clinical Practice Improvement Centre, **HSC**: Health Statistics Centre, **MCHSB**: Maternity Child Health and Safety Branch, **ORRH**: Office of Rural and Remote Health

1. Introductory Workshop: 28 November 2008

Meeting objective: introduce VLAD methodology, establish priorities for indicator review

Name	Position	District (Facility)
Bruce Teakle	Consumer Representative	Maternity Coalition
Fiona McDermott	Clinical Nurse, Maternity Unit	Darling Downs West Moreton (Roma)
Helen Coxhead	CNC Women's Health	Townsville (Townsville)
Helen Timms	Assistant Director of Nursing	Metro North (Caboolture)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
Jane Gately	Midwife	Darling Downs West Moreton (Dalby)
Joclyn Neal (for Heather McLaughlin)	Nursing Director, Healthier Children & Families Services	Metro North (Northside Primary & Community Health)
John Hall	GP Obstetrician, Chair	Darling Downs West Moreton (Oakey)
Judy Hunter (for Mish Hill)	Quality Officer	Mater Health Services
Karen Yates	Regional Maternity Services Coordinator	Cairns (Cairns)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Marie Perry	Midwifery Nurse Educator	Mt Isa (Mt Isa)
Melinda O'Sullivan	Nurse Unit Manager, Maternity Unit	Metro North (Caboolture)
Meredith Shallcross	Perinatal Information Coordinator	Metro North (Redcliffe)
Natasha Doherty	Senior Data Collection Officer	Corporate (HSC)
Rebecca West	A/Director of Nursing	Darling Downs West Moreton (Cherbourg)
Vicki Carson	Acting Operations Director	Townsville (Women's and Children's Health Institute)
Yolande Williams	Midwifery Educator	Metro North (Caboolture and Redcliffe)

2. Meeting: 25 February 2009

Meeting objective: Agreement on the current VLAD indicator definitions and discussion of parallel indicators

Name	Position	District (Facility)
Bruce Teakle	Consumer Representative	Maternity Coalition
Dr. Guan Koh	Neonatalogist, Chair of Statewide Maternity and Neonatal Clinical Network	Townsville (Townsville)
Helen Coxhead	CNC Women's Health	Townsville (Townsville)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
Jane Gately	Midwife	Darling Downs West Moreton (Dalby)
John Hall (Dr)	GP Obstetrician, Chair	Darling Downs West Moreton (Oakey)
Julia Marshall	Principal Project Officer, VLADs	Corporate (CPIC)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Michael Humphrey (Prof)	Clinical Adviser	Corporate (ORRH, Cairns)
Michelle Dinh	Senior Data Analyst	Corporate (CPIC)
Naida Lumsden	Principal Project Officer, Networks	Corporate (CPIC)
Natasha Doherty	Senior Data Collection Officer	Corporate (HSC)
Trudi Sebasio	Regional Indigenous Policy Manager	Mackay (Mackay)

3. Meeting: 25 March 2009

Meeting objective: Discuss results of Perineal Tear and Episiotomy survey

Name	Position	District (Facility)
Anne Clayton (proxy for Helen Timms)	Assistant Director of Nursing	Metro North (Caboolture)
Bruce Teakle	Consumer Representative	Maternity Coalition
Colleen Morris (proxy for Natasha Doherty)	Senior Data Collection Officer	Corporate (HSC)
Helen Coxhead	CNC Women's Health	Townsville (Townsville)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
John Hall (Dr)	GP Obstetrician, Chair	Darling Downs West Moreton (Oakey)

Julia Marshall	Principal Project Officer, VLADs	Corporate (CPIC)
Marie Perry	Midwifery Nurse Educator	Mt Isa (Mt Isa)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Melinda O'Sullivan	Nurse Unit Manager, Maternity Unit	Metro North (Caboolture)
Meredith Shallcross	Perinatal Information Coordinator	Metro North (Redcliffe)
Michael Humphrey (Prof)	Clinical Adviser	Corporate (ORRH, Cairns)
Michelle Dinh	Senior Data Analyst	Corporate (CPIC)

4. Meeting: 13 May 2009 (No quorum for April meeting)

Meeting objective: Discuss Perineal Tear and Episiotomy risk adjustment, Apgar survey results, QCMB literature review.

Name	Position	District (Facility)
Bruce Teakle	Consumer Representative	Maternity Coalition
Colleen Morris	Data Collection coordinator	Corporate (HSC)
Heather McLaughlin	Nursing Director, Healthier Children & Families Services	Metro North (Northside Primary & Community Health)
Helen Coxhead	CNC Women's Health	Townsville (Townsville)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
John Hall (Dr)	GP Obstetrician, Chair	Darling Downs West Moreton (Oakey)
Julia Marshall	Principal Project Officer, VLADs	Corporate (CPIC)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Meredith Shallcross	Perinatal Information Coordinator	Metro North (Redcliffe)
Michael Humphrey (Prof)	Clinical Adviser	Corporate (ORRH, Cairns)
Michelle Dinh	Senior Data analyst	Corporate (CPIC)
Naida Lumsden	Principal Project Officer, Networks)	Corporate (CPIC)
Natasha Doherty	Senior Data Collection Officer	Corporate (HSC)

5. Meeting: 24 June 2009

Meeting objective: Discuss Apgar Risk adjustment, Instrumental VLAD, next steps

Name	Position	District (Facility)
Michael Humphrey	Clinical Adviser	Corporate (ORRH, Cairns)
Julia Marshall	Principal Project Officer, VLADs	Corporate (CPIC)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
Bruce Teakle	Consumer Representative	Maternity Coalition
Natasha Doherty	Senior Data Collection Officer	Corporate (HSC)
Helen Timms	Assistant Director of Nursing	Metro North (Caboolture)
Heather McLaughlin	Nursing Director, Healthier Children & Families Services	Metro North (Northside Primary & Community Health)
Meredith Shallcross	Perinatal Information Coordinator	Metro North (Redcliffe)
Marie Perry	Midwifery Nurse Educator	Mt Isa (Mt Isa)

6. Meeting: 22 July 2009

Meeting objective: Finalise definitions

Name	Position	District (Facility)
Colleen Morris	Data Collection coordinator	Corporate (HSC)
Jacqueline Thomson	Principal Project Officer	Corporate (MCHSB)
John Hall (Dr)	GP Obstetrician, Chair	Darling Downs West Moreton (Oakey)
Judy Hunter (for Mish Hill)	Quality Officer	Mater Health Services
Julia Marshall	Principal Project Officer, VLADs	Corporate (CPIC)
Kirstine Sketcher-Baker	VLAD Manager	Corporate (CPIC)
Meredith Shallcross	Perinatal Information Coordinator	Metro North (Redcliffe)
Michael Humphrey	Clinical Adviser	Corporate (ORRH, Cairns)
Michelle Dinh	Senior Data analyst	Corporate (CPIC)
Natasha Doherty	Senior Data Collection Officer	Corporate (HSC)