

2019 NATERNITS OLANNUAL REPORT

Tītikena ō Wahine Hauora – Te whakahihiko, Te ōrite, Me te kairangi Enhancing Women's Health – Engagement, Equity, Excellence



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Introduction Kupu Whakataki

FOREWORD

The Women's Health Service is pleased to present the 2019 Maternity Quality & Safety Programme (MQSP) report. This report differs significantly from annual clinical reports previously produced by the service. Instead of reporting on the whole of Women's Health, the service has highlighted the quality improvement initiatives both planned and undertaken, in the form of an MQSP report.

The activities described within this report align with the New Zealand Maternity Standards, and Taurite Ora: CCDHB Māori Health Strategy (2019–2030). This strategy guides District Health Board (DHB) activity to achieve equitable Māori health outcomes by 2025, with a broader goal of Pae Ora (healthy futures for Māori) by 2030. Equity, workforce, and commissioning are the three priority areas.

Read about Taurite Ora on the DHB website at www.ccdhb.org.nz/news-publications/publicationsand-consultation-documents/taurite-ora-maorihealth-strategy-2019-2030/.

There are two key outcomes of the strategy that relate specifically to maternity:

- CCDHB show a genuine commitment to equity and improved maternal, child and youth health outcomes for Māori.
- CCDHB services, including funded providers, are reaching all targets as co-designed with whānau, rangatahi and tamariki.

It is the needs of the women who use our service that drive quality improvement and planning activities.

This report describes projects implemented, and achievements made during the 2019 calendar year. It was also the time when foundations were laid on two key projects which will be reported on in 2020 — the 'optimising birth' and the 'preterm birth' projects.

We would like to take this opportunity to sincerely thank our MQSP Governance group, all staff working within maternity services at Wellington Regional Hospital, Kenepuru and Paraparaumu Maternity Units, and the community based lead maternity carers (LMCs). Your ongoing commitment, individual contributions, and professionalism ensure that women and whānau residing in our community receive the best possible care.

Special thanks also to Claire Jacobs (Data Manager) and Victoria Roper (MQSP Coordinator).

We hope you enjoy reading our report.

Carolyn Coles, Director of Midwifery, and Rose Elder, Clinical Leader of Obstetrics, Women's Health Service.



Carolyn Coles, Director of Midwifery



Rose Elder, Clinical Leader of Obstetrics

CAPITAL & COAST DISTRICT HEALTH BOARD VALUES

As a health care provider, we work according to core values:



Manaakitangarespect, caring, kindnessKotahitangaconnection, unity, equityRangatiratangaautonomy, integrity, excellence

Manaakitanga is at the heart of Māori tikanga. We care for a person's mana by expressing hospitality, generosity and mutual respect.

Kotahitanga focuses on unity and collective action. We work in a fair and just way with each other and with the communities we serve.

Rangatiratanga challenges us all to use our personal power with absolute integrity to serve our communities and provide the best health services we can. We trust people to share power, influence and decision-making.

WOMEN'S HEALTH SERVICE VISION

The WHS vision was created from work undertaken by individual departments within our service and came together as a culmination of those words most frequently used. The vision was launched at the end of 2019.

Enhancing Women's Health: Engagement, Equity, Excellence

Tītikena ō Wahine Hauora: Te whakahihiko, Te ōrite, Me te kairangi

KOWHAIWHAI

The CCDHB kowhaiwhai depicts growth, development and the interactions between a person and their environment. The manawa (kowhaiwhai) is the heart line that leads to Ngā Kete o Te Wananga (the three baskets of knowledge). These connect the past to the present using the knowledge and experiences of old and new, to strengthen future generations.





Our People – Why and how Ō mātou tāngata – he aha ai, he pēhea hoki

THE CCDHB REGION

CCDHB is the provider of health services to the residents living in the Kāpiti Coast District, Porirua City and Wellington City.

CCDHB is the seventh largest DHB in the country by population but its population density is the second

highest – serving an estimated 320,000 people (6.4% of the New Zealand population), and covering 740 square kilometres. Just over two thirds of the population reside in Wellington City, while 18% reside in Porirua, and 14% in Kāpiti.



The region has fewer than average Māori (11%) and higher than average Pacific (7%) populations compared to other DHBs. Over 80% of the Wellington population identify as an 'other' (non-Māori, non-Pacific) ethnic group.

The CCDHB population tend to be younger than the national average with just over 42% of the population under the age of 29 years. Age structures however differ by ethnicity and between geographic areas. The regional population differs from the maternity population.

While many of the regions people were relatively advantaged, there are significant pockets of socioeconomic deprivation focused in Porirua, particularly east Porirua and small parts of central Wellington and the Kāpiti coast.

The region's population is predicted to increase over the next few years by 4.5% or an additional 14,000 people by 2022/23.

WE PROVIDE TERTIARY MATERNITY SERVICES ACROSS THE CENTRAL NEW ZEALAND REGION



The WHS is responsible for tertiary maternal transfers from the central region of New Zealand, which includes Whanganui, MidCentral, Hawkes Bay, Wairarapa, Hutt

Valley, and Nelson Marlborough DHBs. A dedicated team of CCDHB midwives work alongside the intensive care unit (ICU) flight retrieval team to safely transport women from these regions via Life Flight and Wellington Free Ambulance.

Wellington Regional Hospital (WRH) accepts maternal transfers from outside the central region when neonatal units elsewhere in the country have reached capacity.

The CCDHB maternal fetal medicine (MFM) service provide sub-specialist care. They are part of a national network with sub-specialists in Canterbury and Auckland DHBs.

The multidisciplinary diabetes and endocrine antenatal clinic provides tertiary pre-conception counselling and pregnancy care to women with complex needs who live in the Hutt Valley and Wairarapa DHBs.

A multidisciplinary team provides care for women with complex cardiac conditions during their pregnancy and birth, from the lower North Island and the Nelson Marlborough region.

The neonatal intensive care unit (NICU) is located in WRH adjacent to the delivery suite. The NICU provides tertiary healthcare services to premature, surgical, and sick newborns, and while not part of the Women's Health Service, works closely with the WHS team.

THE MATERNITY POPULATION IN 2019

There were 59,661 women recorded as giving birth in New Zealand in 2017, according to the Ministry of Health (MOH) Report, released in 2019. In 2019, CCDHB recorded 3385 women who either birthed at CCDHB facilities, had an unplanned birth at home, or birthed in transit, en route to hospital. This equates to 5.7% of the birthing population of New Zealand.

Table 1: Women birthing and babies born at CCDHB 2019, by facility								
	All births CCDHB domiciled births							
Birth facility	Mot	Mothers Babies		Mot	hers	Bab	ies	
Wellington Regional Hospital (WRH)	3061	90.4%	3127	90.6%	2715	89.9%	2752	90%
Kenepuru Maternity Unit (KMU)	200	5.9%	200	5.8%	200	6.6%	200	6.5%
Paraparaumu Maternity Unit (PMU)	124	3.7%	124	3.6%	105	3.5%	105	3.4%
Total	33	85	34	51	30	20	30	57

Figure 1: Women birthing at CCDHB 2019, by facility



* (New Zealand Ministry of Health, 2019)

CCDHB 2019, domiciled in CCDHB, by domicile				
Domicile	Mot	hers	Bab	oies
Wellington City	1929	63.9%	1953	63.9%
Porirua City	763	25.3%	773	25.3%
Kāpiti Coast District	328	10.9%	331	10.8%
Total	3020		3057	

Figure 2: Women birthing at CCDHB 2019, domiciled in CCDHB, by domicile





MATERNITY FACILITIES

Birthing facilities are available at three locations – Wellington Regional Hospital, Kenepuru Maternity Unit and Paraparaumu Maternity Unit.

WELLINGTON REGIONAL HOSPITAL - PRIMARY, SECONDARY, AND TERTIARY



KENEPURU MATERNITY UNIT – PRIMARY

Delivery suite 12 labour and birth rooms with pools One operating theatre

Ward 4 North Maternity Twenty six maternity beds One bereavement room Two assessment beds for LMCs (not resourced) Acute Assessment Unit Five assessment rooms Four additional assessment spaces



Eight bed capacity Two birthing rooms One birthing pool Six postnatal rooms

PARAPARAUMU MATERNITY UNIT – PRIMARY



Three bed capacity One birthing room Two postnatal rooms

CCDHB provides complex care (tertiary): fetal medicine, obstetric and neonatal services to women and babies living outside our region.

A virtual tour of our three facilities can be accessed at CCDHB website: www.ccdhb.org.nz/our-services/maternity/giving-birth-at-our-hospitals/.

WORKFORCE

WELLINGTON REGIONAL HOSPITAL

68 self-employed LMCs actively birthed women at WRH

DELIVERY SUITE

1.0 FTE Charge Midwife Manager

4.8 FTE Associate Charge Midwives

- 1.6 FTE Midwife Educators
- 0.8 FTE Clinical Midwife Specialist

24.0 FTE Registered Midwives

1.0 FTE Registered Nurse – First surgical assistant

WARD 4 NORTH MATERNITY

1.0 FTE Charge Midwife Manager4.8 FTE Associate Charge Midwives30.7 FTE Registered Midwives/Nurses

WOMEN'S CLINICS AND ACUTE ASSESSMENT UNIT

1.0 FTE Charge Nurse Manager0.9 FTE MFM Clinical Midwife Specialist0.8 FTE MFM Midwife4.5 FTE Registered Midwives



KENEPURU MATERNITY UNIT

17 self-employed LMCs actively birthed women at KMU

0.6 FTE Charge Midwife Manager 4.8 FTE Registered Midwives

PARAPARAUMU MATERNITY UNIT

14 self-employed LMCs actively birthed women at PMU

0.6 FTE Charge Midwife Manager 4.5 FTE Registered Midwives

COMMUNITY MIDWIFERY TEAM

1.0 FTE Charge Midwife Manager 10.3 FTE Community Midwives

COMMUNITY BREASTFEEDING TEAM

1.0 FTE Community Lactation Specialist1.4 FTE Pacific Breastfeeding service- PeerAdvocate/Educators

PRIMARY CARE INITIATIVES

2.0 FTE Specialist Midwives Lactation0.5 FTE Antenatal Information Coordinator3.2 FTE Newborn Hearing Screeners includingCoordinator

MEDICAL TEAM

15.2 FTE Senior Medical Officers (2.9 FTE joint appointments with Otago University School of Medicine)11.0 FTE Registrars10.0 FTE Senior House Officers

ALLIED HEALTH

We have allied health staff working across diverse roles.

OUR WAY OF WORKING

We are very proud of our exceptional team. The service supports "Speaking up for Safety, Success and Support", building a culture of safety by putting patient safety and clinical excellence first.

Safety culture can be separated into three distinct areas.

Speaking up for safety: building a safe, supportive culture that values people speaking up.

Speaking up for support: focuses on staff wellbeing. How can we support our people and how we can support each other to provide safe patient care to our community?

Speaking up for success: recognises the feedback from staff that being thanked and appreciated is really important and builds engagement.

Working as one team across the service, inclusive of LMCs, and with our wider health partners we aim to make a difference to health outcomes with and for women.

OBSTETRICS SERVICE, WOMEN'S HEALTH – COMMUNICATION AND CULTURE

In 2019 the obstetric service carried out development sessions with senior medical officers. The goal was to identify barriers to effective communication and determine tools to overcome them to enable safe care of women, enhance multidisciplinary relationships and optimise mentoring and training for resident medical officers.



PRIMARY BIRTHING

Women are often guided by the experiences of friends and whānau when deciding where to birth their baby.

Wellington does not have a standalone primary birthing facility, but there is one available in Porirua at KMU, and another in Kāpiti at PMU.

KMU and PMU are both actively promoted by the midwife LMCs working within these areas. Familiarity with the units are encouraged for women having antenatal assessments and cardiotocograph (CTG) monitoring. LMCs use the assessment time as an opportunity to show women and whānau around the facilities.



MATERNITY SERVICES

EARLY PREGNANCY SUPPORT

The 'Find a Midwife' service supports women to find a midwife LMC. Early pregnancy education is available for women while they were looking for a midwife.

The service is accessible at www.ccdhb.org.nz/ our-services/maternity/contact-us-for-help-findinga-midwife/, or by calling 0800 346 369.

PREGNANCY AND PARENTING CLASSES

Free pregnancy and parenting education classes are provided at WRH and KMU. These classes were established to provide greater access for Māori, Pacific, and migrant women. The DHB also funded childbirth education through community based external providers.

The objective was to increase the number of first-time pregnant women accessing antenatal education, and improve health outcomes.

SECONDARY AND TERTIARY CLINICS

Secondary and tertiary level care is provided to women who require obstetric referral for consultation, or transfer of care during their pregnancy. Women are referred to clinics through their General Practitioner (GP) or LMC, for a range of conditions. Referral may relate to existing medical conditions, or high risk care planning and follow-up for those who have suffered the loss of a baby.



MATERNITY SUBSPECIALTIES

WOMEN'S ULTRASOUND SERVICE

The women's health ultrasound service provides a critical role in the evaluation and monitoring of women. Specialised imaging is provided to support clinics, and for regular monitoring of complex pregnancies. This department also provides expertise in fetal sonography to support women requiring care through the MFM service.

MATERNAL FETAL MEDICINE

MFM is a tertiary level sub-specialty service which provides care to women who have complex pregnancies. The WHS provides one of three MFM hubs in New Zealand. As the central hub, they provide care to the lower North Island and the upper South Island.

The MFM service is also a training centre for future MFM sub-specialists and obstetricians with an interest in fetal medicine.

Teleconference facilities for consultation are enabled for the central hub catchment.

The services MFM specialises in include:

- the management and supervision of high-risk first and second trimester screening results by:
 - provision of non-invasive pre-natal testing
 - diagnosis by chorionic villous sampling or amniocentesis
- diagnosis and management of major and complex fetal anomalies
- management of fetal cardiac anomalies that are unlikely to require immediate cardiac surgery
- management of other cardiac disease
- intrauterine transfusions for red blood cell incompatibility
- multi-fetal reduction and feticide
- management of fetal genetic conditions in pregnancy
- management of fetal surgical conditions in pregnancy
- input into the care of women with complex medical conditions.

MATERNAL MENTAL HEALTH

The availability of primary mental health services are key to ensuring maternal and baby wellbeing. Evidence regarding the positive impact on outcomes for children and families of good mental health during the perinatal period is substantial, and is strongly supported by research on attachment, and prevention of conduct disorders and neurodevelopmental impacts on children. There is also evidence linking poor mental health and wellbeing during the perinatal period with suicide and self-harm risk, family violence and increased demand for the need for personal and specialist mental health services.

The CCDHB specialist maternal mental health service (SMMHS) is for women who are pregnant or have a baby under one year of age (at the time of referral), who are experiencing moderate to severe mental health issues.

The team provides advice to health professionals regarding medication for women who are considering becoming pregnant, those who are pregnant or breastfeeding, and those who have pre-existing moderate to severe mental health or addiction problems.

SMMHS cover Wellington, Porirua, Kāpiti and the Hutt Valley. In the Wairarapa, a member of their team works alongside GPs as well as the adult community mental health team, to advise other health professionals who are caring for pregnant women or new mothers, who are experiencing mental illness.

The SMMHS works with women before and after baby is born, along with their partners and whānau.

The team is able to offer a number of services, including:

- specialist assessments
- treatment and planning
- individualised support and therapy
- medication reviews and advice

- mental health information
- information about community support services.

REFERRALS

Referrals can be made by GPs, midwives/LMCs, or other health professionals. Women cannot selfrefer. The referral criteria includes;

Women who are pregnant or postpartum (infant up to 12 months) who are experiencing a moderate to severe mood disorder/mental illness (new onset, or previous history re-triggered in perinatal period) in the wider Wellington, Kāpiti and Hutt Valley regions for assessment and intervention/treatment, and consult-liaison; and for consult-liaison and assessment in Wairarapa DHB.

For women of Māori or Pacific descent living in the CCDHB catchment, referral to Te Whare Marie or Health Pasifika is considered. SMMHS are available to consult or jointly assess as required. Following assessment with the cultural team, a decision can be made with the woman about which team is most appropriate for her.

Referrals are triaged by Te Haika, a mental health and addictions contact centre for people in crisis, or experiencing moderate to severe mental health or addiction problems. We are unable to report on the number of maternal mental health referrals that Te Haika triage that are not able to be followed up on, or do not meet the referral criteria, as currently these are not separated out from the whole of the mental health, addictions and intellectual disability service (MHAIDS) referrals.

In 2019 there were 113 referrals to SMMHS and 19 requests for maternal mental health consultation. The majority of the referrals and requests came from GPs (55%) followed by midwives (17%), and MHAIDS adult community (16%).

Of the referrals that were closed in 2019, the majority were closed due to treatment being completed (50%). 12% of referrals were declined treatment by the SMMHS and 34% were not seen due to the woman declining treatment (12%), or because they were lost to the service (22%).

INPATIENT SERVICES

CCDHB does not have a specific maternal mental health inpatient ward. Inpatient facilities include Te Whare o Matairangi at WRH, and Te Whare Ra Uta which is located in Porirua. Women who present with severe mental health symptoms can be assessed and considered for admission to Te Whare o Matairangi. SMMHS fully support and promote the principle that a baby should remain with their mother, and arrangements that assist this should be considered while maintaining safety and initiating treatment for the woman.

There is no provision for a baby to stay with a mother who is admitted at Te Whare o Matairangi. Rather, usual practice is for the baby to remain in the care of whānau, who are encouraged to visit often with the baby. Negotiations as part of the ward admission include how often baby can visit, and to identify an appropriate space or room on the inpatient unit where whānau, baby and mother can be together for an agreed period, including providing breastfeeds if appropriate. During the inpatient period women are encouraged to continue expressing, and breast pumps are accessed through the central equipment pool.

Another option that can be considered during the early days after birth, is for the mother and baby to remain on the maternity ward, with a health care assistant as 24 hour 'watch' to ensure safety, and support management of mental health for the mother.

CHALLENGES

Challenges to the maternal mental health pathway include limited facilities within inpatient mental

health wards, and a lack of funding and workable arrangements to assist mothers with babies within mental health respite facilities. Current respite facilities are unable to accommodate a baby during admission of a mother. Staff of current respite facilities also do not have identified or specific maternal mental health training.

A more appropriate treatment and recovery pathway would include support and assistance for mothers to continue their role in mothering their baby as much as able. Safety and reassurance of respite intervention could provide this, if the baby could remain with the mother within the respite facility, where staff also have the relevant and appropriate training in maternal mental health care.

SUPPORTING PRIMARY CARE SERVICES TO MANAGE MATERNAL DEPRESSION

The clinical team provide support to primary care services in this area through a range of activities.

- A maternal wellbeing clinic is provided at WRH, and there is planning underway for the same initiative at Kenepuru Hospital. The aim of the clinic is to provide space for women to talk with a maternal mental health care provider about their mental health. Referral is through the LMC for any pregnant woman where there may be concerns for mental wellness during the antenatal period. The clinic offers consultation and assessment with the pregnant woman, and provides guidance and advice to the referrer. Also, referrals to secondary care mental health services (the SMMHS team) can be facilitated.
- Community liaison and consultation with LMCs, and non-governmental organisations (NGOs) working with mothers and infants, such as Plunket and Family Start also occurs. Specific liaison is provided for individual women with Little Shadow (counselling and support service working with women during the perinatal period

who are experiencing mild to moderate mental health symptoms).

- On request, consultation and liaison is available from our SMMHS for GPs and other health professionals engaging with pregnant and postnatal women, and includes information such as advice about medications, or any presenting symptoms. Team clinicians are available on a duty basis daily.
- Regular and continuing education is provided to primary care midwives about maternal mental health concerns. Education is provided to LMCs through study days, Little Shadow, supporting and shared work with Perinatal Anxiety & Depression Aotearoa (PADA) – a charity providing advocacy and awareness through training and education to primary healthcare professionals and community about perinatal mental health. Information about PADA can be accessed here www.pada.nz.
- Facilitation of an infant mental health interest group for health professionals, with monthly meetings and education sessions.

SCREENING FOR MENTAL WELLNESS DURING PREGNANCY AND POSTPARTUM

The SMMHS support mental wellness being considered as part of pregnancy care. SMMHS also offer education sessions and consultation for any primary care health professional who has any concerns for mental wellness of a pregnant or postnatal women, through the clinician duty service.

MIDWIFE EDUCATION

Regular education days about mental wellness (screening and assessment) are provided by the WHS. SMMHS participates in, and contributes to this education.

SUPPORTING HEALTHCARE PROVIDERS DURING AND AFTER COMPLEX CASES

There are a range of support services available to healthcare providers who are looking after women with complex maternal mental health issues and/or suicide cases.

- Little Shadow provides counselling services to midwives.
- CCDHB postvention (activities which reduce risk and promote healing after a suicide death) service, provide a review and support following a suicide.
- CCDHB critical incident debriefing is available on request to CCDHB staff.

Our team provides direct client-based services and consult-liaison for specific clients, alongside education to other health and community professionals working with women during the perinatal period.

FUTURE PLANNING

CCDHB has recognised that there is opportunity to enhance the availability of primary and community based services for women who experience mild to moderate levels of mental distress in the perinatal period (pregnancy to 12 months postpartum), which impacts on the wellbeing of both the mother and baby. Due to capacity constraints, some women referred to the SMMHS are declined access to support, as their level of distress does not meet the clinical criteria for specialist services (moderate to severe distress). Women who are declined are usually referred on to a community-based NGO.

The 2019/20 CCDHB Annual Plan commits CCDHB to "Consider options to enhance the integrated maternal and child health service in Porirua, to provide timely, continuity of support for Māori and Pacific women through the first 1000 days".

Maternity quality and safety Te kounga me te haumaru o te taurima wāhine hapū

MATERNITY QUALITY AND SAFETY PROGRAMME

The WHS clinical governance committee, as part of the DHB clinical governance infrastructure, ensures that systems are in place to enable clinicians and managers to share responsibility and accountability for patient safety, to minimise risks to women and their babies, and to continuously monitor and improve the quality of clinical care provided.

The New Zealand maternity quality and safety programme is a national programme which establishes and builds upon national and local maternity quality improvement activities. It seeks to ensure the highest possible safety and best possible outcomes for all mothers and their babies.

This report is underpinned by the New Zealand Maternity Standards (New Zealand Ministry of Health, 2011), which are overseen by National Maternity Monitoring Group (NMMG). An annual assessment showed CCDHB met the DHB components of the standards.

- Standard One: Maternity services provide safe, high quality services that are nationally consistent and achieve optimal health outcomes for both mothers and babies.
- Standard Two: Maternity services ensure a woman-centred approach that acknowledges pregnancy and childbirth as a normal life stage.
- Standard Three: All women have access to a

nationally consistent, comprehensive range of maternity services that are funded and provided appropriately to ensure there are no financial barriers to access for eligible women.

At CCDHB, governance of the programme was undertaken by the MQSP governance committee.

Membership included: representation from consumers and LMC midwives, obstetric and midwifery clinical leads, an MQSP coordinator, an operational lead, and a representative from strategy, innovation, and performance directorate. Both Māori and Pacific communities were represented. Representation from other stakeholder groups is co-opted on a project-byproject basis throughout the year.

The work programme was developed with stakeholder input and key actions were identified. A record of ongoing achievements to date is contained in previous WHS annual clinical reports. The 2019 report is publicly available online through the CCDHB website at www.ccdhb.org.nz/ news-publications/publications-and-consultationdocuments/ccdhb-whs-2019-maternity-qualitysafety-programme-annual-report.pdf.

Our MQSP is well established and we continue working towards embedding maternity quality into a strategic quality framework to improve outcomes for women and their babies.

VOICES FOR WOMEN AND THEIR WHĀNAU

Woman and whānau continue to provide the WHS with feedback about our maternity services in a number of ways, and it is very much appreciated.

As inpatients, they can fill in our consumer survey on easily accessible iPads, or by quick response (QR) code, or if they prefer to reflect and feedback once discharged, they can access the survey via a paper form.

Woman share their experiences and perspectives with their LMCs and these experiences are



discussed at the bi-monthly LMC forums run by our representatives. This feedback is then forwarded to the MQSP Governance committee.

Finally, our consumer representatives spend time engaging with a diverse range of women and whānau, seeking their valued thoughts and experiences on our services. Any suggestions or concerns are discussed and actioned as required.

The following is a selection of feedback received:

"We were blown away by every single member of staff we dealt with at Wellington Hospital. From the delivery suite to the surgical team for my c section to the recovery nurse to the post natal [sic] staff. Every single one of them was approachable, informative and really made me feel safe during our 6 nights stay. I felt listened too, cared for and informed every step of the way. The medical profession are the unsung hero's [sic] in our society and I cannot thank you all enough. Your maternity unit is world class, and I will be singing your praises whenever I can".

"The care, attention and advice from both the registered nurses and midwives was amazing and made us feel supported and confident in baby's first couple of days. For people who see new mums and dads and babies every day, their individual attention and care was amazing and made me appreciate the system we have here in Wellington and NZ".

"Before I gave birth I didn't want to stay in hospital but now that I'm here the staff have been so amazing I don't want to leave".

"All the midwives and staff were amazing. Very supportive and patient, provided great advice and were comforting, empathetic and personable. I feel very lucky to be able to have stayed here".

"My husband was able to stay in my room with me and baby the first night after I gave birth, but had to leave the second night as another lady and her baby moved in next to us. I felt very anxious and distressed the entire night without my husband there to help, as a first time mother I felt I needed help and when I called for a nurse [sic] they often took quite a long time to arrive. I spent the entire night feeling panicky and distressed".

Action: Support persons are able to stay overnight at WRH and KMU if there are no security risks and the mother is in a single room. Staff are reminded to check in with mothers about their needs. Availability of staff differs with acuity and other demands – women are our priority and using the bell when staff are needed is important, rather than waiting for someone to pop in.

MQSP PROGRESS REPORT 2019

Detailed information about the projects in the following table can be found in the following chapter: 'Steps towards excellence'. These projects are sizable and need more commentary than can be provided in table format.

Table 3: MQSP project progress report 2019	Status
Reporting of caesarean sections using Robson 10 classification system	
Preterm birth audit	
Introduction of the maternity early warning score in maternity	
Maternity sepsis bundle	
Lead maternity carer access holders handbook	
Health care assistant – Maternity support	
Newborn hearing screening poster developed	
Growth assessment protocol introduced	
Long acting reversible contraception	
Stakeholder hui	
Fetal movement posters updated	

PROJECT STATUS

- Work has been completed and/or in business as usual phase
- Work is in progress/underway and nearing completion
- There is still a significant amount to achieve before completion

Table 4: Detailed MQSP project progress report 2019

Status

Maternity consumer survey

Rationale	The need to obtain feedback from women and whānau which is maternity specific was recognised. Paper feedback forms were underutilised. The need for a uniform collection of feedback was apparent. The same questions needed to be asked across all 3DHB (Capital & Coast, Hutt Valley, and Wairarapa DHBs) facilities. An online format was preferred as it enabled streamlined collection and analysis of the data.
Actions	Developed a survey in conjunction with consumers and LMCs. The aim was to capture meaningful feedback from women and their whānau. Questions were adapted from the 2014 MOH maternity survey. iPads were purchased, to enable all women to be given the opportunity to complete the survey on the day of discharge.
Measures	There were 483 surveys completed in 2019. Of those, 391 were completed by the woman birthing (11.6% response rate), and 92 by family or friends. Feedback was reviewed by MQSP committee representatives on a monthly basis.
Outcomes	A voice directly to clinical leads and managers. A way for whānau's voices to be heard directly. Structured questions help articulate feedback. Opportunity to provide feedback confidentially. Linked with the DHB's consumer, engagement survey processes. Compliments and complaints are now able to be managed through a single feedback mechanism.
Future	Will review content 12 months from launch date. The aim is to introduce a Māori language option, and for the questions to be redesigned with collaboration from Māori.
Tablet compu	ters for the DHB employed community midwifery team
Rationale	Increase efficiencies for community midwives doing postnatal visits.
Actions	Purchased electronic devices for all employed community midwives and developed electronic postnatal records.
Measures	Now used for every visit for the mother and baby.
Outcomes	All DHB employed community midwives have tablets which are working extremely well. There is no longer a requirement to collect notes before commencing postnatal visits, as all information is readily available online. A further benefit of the online system is that referrals to Well Child/Tamariki Ora service providers will be automatically generated once the template is finalised.
Future	Continue to streamline processes and work more efficiently so that the community midwives can increase one-on-one time with women and babies. We have also implemented an electronic diary, so everyone can see when visits are scheduled, whilst in different locations.
Care closer to	home – New antenatal clinics at Strathmore and Porirua
Rationale	 Strathmore Park and Cannons Creek are areas of high socioeconomic deprivation (refugee community and younger Māori women respectively). Wellington City Council changed the bus routes from Strathmore Park, meaning women without private transport had to take two buses to attend hospital appointments. This was a barrier for women having to take smaller children with them, to attend their antenatal appointments. At Kenepuru, the midwifery led antenatal clinic did not attend (DNA) rate was 20%, and a review of the data identified that over half of the women booked under the care of the community midwifery team (CMT) lived north of the city, yet there was only one antenatal clinic held at Kenepuru each week. Greater choice for women and clinics closer to home was the obvious choice.

Actions	The Strathmore Park clinic opened on 13 November 2019. Strathmore Park has a weekly clinic every Wednesday morning, with one slot for a booking appointment, and four follow up antenatal slots. The Cannons Creek clinic opened on 25 September 2019. The clinic is co-located with Ora Toa at the Cannons Creek Medical Centre, and runs a weekly clinic every Wednesday, with two booking appointment slots and five follow up antenatal slots.
Measures	Initially attendance at Strathmore Park was small (one to three women). This increased through word of mouth, and the clinics are now at capacity with an average of four to five women attending. The Cannons Creek clinic had a slow start (three or four women attending), and DNAs still a problem. The clinic eventually gained traction and was able to increase volumes to six to eight women with fewer DNAs.
Outcomes	Having antenatal clinics closer to home has helped support access and reduce inequity. Working with the community workers means that wrap around support for women are available if needed. CMT midwives love running the clinics and the connections being made with the community. Fewer DNAs result in better antenatal care.
Future	We are hoping to co-locate with Maraearoa at Waitangirua and run another midwifery led antenatal clinic there. Once imbedded, women will have better support from community based partners.

MQSP – Care capacity demand management (CCDM), TrendCare, and maternity timing studies

Rationale	TrendCare has been used in maternity services at CCDHB since 2015. Concerns had been raised nationally about the effectiveness of the tool to accurately capture the acuity in maternity, particularly on evening and night shifts.
Actions	CCDHB's TrendCare team worked with maternity services to understand and address the issues. In collaboration with the vendor (TrendCare Australia), timing studies were undertaken (May 2019) to understand the issues, and ensure that the midwifery care provided was accurately reflected. Further education was provided to staff whilst awaiting the outcome of the timing study.
Measures	Over a six week period 524 timings were completed for antenatal, postnatal caesarean, and postnatal vaginal categories. Timing studies were not completed in delivery suite.
Outcomes	 With additional education, a significant improvement was noted in the use of TrendCare, and the ability of the midwives and nurses to more accurately reflect the care provided, to meet acuity. Since undertaking the timing studies, ward 4 north (maternity) has managed to get all patient types within benchmark, following the timing studies report recommendations. The vendor has also taken on board the findings of the timing study, and is making changes to category timings for 'postnatal caesarean' to better reflect the acuity of these women. Improvements in data accuracy also resulted in FTE (full time equivalent) calculations being undertaken in ward 4 north and FTE calculations are scheduled for delivery suite during the first quarter of 2020. Variance response management (VRM) is another aspect of the CCDM programme where the team has worked with midwifery leads, union delegates, and organisers to develop a specific maternity escalation plan. In time, the nationally recommended variance indicator score will be adopted, but the responses to each colour have been specifically developed to meet the needs of the maternity service. Development of the VRM plan has enabled the maternity service to recognise the move to escalation earlier, receive an appropriate organisation wide response to address and rectify the problem, and has met with positive feedback from staff.
Future	The achievements made in the maternity setting at CCDHB with TrendCare and CCDM have been shared with, and adopted by many DHBs throughout New Zealand.

Refurbishmer	nt of birthing pool room at Kenepuru Maternity Unit							
Rationale	The decommissioned old spa bath needed replacing with a permanent birthing pool.							
Actions	 Architects worked with LMCs and DHB midwives to plan a user friendly environment and birthing pool, and create storage space. Some disruption was inevitable as the birthing pool was not available for five weeks. An inflatable pool was obtained to use in the birthing rooms during the refurbishment but unfortunately a leak developed and a replacement could not be imported into New Zealand. A karakia was performed by the kaumātua to bless the birthing area and the new pool. One of the local midwifery group practices presented the unit with two beautiful prints that were hung in the room. 							
Measures	Possible increase in the number of women who labour or birth in the pool.							
Outcomes	An aesthetically pleasing room with a round birthing pool (with easy access), dimmable lighting, and a temperature controlled heat pump with air conditioning.							
Future	To upgrade or replace the unit with a modern facility that will meet the needs of the local community.							
Improvement	ts to Antenatal Education classes							
Rationale	The DHB needed to provide an innovative, targeted, pro-equity approach to procuring antenatal education.							
Actions	CCDHB invested in three providers to deliver antenatal education that builds trusting relationships with Māori, Pacific, and young mums. The views of Māori and Pacific women have been central to the procurement process, including contracting decisions.							
Measures	All three programmes will be evaluated to understand the impact, effectiveness, and acceptability of these services for the communities they target.							
Outcomes	Each provider has tailored their approach to antenatal education to meet the needs of their community. These include one-on-one education and peer support, home visits, and whole-of-whānau antenatal hui.							
Future	Evaluation of these programmes will help to inform the longer term investment in antenatal education.							
Safe sleep de	vices							
Rationale	To support women and whānau to make every sleep a safe sleep, the DHB has established a safe sleep programme.							
Actions	This programme includes the promotion of safe sleep messages and funded safe sleep devices such as wahakura and pēpi pods. Wahakura are made by traditional weavers (kairaranga) or by whānau who are guided through the process by the weavers.							
Measures	In 2019 the programme distributed 58 safe sleep devices to women and whānau, along with advice on safe sleeping.							
Outcomes	Women and whanau are supported with the knowledge and tools so babies can have a safe sleep.							
Future	We plan to build on this programme and are aiming for new targets in 2020 and 2021.							

Deaf signage	at Wellington Regional Hospital lift area							
Rationale	After-hours access to delivery suite required the labouring woman or her support person to lift a handset and speak with security orderlies. This disadvantaged hearing impaired women and their partners and created clinical risk.							
Actions	Wording and an appropriate number to text 24 hours a day, seven days a week when requiring admission to the maternity service after hours were agreed.							
Measures	N/A							
Outcomes	Signage to be erected in the first quarter of 2020.							
Future	N/A							
3DHB Newbo	rn enrolment form and information for parents updated							
Rationale	The 3DHB newborn enrolment form, and information sheet for parents, needed to be aligned with current Health Information Standards Organisation (HISO) standards, as the form did not accurately reflect male, female, and indeterminate sex at birth.							
Actions	The form was updated to include indeterminate sex at birth, and an opportunity was taken to ensure that the ethnicity options also aligned to HISO standards. Information pertaining to the national immunisation register, GP practices, dental services, Bacillus Calmette-Guérin (BCG) vaccine, newborn hearing screening, and Well Child/Tamariki Ora service providers, were all updated or revalidated.							
Measures	N/A							
Outcomes	A HISO compliant 3DHB newborn enrolment form.							
Future	The form will be reassessed at the next release of the HISO document.							
Primary birth	ing feasibility study							
Rationale	 CCDHB completed a detailed financial feasibility review of the potential for a Wellington based primary birthing unit. The work to investigate women, whānau, and midwifery appetite for, need, demand, and financial feasibility of a primary birthing unit in Wellington is underpinned by: Providing equity of access and choice for Wellington women, as women from Wellington are less likely to birth in a primary birthing unit, than women in other New Zealand locations Improving the birth experience for women Providing greater support for culturally appropriate maternity models Supporting decreased interventions and improved neonatal outcomes and attachment for babies. 							
Actions	Completed a financial feasibility review of establishing a primary birthing service and facility in the Wellington area.							
Measures	N/A							
Outcomes	The feasibility report was received and supported, noting it would be a future investment decision.							
Future	The detailed future plans are commercially sensitive (confidential), but will be considered as part of the 2DHB (Capital & Coast, and Hutt Valley DHBs) maternal health system planning work that will be completed in 2020/21.							

Steps towards excellence He whakatutuki kia kairangi

REPORTING OF CAESAREAN SECTIONS VIA ROBSON 10 CLASSIFICATION

Within the past two decades there has been a progressive increase in the rate of births occurring by caesarean section (CS) in countries throughout the world. Rising CS rates are a major public health concern and cause worldwide debates due to the potential maternal and perinatal risks associated with this increase, inequity of access, and associated costs.

In 2015, the World Health Organisation (WHO) proposed the use of the Robson 10 classification (also known as the 10-group classification) as a global standard for assessing, monitoring and comparing CS rates both within healthcare facilities, and between them. The system classifies all women into one of ten categories that are mutually exclusive and, as a set, are totally comprehensive. The categories are based on five basic characteristics that are routinely collected in all maternities (parity, number of fetuses, previous CS, onset of labour, gestational age, and fetal presentation).

While many women across CCDHB experience good health outcomes, current models and services could be improved to meet the needs of women and their whānau. The goal of CCDHB using the Robson 10 classification is to target quality improvement in a structured and measureable way, to enable woman and baby focused initiatives that are collaboratively generated, and supported by all health care providers in the sector.

The WHS has implemented a reporting system that provides monthly Robson 10 reports for the previous month's births. Some education was required regarding documentation, to ensure completeness of data, and to avoid 'unclassifiable' births. Data cleaning is carried out prior to the report being generated to ensure as few unclassifiable births as possible.

NEXT STEPS

The Robson 10 classification system will be used for the optimising birth project commencing in 2020, and work will be undertaken to understand Groups 1 (nulliparous women with a single cephalic pregnancy, \geq 37 weeks gestation in spontaneous labour) and 2a (nulliparous women with a single cephalic pregnancy, \geq 37 weeks gestation who had labour induced) in greater detail.

PRETERM BIRTH

The Perinatal and Maternal Mortality Review Committee's (PMMRC) 12th Annual report noted live born babies from 23 to 26 weeks gestation had significant differences in survival between tertiary units in New Zealand.

There were significantly higher neonatal death rates for babies, without congenital anomalies, of Māori, Pacific, and Indian mothers compared to mothers of Other Asian, Other European, and New Zealand European ethnic groupings.

Wellington had good overall outcomes for these babies, but we are undertaking an audit to consider equity of care for all, and to determine whether there are barriers to optimal preparation of women prior to birth with antenatal steroids, as this has a significant impact on neonatal outcomes. A pathway for transfer was developed in the CCDHB catchment some years prior to the audit, and the success of this pathway could also be investigated. The PMMRC recommends this pathway include:

- Ensuring that all groups of women (irrespective of ethnicity, age, socioeconomic status or place of residence) are offered and provided the same level of care.
- Strategies for secondary units to manage women in threatened or early preterm labour, or who require delivery, prior to 25 weeks gestation. Including:
 - a) administration of corticosteroids and magnesium sulphate (MgSO4)
 - b) timely transfer from primary and secondary units to tertiary units
 - c) management of babies inadvertently born in their units at the lower limits of viability.



PLANNING AND DEVELOPMENT OF THE PRETERM BIRTH AUDIT.

The first step was to review current treatments and variation in practice. In 2019 a retrospective data collection tool was developed to identify the full scope of issues related to preterm birth. Using 2018 data from 364 women we planned to examine:

- The rates of antenatal corticosteroid administration, including whether administration was equitable by ethnicity, DHB of residence, and maternal age.
- The rates of MgSO4 administration to women for neuroprotection of babies born at <30 weeks gestation.
- Whether risk factors for preterm birth were identified during the antenatal period, and if modifiable, whether the risk factors were acted upon appropriately.
- If there were issues with transfer from secondary units that impacted on outcome.
- If there was documentation around obstetric planning regarding management of birth/baby.
- If there was documentation around neonatal planning regarding management of baby.

• If there was documentation regarding maternal wishes around birth.

Detailed data collection was undertaken and completed for 170 of the 364 cases. Those cases analysed were considered to be a large enough sample size, representing a diverse range of women, so data collection ceased.

NEXT STEPS

The next step is to commission an epidemiologist to analyse the data and feedback any identified vulnerable population groups, variation in access to corticosteroids prior to birth, and inconsistencies in care pathways.

DISCHARGE PLANNING AFTER PRETERM BIRTH:

In 2019 the discharge summary template for women who had received care by secondary services was altered to prompt advice regarding preterm birth (see box below). This ensures education of the women and her care providers receiving the discharge summary, including what to do in preparation for a future pregnancy.

WHEN YOU HAVE HAD A BIRTH PRIOR TO 37 WEEKS IT IS CALLED PRETERM (PREMATURE) BIRTH. WHEN PRETERM BIRTH HAS HAPPENED WE KNOW THERE IS A HIGHER CHANCE IT COULD HAPPEN AGAIN.

In the future we want to prevent/predict preterm birth where possible by doing things to optimise a future pregnancy. Also we want to ensure the best outcome if another preterm baby did happen in the future by being prepared.

Also we want to have the best outcome for any future preterm births by ensuring you know when to come to Hospital.

- Live smoke free
- Optimise your health / diet before a future pregnancy
- When pregnant
 - Book in the first 10 weeks with an lead maternity carer (LMC)
 - Be screened for infections e.g. urine and vaginal
 - Referral to hospital doctors early in a future pregnancy will help to plan care to check cervix length and improve supports to the cervix and placenta. This needs to be done before 16 weeks to be helpful.
 - Talk with your LMC about what to watch out for in pregnancy. If you do labour early in the future it is important that you know when to come to hospital. This will give your baby the best start possible.

INTRODUCTION OF THE MATERNITY EARLY WARNING SCORE

The maternity early warning score (MEWS) is a nationally consistent, standardised document being implemented across New Zealand, to improve the early recognition and response to, acute deterioration of pregnant or recently pregnant (up to and including 42 days after birth) women.

The aim of the MEWS is to reduce morbidity and harm, reduce admissions and length of stay in ICU, and improve outcomes for women. The use of a national document that has a modifiable local escalation pathway, ensures the appropriate responder systems for the local setting are identified and able to be mobilised.

National maternity vital signs charts (MVSC) were introduced in the WHS in December 2019, commencing in areas that had previously used the modified early obstetric warning charts. Embedded in the MVSC is the MEWS. A MEWS score is generated when all eight vital signs are scored, and a total is generated. This score indicates which mandatory escalation pathway should be followed.

CCDHB has three separate maternity inpatient facilities, and different local mandatory escalation pathways were required for each facility, reflecting the unique clinical environments and available resources. The minimum frequency of vital signs required in different clinical situations was agreed upon and included in the new policy.

MEASURES

Regular auditing of the newly introduced MVSC was instituted and regular face to face feedback is achieved when clinical records are audited.

An education module has been created and modified to reflect our local pathways. This is on the CCDHB online education platform Connect Me.

Auditing of the new MVSC/MEWS has been ongoing and entered into the Health Quality and Safety Commission (HQSC) template.

Emergency response calls are being tracked to identify increases or decreases in calls.

Cases are reviewed as they occur, providing insight into the effectiveness of the MEWS system to reduce morbidity and harm.

The MVSC/MEWS has been adopted readily by staff and improvements are ongoing as this document embeds into the service.

NEXT STEPS

We are planning to begin hospital-wide implementation of the maternity vital signs chart from August 2020. This will capture pregnant women and those recently pregnant (up to 42 days postpartum) who are inpatients in other parts of the hospital.

MATERNAL SEPSIS

A HQSC request saw CCDHB's maternity service develop a maternal sepsis protocol for all providers of care to pregnant or recently postpartum women.

Protocol development and subsequent interdisciplinary education followed to limit preventable sequelae through early detection, and appropriate and timely treatment. Mock scenarios held within the service meant that process issues were readily identified and rectified.

An adjunct to the protocol was the maternal sepsis pathway. An A4 sized sheet that provides all relevant information clinical staff require when maternal sepsis presents.

Lanyards were provided to all maternity staff reminding them of the signs and symptoms which may indicate maternal sepsis, and posters were placed in clinical areas.

A maternal sepsis box was provided to each clinical area including delivery suite, the antenatal and postnatal wards, both primary birthing units, and the accident and emergency departments. The boxes contain all of the equipment and medications required to complete necessary tests and treatments within the first hour of diagnosis. The

laterr r suspecter recently p	al Sepsis pathway d bacterial infection in pregnant regnant woman (<42 days post)	urname: irst Names: late of Birth: .	NH1:					
ELLINGT	ON REGIONAL HOSPITAL		Capital &					
1	Sepsis know the signs							
RECOGNISE	□ Temp ≥ 38 or ≤ 36°C shivering, fever or very cold	Heart rat	☐ Heart rate ≥ 100 beats /min: high heart rate					
521 515	Altered mental state or behaviour, confusion or disorientation	Systolic E	Systolic BP < 90mmHg: clammy or sweaty skin					
	Respiratory Rate ≥ 25breaths/min, short of breath	New ons	New onset of pain					
	COMMENCE MATERNITY VITAL	SIGNS CHA	RT (MEWS)					
2	Secure IV access x 2 (16G or 18G)							
	Take 2 sets of blood cultures see instructions	s pg 2						
WESTIGATE	Take Blood tests							
	Coagulations studies (blue tube)							
	Venous Lactate (green tube)							
	Full Blood Count (purple tube)							
	Arterial Blood Gas: if abnormal RR or O2 satu	rations						
2	Give IV Antibiotics: as soon as cultures are f	taken						
3	CHECK for ALLERGY SEE ANTIBIOTIC GUIDELINE OVERLEAF							
TREAT	Name/Doses of antibiotics given:	-	Time / date commenced:					
	Cefurovime 1 5g IV o8h		Time / date commenced.					
Antibiotics	Metronidazole 500mg IV. g12h							
Fluids	Gentamicin 4-7mg/kg IBW, stat dose							
Oxygen	OR (list below, see antibiotics considerations page	2)						
	Give IV fluid Challenge: 1-2 litre Sodium Chloride 0.9% stat							
	Give high flow Oxygen via rebreather mask							
	Measure Urine output							
	Insert Foley catheter	Measure u	Measure urine output hourly					
	Consider swabs/MSU/sputum							
4	Assess fetal state							
	 Consider delivery or evacuation of retained p 	roducts						
CONSIDER	of conception							
	Consider VTE risk – Thrombo prophylaxis. Consider need for milk expression and antibiotics in breastmilk (see policy for advice)							
5	Severe Sepsis indicated by one or more of t	he following						
ASSESS	□ Systolic BP < 90mmHg or 40mmHg from	Lactate > 2mmol/L						
SEVERITY	baseline	Decreased urine output < 80ml/4hr, Creatinine						
	New confusion or drowsiness Supplemental Ovygen > 21 /min to maintain	> 90						
	sats > 90%	Bilirubin > 35						
		1						

sepsis box accompanies the woman so that clinical staff know what stage she is at on the pathway, and know what care has been provided.

A process has been implemented which enables fully stocked sepsis boxes to be returned to the clinical area as soon as possible after use.

Table 5: Admissions to CCDHB facility with maternal sepsis diagnosis 2015 to 2019										
	2015		2016		2017		2018		2019	
		%		%		%		%		
Sepsis during birth event	98	1.3	125	1.6	119	1.6	101	1.4	100	1.4
Sepsis not associated with birth event		0.4	35	0.5	34	0.5	27	0.4	33	0.5
Total sepsis admissions		1.6	160	2.1	153	2.1	128	1.8	133	1.9
Total DHB admissions during or after pregnancy*	7692		7604		7333		7184		6948	
* Relate to all DHB admissions of women who are or have recently been pregnant (<42 days)										

NEXT STEPS

A review of the sepsis boxes, the A4 form, and care provided to women identified with sepsis is scheduled to occur in the last quarter of 2020.
LMC HANDBOOK

MQSP LMC representatives began drafting CCDHB's first handbook for LMCs in 2019, following the realisation that a number of pathways lacked clarity. As a consequence, LMCs had developed various ways of referring women and were seeking advice to navigate the DHB's systems and pathways.

Whether midwives have been an LMC for 20 years, are new to practice, or are wishing to update their access agreement details, the LMC handbook is a comprehensive one stop shop which includes hyperlinks and e-referral forms, which are able to be downloaded onto a smart phone or iPad.

The handbook contains an overview of the service, information on outpatient clinics, induction of labour processes, postnatal support, and infant feeding.

The LMC handbook will be provided to all access holders electronically, and updated annually when LMCs update their access details. The handbook is available at: www.ccdhb.org.nz/working-with-us/ nursing-and-midwifery/midwifery-careers-at-ccdhb/ forms-and-guides-for-lmc-midwives/.

Lead Maternity Carer Access Holders Handbook

We would like to give special thanks to midwife LMC representatives Denise Garcia and Linda Elvines for their assistance with the creation of this handbook.





HEALTH CARE ASSISTANT – MATERNITY SUPPORT

In partnership with Midwifery Employee Representation & Advisory Service and the New Zealand Nurses Organisation, a role has been recreated exclusively for students enrolled in local Bachelor of Midwifery programmes.

This will be a casual role utilised when the maternity service is busy, and unable to obtain additional midwifery staff. The health care assistant (HCA) maternity support role does not count as hours towards education, but does enable students to get to know the service, the equipment, the team, and the culture of the DHB.

This role enables midwives to delegate tasks to the HCA maternity support worker including;

- Bed making
- Assisting women to the bathroom or shower
- Bed bathing
- Emptying indwelling catheter bags or measuring trial of voids

- Positioning and comfort cares
- Assisting with the transfer of clinically well women to NICU or ultrasound
- Basic baby cares (bathing, changing nappies, and settling)
- Collecting expressing equipment or breastmilk for women
- Cleaning and sterilising expressing equipment post collection
- Answering call bells.

NEXT STEPS

The WHS will look to casually employ five HCA maternity support staff in 2020, then re-evaluate the number required.

NEWBORN HEARING SCREENING

As part of a newborn hearing screeners merit step project, women were surveyed to find out if they felt fully informed about the newborn hearing screening programme that is offered to all babies, and if they understood the screening process.

Two surveys were undertaken and a poster designed.

The first survey ran for two months and asked parents and whanau if they were happy with how the newborn hearing screeners presented and explained the screening process.

The results of the survey showed that some parents and whanau found it hard to remember everything that had been explained, and often the partner missed out on hearing the information given.

A poster was designed and placed in all postnatal rooms at WRH, KMU, and PMU. The poster explained how the screening is performed and the process of consent required for women and whānau.

After three months a second survey was completed and the differences in survey results were reviewed.

The survey results indicated that the poster was a great visual tool for informing parents and whanau about the newborn hearing screening programme. The poster reconfirmed what the screeners had explained to the parents and whanau, especially when English was a second language, or when the partner was not present when the newborn hearing screener offered screening.



hearing

All parents/whānau are offered a newborn hearing screening for their baby. This screen is designed to pick up moderate to profound hearing loss. The earlier a hearing loss is picked up, the better the outcome for baby's language

What happens during the screening? . The screening will be done while your baby is in

- hospital or an outpatient appointment will be arranged. · We'll discuss the screening process with you and
- ask for your consent. Gel is rubbed onto your baby's head, under and above their ear.
- A Beraphone (as pictured above) is placed over your baby's ear.
- The Beraphone plays a soft clicking sound and picks up the response from your baby's hearing nerve
- You will be told the results after the screening.

and Early Intervention Programme

Your baby is screened If both ears get a clear result, the screening

process is completed. If we don't get a clear result on one or both of baby's ears, a second screen will be arranged

Your baby is screened again

If we do not get a clear result on one or both of your baby's ears, your baby will be referred to the hearing audiology department for further testing.

If you decline the screening programme

Your midwife and GP will be informed. · You will be given a speech and hearing checklist.

 You can change your mind and have baby screened. Baby must be under three months

of age.

Universal Newborn Hearing Screening

Capital & Coast

NEXT STEPS

Future steps will include posters translated to reach more parents and whānau who have English as a second language.

GROWTH ASSESSMENT PROTOCOL

The aim of the growth assessment protocol (GAP) is to improve the detection rate of fetal growth restriction (FGR) because FGR is associated with stillbirth, neonatal death, and perinatal morbidity. Detection allows for timely monitoring and delivery of the baby.

Clinicians use customised growth charts when measuring fundal height, or when plotting an estimated fetal weight following ultrasound. Sometimes there is a discrepancy between the customised growth chart and the weight of the baby at birth. The customised growth chart may have indicated that the fetal growth was adequate, but when the baby is born, the birthweight and appearance of the baby indicate that the baby suffered from undetected FGR. In 2019 all midwives were asked to enter data into the gestation related optimal weight (GROW) application following the baby's birth. This data is required so that an audit can be undertaken to detect the missed cases of FGR and plan appropriate service improvements.

The GROW application was added to the home screens of all terminals and computers on the maternity ward at WRH. Communication with the midwives took place electronically, at meetings, and at small education sessions. It was difficult to encourage all midwives to enter the birth data into the application. LMC midwives were particularly unhappy with the request for further data entry, and some refused to do so. It was recognised that data entry would be problematic for clerical staff, as some questions on the GROW application require a more detailed knowledge of the woman's pregnancy history. To overcome this challenge, relevant questions were added to the initial infant examination form, which is used by all practitioners at birth.

The generating of a birth centile for all infants prior to transfer to the postnatal ward helps with the postnatal management of babies who have suffered from FGR. The Prevention and Management of Neonatal Hypoglycaemia policy is also being revised to include the birth weight centile. Birth weight alone is not always an adequate measure of FGR, so the inclusion of birth weight centile information will ensure that more babies with undetected FGR are recognised, and receive the correct clinical care.

NEXT STEPS

The aim for 2020 is to have a complete set of birth data, so that an audit can take place. The Prevention and Management of Neonatal Hypoglycaemia policy will be rolled out in 2020, which will include a comprehensive education programme.

LONG ACTING REVERSIBLE CONTRACEPTION

The need for equitable access to contraception was recognised and has been widened with funding gained for free contraception consultations. This service is available to all women aged 15-44 years who live in quintile five areas, or hold a community services card, through their GP. Women are also able to access free insertion and removal of contraceptive devices such as Mirena and Jadelle from their GP. In 2019 there were 71 women who had a long acting reversible contraceptive device inserted during their birth admission, which is equal to 2.1% of our birthing population. Of those, 68 were Jadelle, and three were intrauterine devices.

In 2019 the discharge summary for women who had had input from secondary care, was altered to include a compulsory section around contraception being offered and updating the GP and LMC of this discussion.

NEXT STEPS

We aim to promote this free service in 2020.

STAKEHOLDER HUI

The need for creating a meaningful network of social support was apparent to the service. Finding the right person or service to help in times of need is paramount to women. The needs that women present with can be minor or major, specific or simple, or complex and intense. Having a comprehensive understanding of support services and individual providers can make a significant difference to perceived available, versus actual outcomes of care.

A hui was held to facilitate conversations between a wide range of community based providers of social and practical support, and LMC and core midwives.

The hui was a success. There was a good turnout and feedback both verbal and written was that there was a greater understanding of some of the services available, and a clearer understanding of referral processes. The discussion also highlighted some of the support services that were in need of improvement. The hui provided the opportunity to discuss some of the difficulties encountered by providers of maternity care in finding the right support.

It was recognised that an easily accessible electronic tool for information about social supports, and an interactive referral process, would be valuable in a busy clinic setting. Also discussed was that the information would require regular updating by the service. This will require ongoing networking and discussion with the community.

NEXT STEPS

The networking tool will be developed in the near future and made available to all LMC and DHB employed staff.

FETAL MOVEMENTS POSTER

A new fetal movements poster was developed and launched in 2019. The poster highlights that women should be aware of a change of pattern in their baby's movements, and recommends immediate contact with their LMC.

Posters are displayed throughout CCDHB's facilities (including women's toilets), and the maternity service. Posters were also sent out to GPs and LMCs to display in their clinics.

Your baby movements matter

You will feel your baby moving from 20 weeks to birth. Babies have short sleeps and will move during the day and night.

If the pattern of your baby's movements change, call your midwife immediately.

For more information, talk to your midwife or doctor.

Capital & Coast District Health Board

LOOKING AHEAD TO 2020

A detailed copy of the MQSP work programme 2019-2020 can be found in the chapter: 'Appendices', under the section 'Appendix 1 – MQSP action plan 2019-2020'.

OPTIMISING BIRTH PROJECT

The WHS would like to progress their vision of excellence by exploring and endeavouring to optimise the birth experience for women who are cared for in the region.

Understanding where change needs to occur to enable optimal focus and resources is required. This year we have initiated the Robson 10 classification system to enable a robust audit cycle to examine where best to focus resources, and provide a measure of progress. The data shows that induced and spontaneous labour in nulliparous women account for just over 30% of the caesarean sections undertaken. Inductions in nulliparous women contribute to 18% of the total number of caesareans performed at CCDHB.

The mode of birth in a woman's first birth impacts significantly on future birth experiences. If a woman has a scar on her uterus from a caesarean section in her first birth, then this lowers the likelihood of a vaginal birth in subsequent births. Multiple caesarean scars on the uterus can lead to more complex pregnancies and increased morbidity for the mother and baby. As a service we have work to do to ensure women are getting optimal support to birth without intervention where appropriate and also well-coordinated intervention when required.

Now that the DHB is capturing data in a more reliable and useful way we will be able to progress the optimising birth project, which includes a number of workstream outlined in the MQSP work programme.

NEXT STEPS

- Appoint a project manager.
- Agree, develop, and embed an enhanced recovery after surgery (ERAS) pathway for women having an elective CS.
- Hold regular multidisciplinary team audits (fortnightly) of women in groups 1 and 2a whose birth resulted in a CS, to look at ways to optimise birth outcomes where possible.
- Use a regular and robust reporting mechanism to ensure transparency of data.
- Consider alternative induction of labour agents.
- Consider manual rotation of occiput posterior (OP) presentations while in labour. (OP) presentations while in labour.



Improving quality of care Te whakapiki kounga taurimatanga

SOURCES OF GUIDANCE FOR MQSP WORK PROGRAMME

PERINATAL EDUCATION MEETING THEMES

CCDHB hold monthly perinatal review meetings that draw together obstetric, midwifery and neonatal staff for case reviews, including neonatal encephalopathy (NE) reviews. The aims of these meetings are learning, practice, and systems improvement. Other disciplines, including pathology and genetics, provide valuable advice to aid with the formal PMMRC classification process. This multidisciplinary collaborative approach is in keeping with PMMRC's overall theme of "coming together to be better".

In 2019 meeting themes included:

- Bereavement services; the launch of Wheturangitia, a government website with information for whānau experiencing the death of a baby or child through miscarriage, stillbirth, sudden unexplained death in infancy (SUDI), neonatal death, and fetal abnormality.
- Importance of following MOH referral guidelines.
- Growth surveillance and GROW charts.
- Infectious diseases update.
- The importance of routine newborn oxygen saturation monitoring in identifying babies with cardiac issues.

The WHS are pleased to report an increase in the uptake of best practice investigations among those who experienced the loss of a baby. The National Perinatal Pathology Service embedded themselves in 2019 with a streamlined process for pathology referral and the rollout of a national form for perinatal post mortem. CCDHB have welcomed and facilitated these changes through policy updates and education.

MORBIDITY AND MORTALITY MEETINGS

Morbidity and mortality review meetings were held on a monthly basis and alternated between maternity and gynaecology. Adverse outcomes were reviewed and speakers from the WHS presented cases, latest research, and developed recommendations to minimise future morbidity risks. Involved members from other specialties were also invited to attend.

Presentations included amniotic fluid embolism, shoulder dystocia, and euglycaemic diabetic ketoacidosis.

Recommendations made included:

- Shoulder dystocia simulation station at practical obstetric multi-professional training (PROMPT)
- Diabetes in pregnancy policy to include section on early recognition of ketoacidosis.

Meetings were attended by clinical staff and LMCs. Findings were reported through clinical governance framework, and to staff through department communication channels.

NATIONAL MATERNITY MONITORING GROUP

The NMMG plays a key role in the implementation of the maternity standards and oversees the quality and safety of New Zealand's maternity services at a local, regional, and national level. They provide strategic advice to the MOH on priorities for national improvement based on the national maternity report, nationally standardised benchmarked data, and the audited reports from DHB service specifications (NMMG Terms of reference 2016-2019). Annually DHBs are provided a national overview of the quality and safety of the New Zealand maternity sector, and advised of priorities for local improvement.

PERINATAL AND MATERNAL MORTALITY REVIEW COMMITTEE

The PMMRC provides a comprehensive reporting system on perinatal and maternal death, a network of nationally linked coordinators, and a framework for assessing cases with the aim of progressively improving care.

PMMRC FEEDBACK

Our feedback to the PMMRC in relation to the 13th annual report recommendations can be seen in the following table. CCDHB comments are aimed at encouraging sharing of information between DHBs and strengthening links between PMMRC and MQSP activity within DHBs, and are as follows:

Table 6: PMMRC recommendations and CCDHB p	orogress 2019
PMMRC recommendations (13th Report, September 2019)	CCDHB progress (as at December 2019)
Research recommendation	
Collectively, we need to increase our understanding of the reasons for adverse outcomes in certain groups. For example, within Aotearoa/New Zealand and internationally, we have an incomplete understanding of what puts women and babies of Indian ethnicity at increased risk.	 Indian women make up 7% of the women birthing with CCDHB as their domicile. Of the women attending the diabetes antenatal service, 15% identified as Indian. In 2019 PMMRC reported a perinatal related mortality rate (per 1000 births) of 15.0 for women with Indian ethnicity. Due to small numbers, the perinatal related mortality rate in CCDHB domiciled Indian women, ranged from 5.2 to 33.2 over five years. The average perinatal related mortality rate was 18 per 1000 births. Further work is required to look at this difference in perinatal deaths.
Delivery of care recommendations	
District health boards (DHBs) should demonstrate that they have co-developed and implemented models of care that meet the needs of mothers of Indian ethnicity.	A stocktake of staff working in maternity who identify as Indian is currently very low. The WHS have developed a survey which will be sent to all Indian women who birthed in a CCDHB facility within the last 12 months. Once we have the results of this survey we will partner with members of the Indian community to address identified unmet needs.
DHBs should monitor key maternity indicators by ethnic group to identify variations in outcomes. They should then improve areas where there are differences in outcome.	The perinatal related mortality rate has previously been reported by maternal age groups, and ethnicity of the mother. Reporting on the ethnicity of baby is currently being considered.
Perinatal mortality and morbidity	
The Ministry of Health should resource, support and facilitate the development of a national guideline for the provision of care of mothers and infants facing delivery at <25 weeks gestational age to ensure high-quality, appropriate and equitable care for all.	In response to previous recommendations regarding planning and optimal provision of care of mothers and infants facing delivery at <25 weeks gestational age, an audit was designed to consider equity of care for all women, and to consider whether there were barriers to optimal preparation of women prior to birth with antenatal steroids, and timely transfer. Notes of 170 women who delivered preterm in 2018 were retrospectively reviewed, including information prior to transfer from other DHBs. Next steps include epidemiological analysis of the data to identify equity of access and management, and barriers within the process of transfer and care provision.

The Ministry of Health should resource, support and facilitate the development of a national perinatal bereavement pathway with key stakeholders, including governmental and non-governmental organisations, to ensure high-quality, appropriate and equitable care for all.	A bereavement policy within the DHB is supported by dedicated staff who aim to provide a high quality service for women who have had a pregnancy loss. The WHS is working towards a funded bereavement role to better support bereaved women and whānau. CCDHB would welcome MOH support in this area				
Neonatal encephalopathy					
The PMMRC recommends that DHBs provide interdisciplinary fetal surveillance education for all clinicians involved in intrapartum care on a triennial basis. This is to be provided free for staff and at no cost to LMCs. The PMMRC encourages the Midwifery Council, the New Zealand College of Midwives (NZCOM) and Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) to work with DHBs in the implementation of this recommendation.	CCDHB provides interdisciplinary fetal surveillance education that is available for all clinicians involved in intrapartum care. There is no cost to LMCs and this has been the case for many years. Our optimising birth project will include reflective practice, risk assessment, supervision, support, collegiality, and building interdisciplinary relationships, which are key components of a functional system. This will enhance optimal outcomes.				
All neonatal encephalopathy (NE) cases need to be considered for a Severity Assessment Code (SAC) rating. Neonatal hypoxic brain injury resulting in permanent brain damage (or permanent and severe loss of function) should be rated as SAC 1. Those who received cooling with as yet undetermined outcome should be rated as SAC 3.	 At CCDHB the process to determine the SAC rating has been under review over the 2019 year. A comprehensive review the system has now occurred and will be fully implemented in 2020. This involves a multidisciplinary assessment of the case and decision around the type of review required. SAC 1 & 2 events then have a process of review that involves consummer representation. 				
All babies with NE, regardless of severity, should have a multidisciplinary discussion about whether to refer to the Accident Compensation Corporation (ACC) for consideration for cover as a treatment injury, using ACC's Treatment Injury Claim Lodgement Guide. Parents should be advised that not all treatment claims are accepted.	This is an area which requires some improvement between neonatal and maternity services, to ensure a robust process of review and assessment are underway. In this process, the multidisciplinary discussion regarding referral for ACC treatment injury claim can be undertaken.				
Maternal					
 For the management of suspected ectopic pregnancies, the Perinatal and Maternal Mortality Review Committee (the PMMRC) recommends: a. DHB gynaecology services have: clear pathways/processes for primary care regarding early pregnancy management clear hospital guidelines for assessment of the collapsed woman of reproductive age that include the differential diagnosis of ectopic pregnancy. Collapse due to ectopic pregnancy requires rapid assessment and surgical management. 	Communications with the gynaecology service and initiation of a review of the GP pathway for ectopic pregnancies is underway. Communications with the local private radiology provider occurred in 2019 around this issue.				

 b. the Royal Australian and New Zealand College of Radiologists endorse and promote the New Zealand Obstetric Ultrasound Guidelines being published by the Ministry of Health that suggest reporting wording to include the following information: An ectopic pregnancy cannot be excluded on this ultrasound alone. Please interpret scan with 6hCG [beta human chorionic gonadotropin] using advice from gynaecology service or based on gynaecological protocols for PUL [pregnancy of unknown location]. c. primary care use gynaecology pathways and consult with gynaecology services when an ultrasound cannot confirm an intrauterine pregnancy to help interpret beta human chorionic gonadotropin (6hCG) results and scan findings and guide ongoing management. 	
Previous recommendations yet to be fully implemented	
As a matter of urgency, the Ministry of Health improves the completion and quality of the ethnicity data in the National Maternity Collection (MAT), through consistent transfer of baby ethnicity from the birth certificate, and the transfer of mother ethnicity from the baby's birth certificate into MAT.	CCDHB support this recommendation.
As a matter of urgency, the Ministry of Health requires DHBs to provide data for women who receive DHB-led antenatal care, and for this to be uploaded into MAT in its entirety.	CCDHB agrees with this recommendation and awaits feedback from the MOH on data requirements. We are adjusting data collection processes to facilitate gathering of information on women who receive DHB led antenatal care.
 Government should fund the provision of specific maternal mental health services in order to provide holistic screening for maternal mental illness, intimate partner violence and family violence, and provide appropriate services and support. a. For terminations of pregnancy, written discharge information should include contact information for support services and inform women that a follow-up visit is funded. 	Review of the written information given to women following termination of pregnancy was undertaken and updated. Additional information for support services and documentation outlining that the follow-up visit is funded, was included.
We strongly recommend to the Government/Ministry for Primary Industries that folic acid fortification of bread be mandatory to reduce both mortality and serious morbidity from neural tube defects.	A submission from the WHS was sent to the Ministry for Primary Industries in support of this recommendation.
DHBs should demonstrate that they have co-developed and implemented models of care that meet the needs of mothers under 20 years of age.	Work to consider such models of care are in the planning stages.



NEW ZEALAND MATERNITY CLINICAL INDICATORS

Clinical indicators give an opportunity for DHBs and local maternity stakeholders to identify areas for further investigation and potential service improvement.

The New Zealand Maternity Clinical Indicators show key outcomes for each DHB region, and secondary and tertiary maternity facilities.

Data is presented in the report in two ways.

- By DHB of residence: this data is intended to provide DHBs with information relevant to their usually resident population.
- By facility of birth: this data is intended to allow for the monitoring of trends over time at the facility level.

Data for these indicators were extracted for all pregnancies and live births recorded on the National Maternity Collection (MAT) dataset. MAT integrates maternity-related data from the National Minimum Dataset and LMC claim forms submitted to and compiled by the MOH.

Clinical indicators are monitored by comparing data for a defined subgroup of women who are

considered to be 'low risk'. This group is referred to as the 'standard primiparae' group.

A 'standard primiparae' is defined as 'a woman aged between 20 and 34 years at the time of birth, having her first baby at term (37 to 41+6 weeks gestation) where the outcome of the birth is a singleton baby, the presentation is cephalic, and there have been no recorded obstetric complications that are indications for specific obstetric intervention'.

The 'standard primiparae' represents a woman expected to have an uncomplicated pregnancy. Intervention and complication rates for such women should be low and consistent across all hospitals nationally. Standard primiparae represent approximately 15% of all births but this proportion varies across DHBs.

The following table shows rates for CCDHB and all New Zealand for the year 2018 (New Zealand Ministry of Health, 2020). The table and commentary is based on the clinical indicator results by DHB of residence.

Tab	Table 7: New Zealand Maternity Clinical Indicators 2018, by DHB of residence				
	New Zealand Maternity Clinical Indicators	CCDHB 2018	How we look	All DHBs 2018	
1	Women who have given birth - registration with a lead maternity carer in the first trimester	76.4%	\checkmark	72.7%	
	An increasing rate of women are booking with their LMC in the first trimester. This is consistent over ten years of data collection. For Māori and Pacific women, the rate of booking early is not as high as other ethnicities. CCDHB has seen improved rates over the ten year period with the rates of first trimester booking increasing by 28.2% for Māori and 29.9% for Pacific, moving from below, to above the national rates.				
2	Spontaneous vaginal births among standard primiparae	60.0%	_ *	64.7%	
	Reviewing ten years of data, this rate varies from 60-70%, with no clear trend.				
	Action: There is planned future work reviewing births using the Robson 10 classification system criteria, to focus on optimising birth.				
3	Instrumental vaginal births among standard primiparae	20.4%	_ *	17.0%	
	Instrumental birth in NZ increased from 14.8% in 2009 to 17% in 2018. CCDHB increased from 15.7% to 20.4% over the same ten year period. There is no clear trend or consistent difference from the national rate.				
	Action: Formalisation of the credentialing process for registrars has occurred enabling appropriate supervision to be identified.				
4	Caesarean section births among standard primiparae	17.9%	_ *	17.2%	
	There has been no clear trend over time, or consistent difference from the national rates.				
	Action: Formalisation of the credentialing process for registrars has occurred, enabling appropriate supervision to be identified. A project considering Robson criteria is planned for 2020, to consider areas of focus, which aims to optimise birth.				
5	Inductions of labour among standard primiparae	9.6%	_ *	7.8%	
	CCDHB's induction of labour rate has remained consistent over time, from around 6-9%, whereas the trend nationally over the last ten years of data shows an increase from 4.4% in 2009, to 7.8% in 2018. We have not been significantly different from the national rate for the last six years.				
6	Standard primiparae giving birth vaginally with intact lower genital tract	15.7%	х	26.5%	
	Action: There has been significant training in the diagnosis of perineal injury over recent years and pictorial aides were introduced to enable accurate diagnosis documentation. This may have impacted the rates of 'intact' genital tract diagnoses. MQSP work has been I undertaken in recent years and new initiatives are ongoing.				
7	Standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear	33.4%	x	24.6%	
	The rates of undertaking an episiotomy may be influenced by the mode of delivery, that is, higher assisted deliveries compared with CS will influence the data. This is significantly different from the national rates and this rate mostly is influenced by European or Other births.				

8	Standard primiparae giving birth vaginally sustaining a third or fourth- degree tear and not undergoing episiotomy	5.8%	_ *	4.5%
	These are small numbers and fluctuate with time. The rate varies over the ten years of data and is not significantly different from the national rate.			
	Action: MQSP working group devised initiatives to improve access to warmed towels for the perineum during birth to mitigate the need for an episiotomy. Education on perineal protection is ongoing.			
9	Standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear	3.0%	_ *	12.1%
	These numbers are small and so have to be interpreted with care.			
	Action: Education on diagnosis and documentation has occurred. Credentialing system to ensure the clarity of who needs supervision has been undertaken. Education on perineal protection is ongoing.			
10	Women undergoing a caesarean section under general anaesthetic	5.8%	\checkmark	8.5%
	This rate is stable and reflects good anaesthetic support to our maternity department. This has been significantly lower than the national rate for the majority of the past ten years.			
11	Women giving birth by caesarean section and undergoing blood transfusion during the birth admission	2.9%	_ *	3.0%
	There has been a drop in transfusion rates over time in CCDHB.			
	Action: Consistent focus on adequate iron replacement in the antenatal period (oral and parenteral) was undertaken to optimise the haemoglobin level going into labour.			
12	Women giving birth vaginally and undergoing blood transfusion during the birth admission	2.0%	_ *	2.1%
	These are relatively small numbers but appear to reflect a trend in lowering transfusion rates over time in CCDHB.			
	Action: Iron replacement policy, posters and focus may have assisted with this. Regular simulation training using PROMPT days may have positively impacted on practice.			
13	Diagnosis of eclampsia during birth admission	0.06%	_ *	0.03%
	There are very small numbers in this group with no clear trends.			
	Action: PROMPT training and regular weekly ward multidisciplinary meetings may have positively impacted care planning.			
14	Women having a peripartum hysterectomy	0.0%	_ *	0.06%
	CCDHB had no women meeting this criteria in 2018. There are small or no numbers in this group in all years.			
	Action: Coordinated care by senior multidisciplinary teams of clinicians is undertaken to optimise outcomes.			
15	Women admitted to ICU (intensive care unit) and requiring over 24 hours of mechanical ventilation any time during the pregnancy or postnatal period	0.0%	_ *	0.03%
	CCDHB had no women meeting this criteria in 2018.			
16	Maternal tobacco use during the postnatal period (two weeks after birth)	4.5%	\checkmark	9.4%
	Low rates may reflect the demographics of women in CCDHB. Looking at Māori and Pacific populations there is still plenty of work to do in this area but it was pleasing to see a drop in the rates in Māori and Pacific women in 2018.			
	Action: MQSP focus on the optimisation of care for young Māori women is planned.			

17	Premature births (babies) born under 37 weeks gestation	7.6%	_ *	7.5%
	There did not appear to be any difference across ethnic groups in this domain which was an interesting finding, especially in view of the high smoking rates in some ethnicities.			
18	Small babies at term (37–42 weeks gestation)	3.0%	_ *	3.1%
	There are small numbers in this group and no significant trend over time.			
19	Small babies at term born at 40–42 weeks gestation	36.0%	_ *	29.9%
	There are small numbers in this group and possibly a lowering trend over time. Our rate was not significantly different than the national rate.			
	Action: Use of the GROW charts in planning care has impacted on decision making to lower the rate of 40-42 week small babies.			
20	Babies born at 37+ weeks gestation requiring respiratory support	2.6%	_ *	2.1%
	Rates at CCDHB have remained consistent for the past three years. CCDHB has a trend of higher rates than the national average. Interestingly the national rate has been increasing over the ten years to now, but not significantly different than the CCDHB rate. Explanation for this is uncertain but may be related to improved monitoring of the newborn nationally.			
	Action: Neonatal early warning system (NEWS) implementation is planned.			
So * F	urce: New Zealand Ministry of Health, 2020. <i>New Zealand Maternity Clinical Indicators 2018</i> indings that are not statistically significant were not compared positively or negatively against the	national averag	ge	



RESEARCH COMMENCED IN 2019

MOVING BEYOND DUSTY GUIDELINES: DEVELOPING A NATIONAL CLINICAL GUIDELINES DISSEMINATION AND IMPLEMENTATION MODEL FOR NEW ZEALAND'S MATERNITY SYSTEM.

Implementing new knowledge and practice guidelines into clinical practice requires a holistic and adaptable approach. This research has the potential to directly impact on policy by informing DHBs and the MOH on how to improve quality and standards of care in pre-eclampsia and hypertensive disorders in pregnancy. The study will examine how New Zealand's maternity system can best disseminate and implement national guidelines to integrate best clinical practices into standard care. It will formulate recommendations for an adaptable clinical guidelines dissemination and implementation model that can be used to improve clinical practice and quality of care in New Zealand's maternity system.

CLEFT LIP AND PALATE RESEARCH

Cleft lip and palate is one of the most common anomalies in New Zealand, occurring in approximately one in 560 live births. The study's aim is to identify genetic and environmental causes. Case control study: affected babies are identified nationally through MFM services or diagnosed at birth. Control babies from non-affected families are randomly selected using frequency matching.

Deoxyribonucleic acid is obtained from whānau by collecting saliva samples from the newborn, parents, and siblings. Face to face interviews are conducted using structured questionnaires. This is a collaborative project between the Universities of Otago and Auckland, and CCDHB (Women's and Children's services).

WELLKIWIS INFLUENZA STUDY

Influenza (flu), unlike a common cold, is a serious illness that affects hundreds and thousands of people globally. In New Zealand, young children and the elderly are particularly vulnerable to its infection.

WellKiwis is a study which will follow newborns from birth to age seven. The aim is to see how a child's first exposure to the flu virus (or flu vaccine) influences their on-going immune response to subsequent exposures over time as a child grows.

The purpose of the WellKiwis study is to provide information which will enable scientists and researchers around the world to make more effective and longer lasting flu vaccines for future generations. WellKiwis is a multi-agency collaboration including LMCs, the Universities of Otago and Auckland, and Capital & Coast and Hutt Valley DHBs. It is a part of a large international collaboration on the infant immunity against flu funded by United States National Institutes of Health through the St. Jude Children's Research Hospital in Memphis, USA.

RESPIRATORY SYNCYTIAL VIRUS VACCINE IN PREGNANCY STUDY

This research project examines the immune response of the respiratory syncytial virus (RSV) vaccine administered in the third trimester of pregnancy. Mother and baby are followed up for six months to see if the vaccine offers protection to both mother and baby. Follow up of the baby is undertaken by the Child Health Service.

INVESTIGATING OUTCOMES OF DIFFERENT DIETS IN GESTATIONAL DIABETES

This study looks at the effects of different diets in the management of gestational diabetes.

Women may be included if they have been diagnosed with gestational diabetes mellitus and presents to one of the diabetes in pregnancy clinics at less than 32 weeks gestation, with a singleton pregnancy. For practicality for the feasibility study (but not the randomised control trial), only women who do not need an interpreter for a telephone conversation are recruited. Randomisation will be a one to one ratio to the treatment or control using a

ONGOING RESEARCH

OBLIGE INDUCTION OF LABOUR TRIAL

CCDHB are participating in the OBLIGE (Outpatient Balloon catheter and Inpatient prostaglandin Gel) induction of labour trial, comparing two different ways of inducing labour. Appropriate women are randomised to have either:

- A balloon catheter placed through the cervix to prepare the cervix for labour. These women go home for 18-24 hours.
- A prostaglandin hormone gel placed behind the cervix to prepare the cervix for labour. These women stay in hospital.

At the time of booking the induction of labour, women can expect that OBLIGE will be discussed as an option (where suitable).

For further information women can be referred to: www.oblige.auckland.ac.nz/.

computer-generated randomisation sequence from an independent statistician.

The primary outcome is: weight gain per week, in order to confirm the standard deviation in relation to a sample size calculation for the main randomised control trial.

The secondary outcomes for the feasibility study are:

- The ability to successfully adopt a carbohydrate restricted diet.
- Practicality of use of continuous glucose monitoring for the important secondary outcome variable of time spent within target glucose levels.

WellKiw influenza stu Be part of New Zealand's next major glot the flu virus and flu vaccine for babiles a with research related to infant immuni

prevent flu in

future?

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ESRO



Birth and babies Te whakawhānau me te kōhungahunga

LABOUR AND BIRTH CATEGORISED

CCDHB ROBSON 10 CLASSIFICATION

Definitions of the group classifications can be found on the following pages, under 'Figure 4: Robson 10 classification groups' and 'Common subdivisions for the 10 groups'.

Table 8: Robson Classification 2019: CCDHB

Ref 1. Group size (%) = n of women in the group / total N women delivered in the hospital x 100

Ref 2. Group CS rate (%) = n of CS in the group / total N of women in the group x 100

Ref 3. Absolute contribution (%) = n of CS in the group / total N of women delivered in the hospital x 100

Ref 4. Relative contribution (%) = n of CS in the group / total N of CS in the hospital x 100

Group	Number of CS in group	Number of women in group	Group size – (Ref 1)	Group CS rate – (Ref 2)	Absolute group contribution to overall CS rate – (Ref 3)	Relative contribution of group to overall CS rate – (Ref 4)
1	161	799	23.9%	20.2%	4.8%	13.8%
2	282	493	14.8%	57.2%	8.4%	24.2%
2a	211	422	12.6%	50.0%	6.3%	18.1%
2b	71	71	2.1%	100%	2.1%	6.1%
3	19	822	24.6%	2.3%	0.6%	1.6%
4	69	324	9.7%	21.3%	2.1%	5.9%
4a	24	279	8.4%	8.6%	0.7%	2.1%
4b	45	45	1.3%	100%	1.3%	3.9%
5	341	434	13.0%	78.6%	10.2%	29.3%
5.1	260	350	10.5%	74.3%	7.8%	22.3%
5.2	81	84	2.5%	96.4%	2.4%	7.0%
6	72	79	2.4%	91.1%	2.2%	6.2%
7	52	62	1.9%	83.9%	1.6%	4.5%
8	44	64	1.9%	68.8%	1.3%	3.8%
9	21	25	0.7%	84.0%	0.6%	1.8%
10	103	239	7.2%	43.1%	3.1%	8.8%
	Total number CS	Total number women delivered			Overall CS rate	
Total	1,164	3,341			34.8%	
Unclassifiable: Number of cases and % [Number unclassifiable cases / (Total Number women delivered classified + unclassified) X 100]						2 (0.06%)

Figure 4: Robson 10 classification groups*



*World Health Organisation, 2017. Robson Classification: Implementation manual



COMMON SUBDIVISIONS FOR THE 10 GROUPS*

GROUPS 2 AND 4 SUBDIVISIONS

These groups refer to nulliparous and multiparous women without previous CS, with a singleton, term fetus in cephalic presentation who did not enter labour spontaneously. These groups include two distinct and mutually exclusive subcategories, namely:

2a or 4a Nulliparous or multiparous women, respectively, who had their labour induced (using any method, such as misoprostol, oxytocin, amniotomy or intracervical Foley catheter or other) and went on to deliver vaginally or by CS.

2b or 4b Nulliparous or multiparous women, respectively, who were admitted and delivered by pre-labour CS. Since all the women in these subgroups will have a CS, the rates of CS in these subgroups will always be 100%.

Since Groups 2 and 4 may represent a large proportion of the maternity population in many hospitals, these subcategories are important to understand how differences in clinical practice (rates of induction of labour, the effectiveness of the induction methods and the decision making for pre-labour CS) contribute to the rates of CS in nulliparous and multiparous women without a previous CS, as well as the overall CS rates in different hospitals.

GROUP 5 SUBDIVISIONS

Group 5 includes all multiparous women with at least one previous CS carrying a singleton, term fetus in cephalic presentation. In current practice, Group 5 can be very important because there are a growing number of women with previous CS and therefore the size of this group may be quite significant. Since the rate of CS in this group is usually high, Group 5 may be an important contributor to the total number of CS in these settings. However, Group 5 includes two distinct and mutually exclusive subcategories, namely:

5.1 Multiparous women with only one previous CS

5.2 Multiparous women with two or more previous CS.

Given the differences in clinical management of these two types of women, these common subcategories should be reported separately in the classification, as 5.1 and 5.2.

The usefulness of these subcategories will depend on the actual size of Group 5 in a specific setting. In many high-and middleincome countries where the size of Group 5 is becoming substantial, the proposed subcategories will be more useful than in places where Group 5 represents only a small proportion of the birthing population.

*World Health Organisation, 2017. Robson Classification: Implementation manual

ASSESSING THE CCDHB BIRTHING POPULATION

The following tables show assessments of the CCDHB birthing population, and caesarean section rates for different groups of women who birthed in CCDHB facilities. Included are all women who birthed in the CCDHB facilities, but not women who had unplanned home deliveries, or birthed in-transit to a birthing facility. Comments relating to the CCDHB data are written in bold within the tables and guidance is provided by the Robson Classification Implementation Manual report guidance.

Table 9: Steps to assess type of population using the Robson Classification Report Table*						
Step	Robson Guideline	CCDHB Population	Further Interpretation			
Look at the size of Groups 1 + 2	This usually represents 35- 42% of obstetric population of most hospitals.	38.7%	In settings with high proportion of women who have only one child rather than more than one child, the group of nulliparous women, that is, Groups 1 and 2, tends to be larger. In settings where the opposite is true, the size of Groups 1 + Group 2 will be smaller since most of the population will be represented by multiparous women. 45% of the women who birth at CCDHB are first time mothers, compared to 40% nationally.			
Look at the size of Groups 3 + 4	This usually represents about 30% of women.	34.3% ↑	In settings with a high proportion of women with more than one child rather than only one child, the size of Groups 3 + Group 4 will be higher than 30% (provided they have delivered vaginally). Our population birthing at CCDHB had 55% with more than one child, compared to 60% nationally. Another reason for a low size of Groups 3 and 4 could be that the size of Group 5 is very high which would be accompanied by a very high overall CS rate.			
Look at the size of Group 5	It is related to the overall CS rate. The size of Group 5 is roughly half of the total CS rate. In settings with low overall CS rates, it is usually under 10%.	13% 🛧	The size of Group 5 is usually related to the overall CS rate. If the size of this group is larger, it means that there has been a high CS rate in past years in that hospital and mainly in Groups 1 and 2. In places with high CS rates, the size of this group could be > 15%. There is work to be done to consider the care provided to women in their first pregnancy to ensure optimal mode of birth.			
Look at the size of Groups 6 + 7	It should be 3-4%	4.3% ↑	If the total is much over 4%, the most common reason is usually a high rate of preterm deliveries or a higher proportion of nulliparous women. Therefore look at size of Group 10 (Column 4). If that is over 4-5%, this hypothesis could be true. As a tertiary unit there is a high preterm birth rate, mostly contributed to by women transferred for tertiary care from other DHBs.			
Look at the size of Group 8	It should be 1.5-2%	1.9%	If it is higher, the hospital is probably tertiary (high risk, referral) or runs a fertilization program. If lower, probably a lot of the twins are referred out especially if the remaining twins have a low caesarean section rate. The group size reflects a tertiary setting and a fertility service that aims for singleton pregnancies.			

Look at the size of Group 10	It should be less than 5% in most normal risk settings.	7.2% 个	If it is higher, the hospital is probably tertiary (high risk, referral) or there is a high risk of preterm births in the population that the hospital serves. If, in addition, the CS rate is low in this group, it could represent a preponderance of spontaneous preterm labour. If the CS rate in this group is high, it could suggest more provider initiated pre-labour CS for fetal growth restriction or pre-eclampsia and other pregnancy or medical complications.
			The size of this group at CCDHB compared to the Robson guide indicates the tertiary setting.

*World Health Organisation, 2017. Robson Classification: Implementation manual

ASSESSING THE CCDHB CAESAREAN RATES

Table 10: Steps to assess caesarean section rates using the Robson Report Table*					
Step	Robson Guideline (WHO)	CCDHB Rate	Further Interpretation		
CS rate for Group 1	Rates under 10% are achievable	20.2% 个	This rate can only be interpreted accurately when you have considered the ratio of the sizes of Groups 1 and 2. In principle, the higher the ratio of size of Groups 1 and 2, the higher the likelihood of both the CS rate in Group 1 and 2 being individually higher. However, the overall CS rate in Groups 1 and 2 combined may still be low or the same.		
			The definition of spontaneous labour has a significant impact on allocating women into group 1 and group 2. The manual suggests it is 'based on the history, physical examination and decision by health professional upon admission to the labour/delivery ward'.		
CS rate for Group 2	Consistently around 20-35%	57.2% 个	CS rates in Group 2 reflect the size and rates in 2a and 2b. If size of Group 2b is large, the overall CS rates in Group 2 is also going to be large. If Group 2b is relatively small, then high rates of CS in Group 2 may indicate poor success rates for induction or poor choice of women to induce and consequently a high rate of CS in Group 2a. Remember the general principle of not interpreting one single subgroup on its own without knowing what is left out. The interpretation of group 2a requires knowing the relative sizes of Groups 1 and 2b.		
			The relatively small rate of prelabour CS and high overall rate in group 2 has prompted the department to consider the success rate of induction and consider process improvements.		
CS rate for Group 3	Normally, no higher than 3.0%.	2.3%	In units with higher CS rates in this group, this may be due to poor data collection. It is possible that women with previous scars (Group 5) were incorrectly classified as Group 3. Other possible reasons for high rates could be for example to do tubal ligation in settings with poor access to contraception, or maternal request.		

CS rate for Group 4	It rarely should be higher than 15%	21.3% 个	CS rates in Group 4 reflect the size and rates in 4a and 4b. If size of Group 4b is large, the overall CS rates in Group 4 is also going to be high. If Group 4b is relatively small, then high rates of CS in Group 4 may indicate poor success rates for induction or poor choice of women to induce and consequently a high rate of CS in Group 4a. Poor data collection could also be a reason for high CS rates in Group 4; for example due to inclusion of women with previous scars in this group (when they should be in Group 5). Lastly, a high CS rate in Group 4 may reflect a high maternal request for CS even if these women have delivered their first pregnancy vaginally. This may be because of a previously traumatic or prolonged labour or to do tubal ligation in settings with poor access to contraception. The numbers of women in this group with prelabour CS may be impacted by the tertiary setting.
CS rate for Group 5	Rates of 50-60% are considered appropriate provided you have good maternal and perinatal outcome.	78.6% 个	If rates are higher, this is possibly due to a large Group 5.2 (women with 2 or more previous CS). This could also be due to a policy of scheduling pre-labour CS for all women with 1 previous scar without attempting a trial of labour. The women with only one previous caesarean scar (group 5.1) are a substantial contributor to the caesarean section rate at CCHDB. This could be altered by increasing the option of vaginal birth after caesarean (VBAC) and preventing the first caesarean.
CS rate for Group 8	It is usually around 60%.	68.8% 个	Variations will depend on the type of twin pregnancy and the ratio of nulliparous/multiparous with or without a previous scar. The tertiary setting with more complex twin pregnancies will contribute to the higher caesarean rate.
CS rate in Group 10	In most populations it is usually around 30%	43.1% ↑	If higher than 30%, it is usually due to many cases of high risk pregnancies (for example fetal growth restriction, preeclampsia) that will need preterm pre-labour CS. If lower than 30%, it suggests a relatively higher rate of preterm spontaneous labour and hence a lower overall CS rate. The tertiary setting with more complex preterm pregnancies will
Look at the relative contribution of Groups 1, 2 and 5 to the overall CS rate (add the contribution of each of these groups in Column 7)	These three groups combined normally contribute to 2/3 (66%) of all CS performed in most hospitals	67.3% ↑	These three groups should be the focus of attention if the hospital is trying to lower the overall CS rate. The higher the overall CS rate, the greater the focus should be in Group 1. High rates in group 1 and 2 has demonstrated to the department that the 'optimising term birth' project is an essential initiative to be undertaken by the department.
Look at the absolute contribution of Group 5 to the overall CS rate (Column 7)		29.3%	If it is very high, this may indicate that in previous years, CS rates in Groups 1 and 2 have been high and it is worth exploring further.

*World Health Organisation, 2017. Robson Classification: Implementation manual

MODE OF BIRTH BY AGE

Mode of birth varied markedly with maternal age in 2019. Younger women had the highest rates of normal birth. Total caesarean section rates rose from 19.1% in those women less than 20 years of age to 56.0% for women aged 40 years and older.

Normal birth and caesarean rates changed more markedly with increasing age for nulliparous women.





Figure 6: Mode of birth by age group for nulliparous women giving birth 2019

MODE OF BIRTH BY PRIORITISED ETHNICITY GROUP





PRETERM BIRTHS

In 2019, 363 women (10.7%) had a preterm birth at CCDHB. The preterm birth rate for CCDHB domiciled women was 7.3%, and 39.5% for women from other DHBs.

Most preterm births occurred between 34 to 36 weeks gestation (5.7% of all births).

While New Zealand European women made up the largest ethnic group of preterm births less than 32 weeks gestation (38.2%), the highest overall rates of preterm births were in Māori women (17.2%), followed by Indian women (13.6%). The highest preterm birth rate for CCDHB domiciled women was for Indian women at 10.6%. The age group with the highest preterm birth rate was the under 20 year's group, with 19.1% of their births being preterm. This rate dropped down to 12.3% when applied to CCDHB domiciled women.

Women who had preterm births were more than twice as likely to report cigarette smoking at booking (15.4%), and almost twice as likely to report having given up smoking (3.9%), than women who had term births.

Our evidence based approach to preterm labour is the administration of antenatal corticosteroids and administration of magnesium sulphate for neuroprotection.

Table 11: Preterm birth rate for all CCDHB births in 2019, by ethnicity group							
	<32 weeks		32 - 36 weeks		All preterm births by ethnicity group		
Ethnicity		%		%		% of total births	
Māori	38	8.2	42	9.0	80	17.2	
Pacific Peoples	10	3.1	19	5.9	29	9.1	
Other Asian	10	2.5	21	5.2	31	7.7	
Indian	13	5.5	19	8.1	32	13.6	
Other	3	2.3	6	4.6	9	6.9	
Other European	7	1.6	28	6.3	35	7.9	
NZ European	50	3.6	97	7.0	147	10.6	
Total	131		232		363	10.7	

Table 12: Preterm birth rate for CCDHB domiciled women in 2019, by ethnicity group								
	<32 weeks		32 - 36 weeks		All preterm births by ethnicity group weeks			
Ethnicity	%		%		% of total births			
Māori	9	2.4	28	7.4	37	9.8		
Pacific Peoples	7	2.3	17	5.7	24	8.0		
Other Asian	5	1.3	18	4.8	23	6.1		
Indian	7	3.2	16	7.3	23	10.6		
Other	2	1.6	6	4.8	8	6.3		
Other European	5	1.2	22	5.3	27	6.6		
NZ European	13	1.1	64	5.3	77	6.4		
Total	48		171		219	7.3		



INFANT FEEDING

Definitions of the feeding categories can be found in the chapter: 'Appendices', under the section 'Appendix 2 – Definitions'.

The exclusive breastfeeding rate (EBR) for 2019 on first hospital discharge from all three maternity facilities was 76.1% which is a decrease of 3.0% from 2018. or augmentation of labour, mode of birth, ethnicity, morbidity factors, and whānau support. Breastfeeding support and skill mix of staff in the inpatient period can also influence the EBR.

A number of demographics and birthing factors influence the EBR including maternal age, induction

Table 13: Infant feeding at first discharge 2019, by birthing facility						
	WRH	KMU	PMU	CCDHB		
Feeding *	%	%	%	%		
Exclusive	74.6	86.5	95.5	76.1		
Full	2.4	0.6	0.0	2.2		
Partial	20.2	10.7	2.7	18.9		
Artificial	2.8	2.2	1.8	2.7		
Total	2634	178	112	2924		

* Numbers are for well babies discharged home with their mother from delivery suite, ward 4 north, and Kenepuru and Paraparaumu maternity units.

BREASTFEEDING EDUCATION AND SUPPORT

Free breastfeeding classes are provided by the lactation clinical midwife specialists at WRH and KMU, on a monthly basis. The classes are held over two evenings in WRH and one longer evening session in KMU. These sessions complement the pregnancy and parenting classes. Mandarin breastfeeding classes are also provided on alternate months in the Johnsonville Plunket Family Centre. These classes are run by a peer counsellor.

Little Latch On (LLO), is a one-hour inpatient education and support session (week day mornings) provided by midwifery staff to women on the postnatal ward at WRH. In addition to group support, women receive one-on-one specialist advice for complex feeding issues.

All women who have a baby in CCDHB facilities are offered free breastfeeding supports in the community. The community breastfeeding team is comprised of the community lactation coordinator and the Pacific breastfeeding team, who included two health workers and a registered midwife with a particular focus being on Māori and Pacific women, and those with complex needs.

The team work as breastfeeding advocates and educators. The community breastfeeding team are peer counsellor programme administrators who provide breastfeeding support for women in hospital, the woman's home, breastfeeding centres, and by phone. Together they staff the Breastfeeding Centre for women to drop in and receive breastfeeding support and advice. The Breastfeeding Centre is hosted and located at the Tamariki Ora Whare at Ora Toa Health Service, 20 Ngatitoa St, Takapuwahia, Porirua. Open on Tuesdays, from 10am-1.30pm. No appointment is necessary.

BABY FRIENDLY HOSPITAL INITIATIVE ACCREDITATION

Baby friendly hospital initiative (BFHI) accreditation is a MOH requirement for all maternity facilities in New Zealand. 2019 was year one of the four yearly accreditation cycle.

The BFHI requirements support and promote the protection of breastfeeding in hospital.

The clinical midwife specialist (lactation) / BFHI coordinator is involved in developing and implementing standards of practice, and educational requirements, to achieve recertification.

ANTENATAL MILK EXPRESSION

Babies identified as at increased risk of requiring breastmilk supplementation after birth, continued to be offered the opportunity for antenatal milk expression (AME).

During 2019, AME packs were given to women identified as having the potential for low milk supply. These included women with diabetes in pregnancy, a planned induction of labour, an elective caesarean section, and those over 40 years of age.

If supplementation is required, it is better that mothers are able to provide their own frozen breastmilk, rather than infant formula.

In 2020, we plan to investigate the outcomes of providing AME packs.

FRENOTOMY FOR TONGUE-TIE

Tongue-tie (ankyloglossia) occurs when the frenulum, which connects the tongue to the floor of the mouth is too tight or too short. In most cases tongue-tie does not cause any difficulty. However, for some mothers a tongue tie may cause nipple pain or damage, or babies may have difficulty feeding which can increase the potential for mothers to stop breastfeeding.

Assessment and lactation support is always recommended and in some cases, a frenotomy may be required.

Frenotomy procedures continued to decrease in 2019, with 213 CCDHB born babies being assessed and 107 of those assessments resulting in an intervention. The team assessed a further twelve who were born outside CCDHB, which resulted in two frenotomies being performed.

The breastfeeding team recorded a total of 109 frenotomies (anterior, posterior and lip) from 225 assessments on babies born in 2019. These represented those performed by CCDHB employees on the postnatal wards, in the community facilities and in the outpatient ear, nose and throat clinic.



* Data for tongue-tie assessment is unavailable for 2017 or 2018.

NEONATES IN 2019

BABIES BORN

In 2019, there were 3451 babies recorded as admitted to CCDHB facilities on, or after birth. Of these, 3409 babies were born in maternity facilities, 15 were born in-transit, and 27 babies were unplanned home births before transferring to a maternity unit. Babies who were born at home (as planned homebirths), are reported by LMCs directly to the MOH, and are not recorded in CCDHB statistics.

GESTATIONAL AGE

Of the 3414 live born babies born in CCDHB facilities, the majority (88.7%) were born at or after 37 weeks gestation. 11.3% of live born babies

were born preterm (before 37 weeks gestation). Of these, 63 were of extreme prematurity, that is, less than 28 weeks gestation. Preterm babies were born to mothers from across the central region of New Zealand, who transferred to WRH (wherever possible) prior to birth. The percentage of preterm births in each gestational age group has not significantly changed over the past five years.

Table 14: Gestational age groups for CCDHB liveborn babies, 2019						
	2015	2016	2017	2018	2019	
Gestation *	%	%	%	%	%	
20+0-22+6 weeks	0.1	0.1	0.1	0.1	0.2	
23+0-24+6 weeks	0.3	0.4	0.2	0.4	0.6	
25+0-27+6 weeks	0.9	0.7	1.2	0.7	1.1	
28+0-31+6 weeks	1.7	2.0	2.0	1.7	1.7	
32+0-33+6 weeks	1.5	1.2	1.1	1.5	1.3	
34+0-36+6 weeks	5.9	6.2	5.8	5.4	6.4	
All preterm	10.4	10.5	10.4	9.9	11.3	
37+0-41+6 weeks	88.4	88.7	88.8	89.3	87.7	
\geq 42+0 weeks	1.2	0.8	0.7	0.9	1.1	
Total	100	100	100	100	100	
* The numbers are for liveborn babies by gestational age at birth.						

ETHNICITY

Definitions of ethnicity reporting can be found in the chapter: 'Appendices', under the section 'Appendix 2 – Definitions'.



SEX AT BIRTH

Over the past five years, more male babies than female were reported at birth, and there have been low rates of babies of indeterminate sex, with all indeterminate babies being born at less than 22 weeks gestation. Ratios of sex at birth have remained consistent between 2015 and 2019.

PLURALITY

From 2017 the rate of multiple births has steadily increased, currently making up 1.9% of births. Peak levels were seen in 2015, where multiple births accounted for 2.3% of CCDHB pregnancies.

NEWBORN HEARING SCREENING

The parents of all babies born within the CCDHB catchment were offered newborn hearing screening. Babies are screened in hospital after birth, or at outpatient clinics at WRH, KMU, and PMU. There were 43 home visits provided for those with difficulty attending outpatient clinics.

Of the 3269 babies screened in 2019, 33 babies were referred to the audiology service for assessment and diagnosis. Following an audiology assessment, 20 (60.6%) babies had confirmed hearing loss. This equates to 0.6% of the total babies screened.

Audiology diagnostic clinics are located in the audiology departments at Wellington and Kenepuru hospitals. Outpatient newborn hearing screenings are also performed in the audiology department.

NEWBORN METABOLIC SCREENING

The Newborn Metabolic Screening Programme aims to reduce the chance of illness, disability, and even death, by identifying babies with a number of metabolic disorders. All parents in New Zealand are offered the opportunity of screening through a blood test, once the baby is older than 48 hours of age.

Screening is consented to by parents following birth and in 2019, 3400 (99.6%) babies had the newborn metabolic screen performed (99.6% of liveborn babies born at CCDHB).

Twenty two babies were not screened in 2019 (down from 53 babies in 2018). The reasons for not screening are multifaceted and can include parental declines, infants returning to their DHB of domicile, and a small number of babies who die shortly after birth.

A robust system continues to exist between CCDHB and LabPLus, to minimise the number of babies not screened.

NEONATAL INTENSIVE CARE UNIT

SURVIVAL

19% of all CCDHB liveborn babies were admitted to the NICU in 2019, with almost 98% surviving until discharge. The admission rate for preterm babies was 84.7%, with 96% surviving to discharge.

Deaths in the NICU were more likely to occur in the first week of life (64% of deaths).

Table 15: NICU admis liveborn babies 2019	ssions and ou), by gestation	tcomes for C n group	CDHB		
	Total liveborn	Admitted to NICU (% of total liveborn)	Live at discharge (% of NICU adms)		-101
Gestation		%	%	0.00	1.1
23+0-24+6 weeks	19	94.7	66.7	230	and and the
25+0-27+6 weeks	38	100	86.8		and the set of
28+0-31+6 weeks	59	100	96.6		1211
32+0-33+6 weeks	45	97.8	100	123 H 1	
34+0-36+6 weeks	218	76.6	100		
Total preterm	385	84.7	96.0		
37+0-41+6 weeks	2993	10.6	99.7		
≥42+0 weeks	36	11.1	100		
Total	3414	19.0	97.8	X	

ETHNICITY

The highest rates of admission to NICU were seen in Māori babies at 25.6%, followed by Indian babies at 21.8%.



Figure 10: Percentage of ethnicity admitted to NICU, of CCDHB born babies in 2019

Appendices Ngā Āpitihanga

APPENDIX 1 – MQSP ACTION PLAN 2019-2020

The following plan includes recommended projects for consideration.

Table 16: MQSP work programme 2019-2020							
Project No.	Improvement Initiative	Objective / Descriptor /Actions	Planned delivery				
1	Optimising Term Birth						
1.1	Appoint a project manager	Appoint a project manager for six months fulltime to progress all optimising term birth projects by June 2020	Planning				
1.2 Robson 10 reporting		• Utilise the Robson 10 classification system for reporting and categorising all pregnant women	Complete				
		Assess and improve current data collection where required					
1.3	Literature review	 Review literature and actions which have reduced the caesarean section rate in other maternity services around New Zealand 	Complete				
1.4 Audit outcomes for Group 1 and Group 2A women	Audit outcomes for Group 1 and Group 2A women	 for Group Over a two month period (May/June 2020) review the outcomes of all women in group 1 and group 2a whose birth resulted in a caesarean section 					
		Identify recurring themes and areas requiring further investigation					
		Consider what, if any, alternative actions / management of care may have been required					
		Present findings of initial audit to upcoming hui					
		• Assemble a midwifery, and obstetric team to review the outcomes of group 1 and group 2a women					
		Embed regular auditing of outcomes into business as usual					
1.5	Hui for providers of maternity care	Present the Robson 10 classification system to all	Planning				
materni		 Advise of work being undertaken on ERAS pathway (see project 1.7) 					
		 Present findings of group 1 and group 2a audit for the months of May and June 2020 					
		 Call for interested providers of healthcare to join a time- bound working group on optimising birth 					
1.6	Consider potential effectiveness of manual rotation from occiput posterior to occiput anterior for women with cervical dilation over 8cm	sider potential • Audit current rates of OP and obstructed labours resulting ctiveness of manual tion from occinut					
		• Promote awareness of this labour management option					
		Increase training in this procedure	-				
1.7	Develop an ERAS pathway for women having elective Caesarean Sections	 Standardise the perioperative and postpartum management of care for Robson group 5 women 	Planning				
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		• Agree on a pathway with midwifery, obstetric, anaesthetic leads, and LMCs including private obstetric LMCs	_				
		Promote ERAS pathway and undertake relevant education					
		Amend written information given to women					
1.8	Setting the scene for future pregnancies	 Develop a robust process where women whose birth bas resulted in a caesarean section are advised of their likelihood of achieving a vaginal birth in a future pregnancy, before leaving hospital inpatient services 					
1.9	1.9 Develop maternity key performance indicator	• Develop a maternity dashboard inclusive of clinical indicators which is visible to all providers of maternity care	Scheduled for 2020				
	(KPI) dashboard	• The Qlik application will likely be used to provide this data					
1.10	Induction of labour	tion of labour • Retrospective audit of all woman induced in 2018					
	outcomes audit	Critique decision making around booking an induction of labour	progressing				
		• Activity closed due to inability to gather meaningful data. Decision made to focus on Robson 10 instead					
1.11	Primipara induction of	Improve/reduce primipara IOL rates	Planning				
	labour (IOL)	• Design a tool for IOL indications, optimal process and decisions for caesarean sections					
2	Optimising Preterm Birth						
2.1	Explore alternative model of care options for women presenting with preterm pre-labour rupture of membranes (PPROM)	• Audit number of women admitted to CCDHB with PPROM in 2018	2020				
		• Consider the possibility of caring for women with PPROM in the community, or (if from out of town) in a motel near the hospital					
		• Consider initial inpatient stay of up to 72 hours. If the woman is not in labour after 72 hours and all is well, discharge from hospital.					
		• Follow up care – twice weekly, shared care arrangement, between obstetric and community midwifery team	-				
		Education of all health care providers					
		Consider who best to contact in case of emergency					
		 Develop brochure and screening tool for women to use in 					
2.2 Preterm birth referrals		the community					
2.2	Preterm birth referrals	 Improve the antenatal screening and referral process for women at risk of preterm birth 	Ongoing				
2.2	Preterm birth referrals	 Improve the antenatal screening and referral process for women at risk of preterm birth Establish a structured triage process 	Ongoing				
2.2	Preterm birth referrals	 Improve the antenatal screening and referral process for women at risk of preterm birth Establish a structured triage process Modify the discharge summary information sent to women, LMCs, and GPs about the importance of early referral in future pregnancies 	Ongoing Ongoing Complete				
2.2	Preterm birth referrals	 Improve the antenatal screening and referral process for women at risk of preterm birth Establish a structured triage process Modify the discharge summary information sent to women, LMCs, and GPs about the importance of early referral in future pregnancies Develop a standardised letter regarding aspirin use in pregnancy 	Ongoing Ongoing Complete Complete				
2.2	Preterm birth referrals	 Improve the antenatal screening and referral process for women at risk of preterm birth Establish a structured triage process Modify the discharge summary information sent to women, LMCs, and GPs about the importance of early referral in future pregnancies Develop a standardised letter regarding aspirin use in pregnancy Create an information sheet regarding preterm birth signs and symptoms 	Ongoing Ongoing Complete Complete Ongoing				

2.3 Preterm birth management	Preterm birth management audit	• Audit preterm births that occurred within CCDHB facilities in 2018. Include audit of steroids for lung development, and magnesium sulphate administration for neuroprotection	Complete
		 Identify disparities within the audit data with the aim of standardising care once reviewed by epidemiologist 	Ongoing
		 In collaboration with NICU, determine 23 – 26 weeks survival rates 	Ongoing
3	Perineal Care		
3.1	New Zealand Maternity	• Aim to reduce our rates of third and fourth degree tears	Ongoing
	Clinical Indicator seven,	Audit the 2018 data on clinical indicator seven	Planning
	episiotomy, without	Practice improvement in episiotomy method, with training	Ongoing
	mention of third or fourth degree tear	Perineal support education	Ongoing
4	Sepsis		
4.1	Develop a DHB wide maternal sepsis pathway	Improve identification of sepsis early, and action timely care	Complete
		 Develop a policy on maternal sepsis, inclusive of signs, symptoms, and immediate treatment 	Complete
		Develop a one page sepsis pathway checklist	Complete
		Create sepsis grab boxes and implement a process to restock them after use	Complete
		Offer education to providers of maternity care	Complete
		Re-audit outcomes in 2021	Ongoing
5	Neonatal Outcomes		
5.1	New Zealand Maternity Clinical Indicator 20, term newborns requiring respiratory support	Aim to reduce the rate of term newborns requiring respiratory support	Planning
		 Formalise GAP/GROW contract and provide mandatory education 	2020
		 Continue to offer annual education in fetal surveillance education to all maternity care providers free of charge 	Ongoing
		 Continue regular PROMPT days for the multidisciplinary team. Encourage LMC attendance at primary birthing unit education days. 	Ongoing
		Encourage multidisciplinary engagement with the monthly morbidity and mortality meetings	Ongoing
		Encourage multidisciplinary attendance at the perinatal education meetings	Ongoing
5.2	Neonatal encephalopathy outcomes	Reduce the number of newborns born at CCDHB with NE	Ongoing
		• Develop process to ensure ACC claim forms are completed before the baby leaves the DHB	Complete
		 Use the PMMRC process and continue ongoing audit of all babies diagnosed with NE 	Ongoing
		 Introduce newborn observation chart and newborn early warning score to maternity 	2020

6	Improving Equity		
6.1	Understanding the needs and outcomes of women 20 years and younger	Improve our understanding of pregnant women 20 years and younger	2020
		Audit their birth outcomes	
		Engage stakeholders to explore difficulties or barriers to accessing LMCs and maternity services	
		Develop strategies to further engage with this group	
6.2	Smoking	 Reduce the number of Māori and Pacific women smoking during pregnancy 	2020
		 Engage with young Māori and Pacific women to explore the barriers to them stopping smoking during pregnancy 	
		• Revisit and re-promote nicotine replacement therapy with staff	
6.3	Survey women about their	Seek to find ways we can improve our services	Complete
	inpatient experience	 Create an easily accessible feedback survey, which women or whānau can complete on an iPad or by scanning the QR code 	-
		Results will be audited monthly	
		 Incorporate recurring themes into the MQSP programme of work 	
		Staff will be notified of feedback pertaining to their area	
6.4	Build a culturally appropriate workforce	• The ethnic diversity of our workforce should reflect that of the women we care for	Planning
		 Develop a midwifery Māori and Pacific continuity of care team to provide care for Māori and Pacific women, especially those with complex needs 	
6.5	Cultural competency programme	 Improve our workforce's cultural appropriateness and awareness 	Ongoing
		Facilitate education opportunities	Ongoing
		 Arrange a guest speaker to complete a series of talks on cultural issues 	Planning
		 Include specific cultural feedback on patient feedback surveys 	Complete
		Survey Indian women about the model of care required	2020
6.6	Safe sleep	Aim to reduce the rate of SUDI	Ongoing
		 Continue to promote the availability of safe sleeping advices to providers of maternity care and women 	-
		Provide wahakura and pepi pods when needed	
7	Prophylactic Anti-D Adminis	stration	
7.1	Antenatal prophylactic anti-D for Rhesus negative women	 Provide Rhesus negative women with prophylactic antenatal anti-D from 28 weeks gestation 	2020
		 Amend current anti-D policy to streamline administration of prophylactic antenatal anti-D 	Complete
		• Establish an outpatient clinic for LMCs to refer women into, to receive anti-D	Complete

8	Bereavement Midwife		
8.1	Investigate the possibility of employing a bereavement midwife	Develop a business case to support the role of a bereavement midwife	Planning
		• The role will work closely and collaboratively with MFM midwives, inpatient wards, the PMMRC coordinator, LMCs, and other members of the multidisciplinary team	
		• The bereavement midwife will be the point of contact for women to prevent them having to re-tell their story multiple times.	

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APPENDIX 2 – DEFINITIONS

This report includes maternal and infant data pertaining to women giving birth to babies at and beyond twenty weeks gestation at any of the three birthing facilities in the CCDHB area. Also included are those women who were booked to give birth at a facility but had an unplanned home birth or gave birth en route to a birthing facility.

A monitoring and audit programme of the Perinatal Information Management System (PIMS) maternity database includes daily and monthly checks, with queries and corrections made on key data fields.

Assumptions applied in the analysis of maternity data:

ETHNICITY REPORTING

Reporting of ethnicity is complex and different systems are used in various reports.

The New Zealand MOH uses a prioritised ethnicity group classification system (New Zealand Ministry of Health, 2010). This system is used when an individual chooses multiple ethnicities based on their preferences or self-concept. The classification system then determines the ethnicity group value for multiple ethnicities using a hierarchical system of 21 ethnicity descriptions. This is based on the following priority: Māori, Pacific Peoples, Asian, other groups except Other European, New Zealand European. Tables within this report have grouped New Zealand European and Other European together as a combined number where MOH nationwide data is used.

From March 2013 the CCDHB patient information form has asked an individual to rank their multiple ethnicities in order of preference. The MOH system then applies another level of prioritisation over the individual's preference.

- the maternal age was calculated as at the time of the birth
- all babies born from 20 completed weeks gestation or weighing over 400 grams at birth if gestation unknown are included
- for multiple pregnancies, only one mode of birth has been assigned to the mother, with the mode prioritised of the first infant being recorded
- maternal obstetric and caesarean history was determined from the 'parity' and 'caesarean history' data fields in PIMS

Our report uses the MOH prioritised ethnicity group classification system to classify individuals with multiple ethnicities into ethnicity groups (see following table).

Three ethnicity descriptions can be collected in the PIMS database but 87% of women giving birth at CCDHB facilities in 2019 indicated one ethnicity only. The prioritised classification system was used for the remaining 13% with multiple ethnicities.

This report now separates the Asian ethnicity group into Indian and Other Asian. This is because Indian women are a high-risk group for perinatal outcomes, requiring further statistical examination in this area.

All time-series tables and figures in this report now include prioritised ethnicity group data.

Table 17: Prioritised ethnicity groups		
Ethnicity group	Ethnicity	Priority order (MOH)
Māori	Māori	1
Pacific Peoples	Tokelauan	2
	Fijian	3
	Niuean	4
	Tongan	5
	Cook Island Māori	6
	Samoan	7
	Other Pacific Island	8
	Pacific Island not further defined	9
Other Asian	Southeast Asian	10
	Chinese	12
	Other Asian	13
	Asian not further defined	14
Indian	Indian	11
Other	Latin American/Hispanic	15
	African	16
	Middle Eastern	17
	Other/Not stated	18
Other European	Other European	19
	European not further defined	20
NZ European	New Zealand European	21

BREASTFEEDING DEFINITIONS

The MOH definitions are used to collect our infant feeding data. The classifications are as follows.

- **Exclusive:** the infant who has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breast milk (from the breast or expressed) and prescribed medicines (defined in the Medicines Act 1981) have been given to the baby from birth.
- Fully: the infant has taken breast milk only, and no other liquids or solids except a minimal amount of water or prescribed medicines, in the past 48 hours.
- **Partial:** the infant has taken some breast milk and some infant formula or other solid food in the past 48 hours.
- Artificial: the infant has had no breast milk but has had alternative liquid such as infant formula, with or without solid food in the past 48 hours.

ABBREVIATIONS AND DEFINITIONS

Table 18: Abbreviations		
2DHB	Capital & Coast, and Hutt Valley DHBs	
3DHB	Capital & Coast, Hutt Valley, and Wairarapa DHBs	
ACC	Accident Compensation Corporation	
AME	Antenatal milk expression	
BFHI	Baby Friendly Hospital Initiative	
ССДНВ	Capital & Coast District Health Board	
CCDM	Care Capacity Demand Management	
CMT	Community midwifery team	
CS	Caesarean section	
DHB	District Health Board	
DNA	Did not attend	
EBR	Exclusive breastfeeding rate	
ERAS	Enhanced recovery after surgery	
FGR	Fetal growth restriction	
FTE	Full time equivalent	
GAP	Growth assessment protocol	
GP	General practitioner	
GROW	Gestational related optimal weight	
HQSC	Health Quality and Safety Commission	
ICU	Intensive Care Unit	
IOL	Induction of labour	
ISSN	International standard serial number	
KMU	Kenepuru Maternity Unit	
LMC	Lead maternity carer	
MAT	National maternity collection	
MEWS	Maternity early warning score	
MFM	Maternal Fetal Medicine	
MgSO4	Magnesium sulphate	
MHAIDS	Mental Health, Addictions and Intellectual Disability Service	
МОН	Ministry of Health	
MQSP	Maternity Quality Safety Programme	
MVSC	Maternity vital signs chart	
NE	Neonatal encephalopathy	
NGO	Non-governmental organisations	
NICU	Neonatal Intensive Care Unit	
NMMG	National Maternity Monitoring Group	
NZ	New Zealand	

OBLIGE	Outpatient balloon versus inpatient gel study
OP	Occiput posterior
PIMS	Perinatal information management system
PMMRC	Perinatal and Maternal Mortality Review Committee
PMU	Paraparaumu Maternity Unit
PPROM	Preterm pre-labour rupture of membranes
PROMPT	Practical obstetric multi-professional training
QR	Quick response
SAC	Severity assessment code
SMMHS	Specialist Maternal Mental Health Service
SUDI	Sudden unexplained death in infancy
USA	United States of America
WHO	World Health Organisation
WHS	Women's Health Service
WRH	Wellington Regional Hospital

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Table 19: Definitions	
Body mass index	A measure of weight adjusted for height.
Connect me	E-learning system at CCDHB
Dashboard	A modern analytics tool to monitor healthcare KPIs in a dynamic and interactive way
Deprivation	A lack of the types of diet, clothing, housing and environmental, educational, working and social conditions, activities and facilities which are customary in a society
Domicile	A person's usual residential address
Ethnicity	The ethnic group or groups that people identify with or feel they belong to
Jadelle	A hormone releasing sub-cutaneous implant
Mirena	A hormone releasing intra-uterine device
Morbidity	The consequences and complications (other than death) that result from a disease
Multidisciplinary team	A multidisciplinary team involves a range of health professionals, from one or more organisations, working together to deliver comprehensive patient care
Nulliparous	Has not given birth previously
Parity	The number of previous pregnancies that were carried to 20 weeks
Postpartum	Following childbirth
Qlik	An end-to-end cloud data integration and data analytics application
Robson 10	a classification system by which all perinatal events and outcomes can be compared
Tertiary	Specialised consultative health care, usually for inpatients and on referral from a primary or secondary health professional
TrendCare	A workforce planning and workload management system that provides dynamic data for clinicians, department managers, hospital executives and high level healthcare planners
Well Child / Tamariki Ora Programme	A free service provided by MOH for all New Zealand children from birth to five years.

APPENDIX 3 – DATA SOURCES

The information in this report has been sourced from the following database systems:

- Quality improvement CCDHB Business
 Intelligence and Analytics Unit and the CCDHB
 patient management system
- Maternity from PIMS, outpatient data from the CCDHB patient management system
- Induction of labour, pre-eclampsia, diabetes and ECV data from clinically coded inpatient events from the CCDHB patient management system

- Maternal Diabetes PIMS and outpatient data from the CCDHB patient management system
- Research CCDHB WHS audit and research database
- The population figures come from the 2019 Population-Based Funding Formula (PBFF) projections, and the land areas are based on the 2013 census.

APPENDIX 4 – REFERENCES

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