2021 MATERNITY QUALITY & SAFETY PROGRAMME

ANNUAL REPORT

Capital & Coast District Health Board

ŪPOKO KI TE URU HAUORA

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Enahara taku toa i te toa takitahi Engari, he toa takitini

My successes are not mine alone, they are ours – the greatest successes we will have are from working together

- Māori proverb

ACKNOWLEDGEMENTS

Thank you to the many administration, midwifery and medical staff who have contributed to the content of this report.

Thanks especially must go to our Maternity Quality & Safety Programme (MQSP) team including Erika Brons-Ware, Carolyn Coles, Siobhan Connor, Simone Curran-Becker, Rose Elder, Claire Jacobs, Sarah le Leu, Joshua Nerona, Cherie Parai, Freyja Phillips, Jenny Quinn, Victoria Roper, Jessica Maxwell, Amber Igasia, Clare O'Loughlin, and Hannah Ward, who put in an extraordinary effort throughout an incredibly challenging year.

It is with genuine appreciation that we thank our workforce, consumers, lead maternity carers (LMCs) and wider health care partners and communities.

Thank you also to all the whānau and staff who kindly let us use their images to illustrate our report.

REPRODUCTION OF MATERIAL

FOREWORD

It gives us great pleasure to present the Maternity Quality and Safety Programme (MQSP) report for Capital and Coast District Health Board 2021.

This was another challenging year with high utilisation at Wellington Hospital. Maternity inpatient areas were frequently over capacity and pregnant people presented with many varied complexities related to underlying health conditions. COVID-19 continued to make its presence felt with increased levels of staff sickness, and restricted visiting within inpatient areas. High acuity and COVID-19 coupled with unprecedented midwifery workforce vacancies saw maternity services severely stretched.

We have, however, continued to build on work undertaken during the past year and in 2021 received approval to double the number of staff working at Kenepuru Maternity Unit. This change saw a sole charge midwife position moving to two staff being employed 24 hours a day, seven days a week. The introduction of the newly created role of Midwife Clinical Coach was a welcome change, and will seek to achieve a safer learning environment, whilst improving staff retention and addressing stress in the workplace.

Misoprostol was introduced as the primary induction of labour method for most pregnant people. A change which was received favourably by hospital employed midwifery and medical staff, and LMCs.

An enhanced recovery after surgery pathway (elective Caesarean section) was also implemented in preparation for a postpartum self-administration of analgesia project that will be rolled out in 2022.

Preliminary discussions were had with academics from Victoria University about the possibility of undertaking a neonatal hypoglycaemia audit.

Rose and I would like to take this opportunity to thank all the midwives, nurses, doctors and maternity healthcare workers who provided care to pregnant people within the Capital and Coast catchment. Your professionalism and dedication means that pregnant people and their whānau were able to receive the best care possible.

Special thanks go to Hollie Clark (MQSP Coordinator) for pulling this report together.

We hope you enjoy reading this year's report.

Carolyn Coles, Director of Midwifery, and
Rose Elder, Clinical Leader of Obstetrics

Carolyn Coles, Director of Midwifery

Rose Elder, Clinical Leader of Obstetrics

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Kupu Whakataki
Introduction

CAPITAL & COAST DISTRICT HEALTH BOARD VISION AND VALUES

CCDHB is committed to meeting the Minister of Health's expectations and delivering our vision of: *Keeping our community healthy and well.*

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

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.

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.

STRATEGIC ALIGNMENTS

Taurite Ora: Māori Health Strategy 2019 - 2030

Pacific Health & Wellbeing Strategic Plan for the Greater Wellington Region 2020-2025

New Zealand Health Strategy: Future direction

Living Life Well – A Strategy for mental health and addiction 2019-2025

Health System Plan 2030

New Zealand Maternity Standards

National Maternity Monitoring Group recommendations

Perinatal and Maternal Mortality Review Committee recommendations

Maternal Morbidity Working Group recommendations

Pae ora – healthy futures

Whakamaua: Māori Health Action Plan 2020-2025

Ō mātou tāngata – he aha ai, he pēhea hoki

Our People – Why and how

THE CCDHB REGION

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

The region was home to an estimated 320,640 people in 2020/21, which is projected to grow by an additional 19,610 people by 2030/31.

CCDHB is an ethnically diverse region. 12% of our population identify as Māori (38,600), 7% as Pacific peoples (23,500) and 16% are Asian (51,400). The remaining 65% of the Wellington population identify as an 'other' (non- Māori, non-Pacific, non-Asian) ethnic group.

Most of the population are aged 25-69 (58%). Age structures however differ by ethnicity and between geographic areas. The regional population differs from the maternity population.

While most of the region's population are relatively advantaged, there are significant pockets of socioeconomic deprivation. These are focused in Porirua, small parts of central Wellington and the Kāpiti Coast. Māori and Pacific peoples, in particular, experience inequitable health outcomes, and improving their experience in our maternity services has been a focus for the MQSP team in 2021.

We provide tertiary maternity services across the central New Zealand region

The Women's Health Service (WHS) is responsible for tertiary maternal transfers from the central region of New Zealand, which includes Whanganui, MidCentral, Hawkes Bay, Wairarapa, Hutt Valley, and Capital & Coast DHBs. The central region makes up 19% of the total New Zealand population. The WHS is also responsible for maternal transfers from Nelson Marlborough DHB, which is outside of the central region.

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 people with complex needs who live in the Hutt Valley and Wairarapa DHBs.

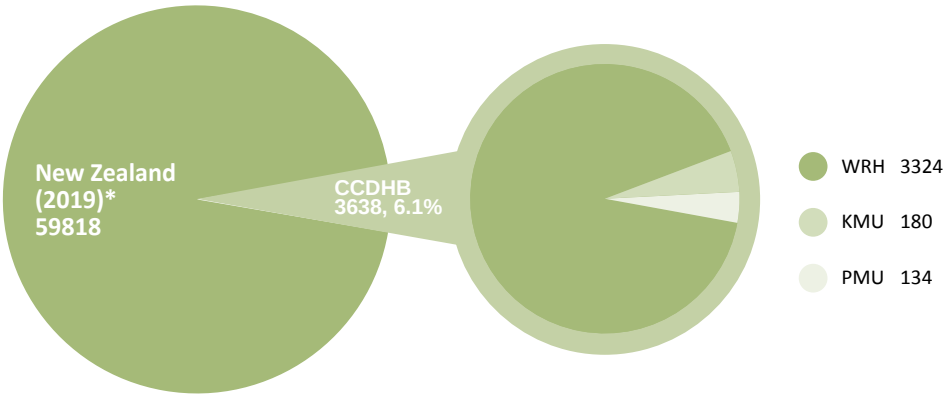
A multidisciplinary team provides care for people with complex cardiac conditions during their pregnancy and birth from the lower North Island and the Nelson Marlborough region.

Wellington Regional Hospital accepts maternal transfers from outside the central region when neonatal units elsewhere in the country have reached capacity. The neonatal intensive care unit (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

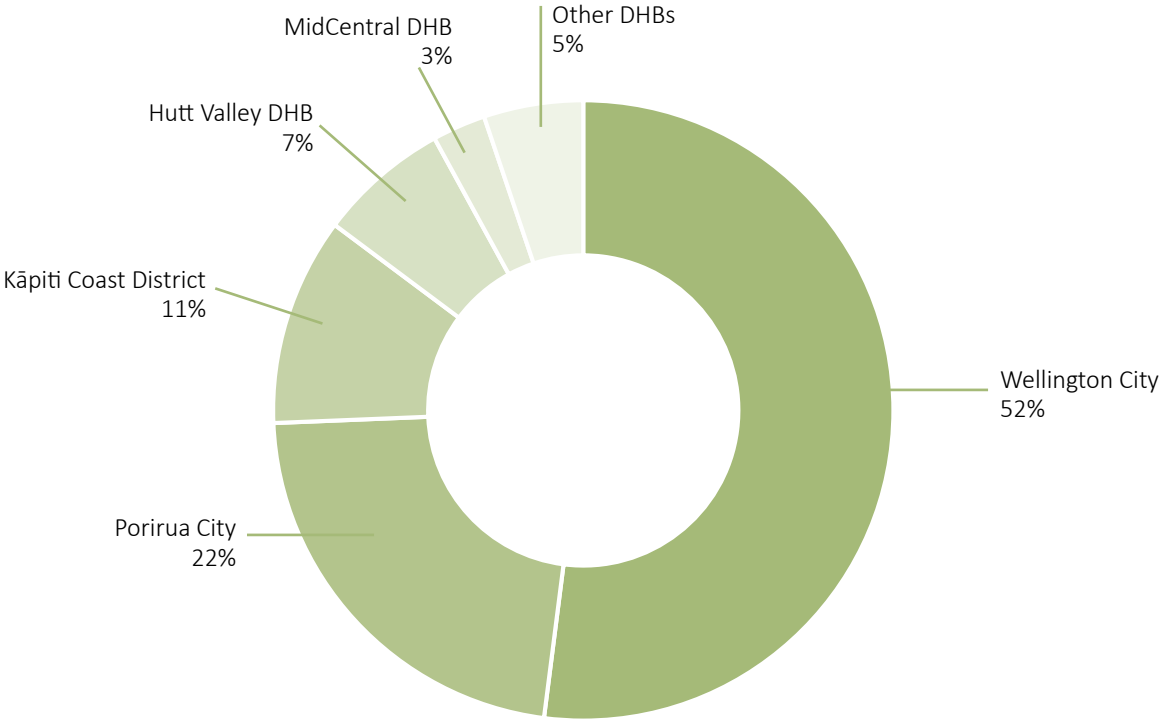
There were 59,818 people recorded as giving birth in New Zealand in 2019, according to the Ministry of Health (MOH) Report on Maternity web tool, released in 2021. In 2021, CCDHB recorded 3638 people who either birthed at CCDHB facilities, had an unplanned birth at home, or birthed in transit, en route to hospital. CCDHB births equate to 6.1% of the birthing population of New Zealand.

Women birthing at CCDHB 2021, by birthing facility



* (New Zealand Ministry of Health, 2021)

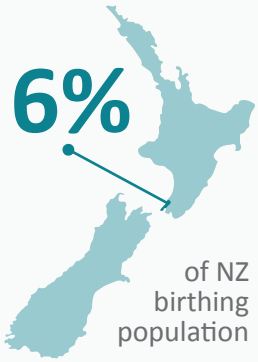
Where are our people from?



The CCDHB birthing population in 2021

Data is sourced from the Ministry of Health Qlik Sense hub for the year of 2021.

BIRTHS



6% of NZ birthing population

114 people birthed at home

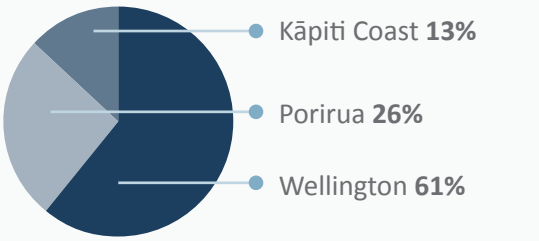
3711 babies born

3638 people birthed

THAT'S AN AVERAGE OF **10** babies born each day

DOMICILE

13%(482) of people transferred from other DHBs to give birth

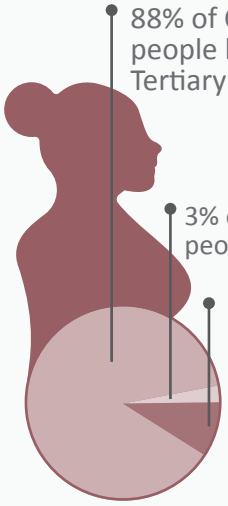


SMOKING

3.6% of CCDHB people were smokers at 2 weeks postnatal (4.8% fewer than the national average)

15% of Māori people were smokers at 2 weeks postnatal (8.1% fewer than the national average) a reduction of 10% from 2016

BIRTH FACILITY

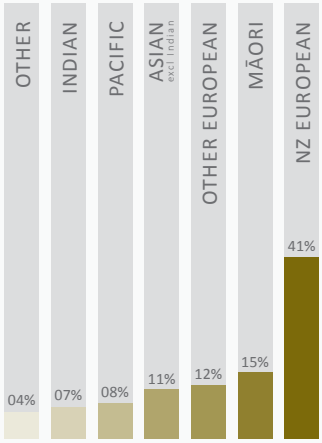


88% of CCDHB resident people birthed at a Tertiary Hospital

3% of CCDHB resident people birthed at home

9% of CCDHB resident people birthed at Primary Birthing Units

ETHNICITY



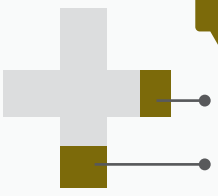
CCDHB has fewer Māori & more European mothers than the national average

PARITY

CCDHB people are more likely to be first time mothers **(47%)** than people nationally **(41%)**

AGE

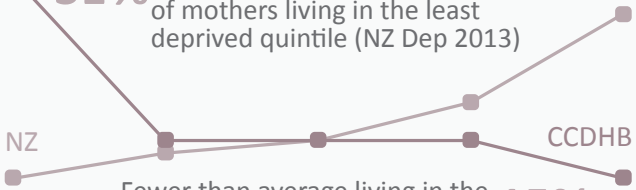
35+



CCDHB MOTHERS ARE OLDER THAN THE NATIONAL AVERAGE

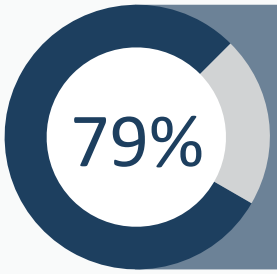
DEPRIVATION

31% Higher than average amount of mothers living in the least deprived quintile (NZ Dep 2013)



Fewer than average living in the most deprived quintile **15%**

REGISTRATION



OF CCDHB PREGNANT PEOPLE WHO REGISTERED WITH AN LMC, DID SO IN THE FIRST TRIMESTER

BODY MASS INDEX

At the time of booking, CCDHB pregnant people were more likely to be in the healthy weight range and less likely to be obese than pregnant people nationally

41%	**28%**	**23%**
WERE IN THE HEALTHY WEIGHT RANGE	WERE OVERWEIGHT	WERE OBESE

MATERNITY FACILITIES

Birthing facilities are available at three locations – Wellington Regional Hospital, Kenepuru Community Hospital and Kāpiti Health Centre.

WELLINGTON REGIONAL HOSPITAL (WRH) – PRIMARY, SECONDARY, AND TERTIARY

Birthing suite
Twelve labour and birth rooms with pools
One operating theatre

Ward 4 North Maternity
Twenty six resourced maternity beds
One bereavement room
Two assessment beds for LMCs (not resourced)

Acute Assessment Unit
Five assessment rooms
Four additional assessment spaces

KENEPURU MATERNITY UNIT (KMU) – PRIMARY

Eight bed capacity

Two birthing rooms

One birthing pool

Six postnatal rooms

PARAPARAUMU MATERNITY UNIT (PMU) – PRIMARY

Three bed capacity

One birthing room

Two postnatal rooms

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/.

MATERNITY SERVICES

EARLY PREGNANCY SUPPORT

The 'Find a Midwife' service supports pregnant people to find a midwife LMC. The service is accessible at www.ccdhb.org.nz/our-services/maternity/contact-us-for-help-finding-a-midwife/, or by calling 0800 346 369.

Early pregnancy (0-14 weeks) education is available for people free of charge at WRH, while they are looking for a midwife. These are run via video and audio conferencing due to the presence of COVID-19. Attending a conference can be done by booking online at https://www.ccdhb.org.nz/our-services/maternity/childbirth-parenting-and-breastfeeding-classes/early-pregnancy-classes/

PREGNANCY AND PARENTING CLASSES

Free childbirth and parenting education classes are provided. These classes were established to provide greater access for Māori, Pacific, migrant people, and people who may not be able to afford to attend a paid class. The DHB funded childbirth education through community based external providers. The objective was to increase the number of first-time pregnant people accessing antenatal education.

HAPŪ WĀNANGA

Hapū Wānanga is a kaupapa focused education programme held in Porirua, to support whānau and revitalise traditional Māori haputanga practices. Whānau can book onto the programme through social media.

COMPASS HEALTH CHILDBIRTH AND PARENTING CLASSES

There is the option to book into a free class via https://www.childbirthclasses.co.nz/

Under COVID-19 restrictions Compass Health run their classes video conferencing.

Under COVID-19 restrictions Compass Health run their classes via zoom.

PRIMARY BIRTHING

People are often guided by the experiences of friends and whānau when deciding where to birth their baby. CCDHB encourages well people with normal healthy pregnancies to consider having their babies in a primary birthing setting. There are known benefits to primary birthing for people and no differences in outcomes for babies based on New Zealand and international birthing outcomes. Evidence suggests that the experience and outcomes are better when a well pregnant person, with a healthy baby, chooses to labour and birth in a primary maternity facility.

Primary birthing options in central Wellington are currently limited. The Birthing Suite at WRH has a Koru room which was developed to create a home-like birthing environment. Kenepuru and Paraparaumu Maternity Units are primary birthing units, where people can have a natural birth without intervention, with a midwife in attendance.

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

BREASTFEEDING EDUCATION AND SUPPORT

Baby Friendly Hospital Initiative accreditation is a MOH requirement for all maternity facilities in New Zealand, which supports and promotes the protection of breastfeeding in hospital. 2021 was year three of the four yearly accreditation cycle. The clinical midwife specialist (lactation)/ BFHI coordinator is involved in developing and implementing standards of midwifery/nursing practice around lactation, and also educational requirements to meet recertification requirements.

We have had to be responsive to COVID-19 throughout 2021, which meant that we were unable to run the free breastfeeding classes that were previously offered at WRH and KMU prior to the COVID-19 pandemic. We outsourced the classes to an external provider, Compass Health, where free breastfeeding education is presented by a midwife via online sessions.

All people who have a baby in CCDHB facilities are offered free breastfeeding support in the community. The community breastfeeding team is comprised of the community lactation specialist and the Māori / Pacific breastfeeding team, which comprises of two breastfeeding advocates and a registered midwife with a particular focus on working with Māori and Pacific people, and those with complex needs.

The team support breastfeeding in hospital, the pregnant person's home, breastfeeding centres, and by phone. Together they staff the Breastfeeding Centre for people to drop in and receive breastfeeding support and advice. The Breastfeeding Centre was relocated from Ora Toa Health Service, Porirua to the Outpatients department at KMU for one on one appointments with a lactation consultant. This service has been impacted by COVID-19 with limits on the number of pregnant people they were able to help.

We also hold a tongue-function clinic on Thursday mornings at KMU for breastfeeding babies where there is a suspected or diagnosed tongue-tie. The clinic is staffed by a registered midwife who has been trained to individually assess and diagnose tongue-ties using the Hazel Baker assessment tool, and perform anterior tongue-tie releases as clinically appropriate. She is supported by a lactation consultant and midwives or nurses who can assist with the procedure and support breastfeeding afterwards. The process requires a written referral from either LMC's, midwives and nurses or via staff at the breastfeeding centre. If the tongue-tie looks too complicated to release at the clinic or the baby is over six weeks of age, a referral is sent to specialists at CCDHB and breastfeeding support is offered.

SECONDARY AND TERTIARY CLINICS

Secondary and tertiary level care is provided to pregnant people who require obstetric referral for consultation, or transfer of care during their pregnancy. Pregnant people 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.

WOMEN'S HEALTH ULTRASOUND SERVICE

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

MATERNAL FETAL MEDICINE

MFM is a tertiary level sub-specialty service which provides care to those who have complex pregnancies. The MFM service is 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.

Our Hub is host to the NZ MFM Network. The purpose of the NZ MFM Network is to facilitate safe and equitable care on the background of a sustainable service. A programme manager and administrator support the National Clinical Director (Dr Jay Marlow) to facilitate this network.

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 MFM specialises in:

- 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
  - funded non-invasive prenatal testing (NIPT)
  - 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 pregnant people with complex medical conditions.

WORKFORCE

There is a formal framework, regular monitoring and leadership in place to ensure that high standards of care are delivered for pregnant people, pēpi, and whānau across our region.

Midwifery workforce vacancies are, however, a significant issue and during 2021 work continued to stabilise the employed midwifery workforce including:

- Relocation packages were made available for midwives relocating nationally and internationally
- On-call payments were paid to senior midwives after-hours
- Kenepuru Maternity Unit received approval to appoint a second member of staff enabling 24 hours a day, seven days per week
- A business case was developed in collaboration with the Hutt Valley DHB that would subsequently see:
  - Retention payments made to all midwives that had been employed for over six months. Payments that would continue to be made until 85% of the required midwifery FTE was recruited to, or for a period of five years, whichever came first.
  - Additional shift payments were agreed for any midwife who increased their contracted FTE for a period of three, six, nine, or 12 months.
  - The equivalent of one week pro-rated leave was gifted for all employed midwives.
  - New graduates were given a sign-on fee that was paid after one month's employment and then the same amount of money was given at the end of 12 month's employment.

PĒPE ORA

In 2019 CCDHB commissioned the external agency DNA to undertake a piece of qualitative research to understand the lived experiences of hapū māmā, whānau and their tamariki in the Porirua region. Insights from maternity health providers were also featured in this research. The research findings highlighted a need to create an accessible online touch point for parents to be able to find information about the local services available to them during conception, pregnancy and the first 1000 days after birth. This information would be helpful to providers, to create awareness of each other and to work better together to support whānau.

Responding to these findings, CCDHB approached Wairarapa DHB in 2020 to explore opportunities to partner in Pēpe Ora, a successful website and provider collective established in 2018. With the support of Wairarapa, CCDHB began to develop a sister Pēpe Ora website. Collaborating to create a familiar touch point for whānau moving around the rohe.

In 2021, the first iteration of the CCDHB Pēpe Ora website was delivered. The website mirrors the Wairarapa site and content is based around the four pillars of Te Whare Tapa Wha:

- Taha wairua (spiritual health)
- Taha tinana (physical health)
- Taha hinengaro (mental health)
- Taha whānau (family health)

2021 also saw the establishment of the first CCDHB Pēpe Ora collective. This collective is based in Kāpiti and is comprised of health professionals and community agencies who work in the first 1000 days space. Quarterly hui enable providers to come together to share new initiatives happening in their work places, find ways to support each other and kōrero about things that could be improved for whānau in maternity and the first 1000 days. At the last Pēpe Ora Kāpiti hui for 2021, the collective identified a desire for more information about family harm. A workshop called 'Supporting Safe Relationships' is organised for the first quarter of 2022. Establishing provider collectives in Whanganui-a-Tara and Porirua is planned for 2022.

Following the website launch, we sought feedback from consumers. Their feedback highlighted that the platform wasn't accessible enough for our community, particularly our younger māmā, and gave us other ideas for improvement. Simultaneously, the Maternal Neonatal System Plan 2021 recognised Pēpe Ora as an important community connector, and positioned it for a redevelopment process in response to the feedback. A procurement process for the redevelopment of the site is planned for 2022.

SAFE SLEEP PROGRAMME

As part of the MOH National SUDI (sudden unexplained death in infancy) Prevention Programme, CCDHB continues to coordinate a well-established Safe Sleep Programme. The programme aims to capture those pēpi who are most vulnerable to SUDI.

There are several opportunities for whānau to receive a wahakura or Pēpi-Pod safe sleep bed (SSB) within CCDHB. Whānau are able to receive a SSB through their midwife, or Well Child Tamariki Ora nurse, or in some cases, other health or social services providers. Health providers who distribute SSBs receive training on delivering strengths based, culturally appropriate safe sleep messaging. The providers accessing training often have existing relationships with whānau who commonly meet risk-assessment criteria that qualify them for additional support with keeping baby safe during sleep.

Together with Ora Toa Takapuwahia, Kairaranga (weaver) Puhi Nuku and her whānau support wānanga wahakura in the Capital & Coast District. These wānanga are an excellent way to engage hapū māmā and their whānau, instilling safe sleep mātauranga (knowledge) whilst weaving. Māmā who attend Hapū Wānanga (kaupapa Māori antenatal classes), also have an opportunity to receive a wahakura and learn about safe sleep.

In May 2021, CCDHB supported a wānanga wahakura for kaimahi (staff) who work in the safe sleep space. This was provided by the CCDHB Safe Sleep Coordinator, Ora Toa Takapuwahia, and Puhi Nuku and her whānau. The interactive workshop provided a refresh of mātauranga and focused on supporting strength based delivery of safe sleep messaging.

2021 was a successful year for the programme, seeing the trajectory of SSBs distributed continue to increase. 326 SSBs were given to whānau in 2021, 47 over the MOH target. This is a 25% increase from 2020 and a 462% increase from 2019, which saw 58 SSBs distributed.

In 2022, CCDHB plan to hold another wānanga wahakura for kaimahi, as well as more wānanga for hapū māmā and whānau.

Te kounga me te haumaru o te taurima wāhine hapū

Maternity quality and safety

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 pregnant people and babies and to continuously monitor and improve the quality of clinical care provided.

The 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 pregnant people and babies.

This report is underpinned by the New Zealand Maternity Standards (New Zealand Ministry of Health, 2011), which are overseen by NMMG.

Standard One: Maternity services provide safe, high quality services that are nationally consistent and achieve optimal health outcomes for all pregnant people and babies.

Standard Two: Maternity services ensure a person-centred approach that acknowledges pregnancy and childbirth as a normal life stage.

Standard Three: All pregnant people 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 pregnant people.

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

Membership included: representation from consumers and LMC midwives, a Māori health representative, obstetric and midwifery clinical leads, MQSP coordinators, an operational lead, and a representative from Strategy, Planning & Performance. Representation from other stakeholder groups is co-opted on a project-by-project basis throughout the year.

The current 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 2021 report is publicly available online at www.ccdhb.org.nz/news-publications/publications-and-consultation-documents/ccdhb-whs-2021-maternity-quality-safety-programme-annual-report.pdf.

Figure 1: **CCDHB MQSP Governance Structure**

VOICES OF PEOPLE AND THEIR WHĀNAU

Pregnant people and whānau continue to provide feedback about our maternity services in a number of ways, and it is very much appreciated.

Consumer survey posters are displayed around the wards, and can be accessed by scanning a quick response (QR) code. For consumers who prefer to reflect and feedback at a later date, a feedback card is placed inside the Well Child Health Book.

People also 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 brought to the attention of the MQSP Governance group.

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

The following is a selection of feedback received:

- "All of the staff at Kenepuru were absolutely amazing. The team of midwives all went above and beyond to help us as first time parents learn how to look after our little man. They all took time to clearly explain and show us things that have made the world of difference particularly with breastfeeding. Couldn't recommend more."
- "Amazing team! It's such a difficult job and they did amazingly. We really appreciated the anaesthetics team for their approach before and during the caesarean section. We also had lovely nurses post op and on the post natal [sic] ward, and really appreciated the support of the midwives in learning to breast feed and settle our baby. Our LMC was excellent before and during the birth."
- "Paraparaumu Birthing Unit is amazing. I went there for two nights after the birth of my first child and felt very supported and cared for. The midwifes [sic] were incredible in teaching and nurturing me. I was lucky to have the same day midwife there for three days. I have nothing but respect and admiration for midwives, thankyou [sic] for everything you do!"
- "All the staff were so incredible and made me feel so calm and supported."
- "Our experience with the CMT throughout our pregnancy was excellent! All the midwives we encountered were on to it and made us feel confident and supported."
- "We came into Wellington hospital and were really grateful for the care we received from our midwives and the hospital staff present at the time. I felt listened to and reassured that my options were explained to me."

Looking ahead: In collaboration with the consumer engagement team, MQSP are exploring alternative methods of gathering feedback from pregnant people and whānau.

ENGAGEMENT WITH STAKEHOLDERS ACROSS CCDHB

Meeting structures that support the MQSP through collaboration, information sharing and education, included monthly multidisciplinary maternity meetings (4M) and interface meetings between LMCs and midwifery management at Wellington hospital. Local interface meetings were also held at Kenepuru and Kāpiti birthing units. These meetings enabled effective two-way communication between governance and clinicians so that information about current issues, impending changes, improvements and policy updates were shared. Alternative meeting options, such as video and audio conferencing, were widely used as an option for increasing attendance and to maintain social distancing.

- Perinatal mortality and morbidity review meetings brought together obstetric, midwifery, neonatal staff, genetics, pathology and paediatric surgery for case review. Recommendations on systems and practice changes were fed back to relevant areas or to the clinical governance group.
- Morbidity and mortality meetings, brought gynaecology and maternity together to review cases of significance.
- CapitalDocs, the electronic policy, procedure, protocol and guideline information system contains relevant information for maternity healthcare providers.
- Emails, together with our Women's Health Service Newsletter are used to disseminate information to staff and LMCs about educational events, current articles of interest, public safety alerts, and new directives especially related to COVID-19 updates.
- Text and social media were used increasingly to advise pregnant people of events and to remind them of appointment times and dates.
- Pēpe ora will begin being promoted to LMCs and pregnant people.
- The provision of a 'free to air' education channel at Wellington's maternity ward, and DVDs at the primary maternity units provided a source of information to pregnant people and their whānau while they remain inpatients.

CULTURAL EDUCATION AND LEADERSHIP OPPORTUNITIES

CCDHB recognises the importance of cultural education amongst our workforce, and professional development particularly for Māori and Pacific midwives and nurses, and provides the following education opportunities.

NOHO MARAE – IMMERSIVE CULTURAL EDUCATION

The Noho Marae hosted in Ōtaki was an immersive educational experience for both Māori and non-Māori maternity staff. For some it was reigniting their connections and for others a first experience of that environment. Mātauranga was shared, and fresh voices and perspectives from leaders from both within and outside the scope of midwifery were presented. It was a much needed time to 'fill up the midwives cup' as the profession is over-worked and feeling the impact of the COVID-19 pandemic. The desire to be more culturally aware and give safe, appropriate care is forefront in people's minds, and immersive educational/ wānanga spaces are an ideal way to provide this.

NGĀ MANUKURA O ĀPŌPŌ

Ngā Manukura o Āpōpō, Tomorrow's Clinical Leaders, is a Māori clinical leadership programme specifically designed for Māori midwives and nurses. The programme runs over a four month period, and consists of four, two day wānanga. The programme is designed to stimulate learning,

discussion, debate, and action.

Key themes explored include:

- clinical governance
- leading change management
- tools and strategies
- current issues for Māori leaders, to name a few.

ANIVA PROGRAMME

Aniva is a Pacific leadership course which has been developed to improve understanding of Pacific culture and health perspectives. The course has been designed to facilitate networks across the Pacific health sector, support career progression into senior and leadership roles, and increase Pacific expertise in the health sector through building understanding of working cross-culturally and advocating for Pacific people.

NATIONAL PRIORITIES

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 specialist mental health services.

The CCDHB specialist maternal mental health service (SMMHS) is for people 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 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.

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

SMMHS covers the Wellington, Porirua, Kāpiti and the Hutt Valley regions. 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 people or new mothers, who are experiencing mental illness.

REFERRALS

Referrals can be made by GPs, midwives or other health professionals.

For Māori or Pacific people living in the CCDHB catchment, referral to Te Whare Marie or Health Pasifika is available. SMMHS are available to consult or jointly assess as required.

Referrals are received by Te Haika, the mental health and addictions contact centre for people in crisis, or who are experiencing moderate to severe mental health or addiction problems, and then forwarded to SMMHS intake clinicians for telephone contact and screening. The mental health, addictions and intellectual disability service (MHAIDS) 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 rates/numbers are not separated out from the whole of MHAIDS referrals.

In 2021 there were 288 referrals made to the SMMHS. CCDHB resident people made up only 44.7% (129) of the referrals. For people resident in CCDHB, there were 112 referrals to SMMHS and 17 requests for maternal mental health consultation. The majority of these referrals and requests came from GPs (48%) followed by midwives (14%), and MHAIDS Crisis Resolution Service (7.8%).

The SMMHS closed a total of 116 maternal mental health referrals in 2021. This figure may have included referrals from previous years. The majority were closed due to treatment being completed (62%). 12.9% of referrals were closed due to patients declining treatment. A very small number were closed due to other reasons including

treatment declined by the patient, or being lost to services for various reasons including being uncontactable, moving from the area, or not attending appointments.

INPATIENT SERVICES

CCDHB does not have a specific maternal mental health inpatient ward. People who present with severe mental health symptoms can be assessed and considered for admission to Te Whare o Matairangi, an inpatient facility at WRH. 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 person.

There is no provision for a baby to stay with a mother who is admitted at Te Whare o Matairangi. Unfortunately, usual practice is for the baby to remain in the care of whānau, who are encouraged to visit often with the baby. During the inpatient period people are encouraged to continue expressing if they are able, and breast pumps are accessed through the central equipment pool.

OTHER PRIMARY AND COMMUNITY BASED SERVICES

In 2020, 'Access and Choice' a new primary mental health initiative significantly increased the availability of free mental health support to people and families in primary care. During the 2021 calendar year, Access and Choice has provided over 19,000 sessions to more than 7,000 individual clients in a primary care setting, across the Capital and Coast, Hutt Valley and Wairarapa hospitals. Additional investment was planned in 2021 in order to increase resources in the Integrated Primary Mental Health and Addiction sector, in the 2022 to 2024 years Access has increased and these primary mental health resources will provide greater practice coverage and access through to 2024.

In 2020, CCDHB also commenced planning to further enhance the network of support and services for people who experience mild to moderate distress related to their pregnancy. In 2021, Capital and Coast and Hutt Valley invested in additional support in the Lower Hutt Women's Health Centre and Little Shadows for maternal mental health, and funded increased access to counselling sessions. Capital and Coast and Hutt Valley also invested in additional roles to increase resources for children of parents with mental illness which can include perinatal needs.

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 due to a lack of appropriate staff funding. 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 and training to support mothers caring for their babies.

SUPPORTING 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 Kenepuru Hospital. The aim of the clinic is to provide space for pregnant people to talk with a maternal mental health care provider about their mental health. Referral is through LMCs and DHB midwives and obstetricians for pregnant people where there may be concerns for mental wellness during the antenatal period. The clinic offers consultation and assessment with the pregnant person, and provides guidance and advice to the referrer. Referrals to secondary care mental health services (the SMMHS team) can also be facilitated.**
- **Consultation and liaison is available from our SMMHS for GPs and other health professionals engaging with pregnant and postnatal people, and includes information such as advice about medications, or any presenting symptoms. Team clinicians are available on a daily roster.**
- **Education and networking occurs with LMCs, DHB midwives, and NGO's (eg. Little Shadows). Education is supported and shared 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 at pada.nz/.**

SUPPORTING HEALTHCARE PROVIDERS DURING AND AFTER COMPLEX CASES

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

- CCDHB postvention (activities which reduce risk and promote healing after a suicide death) service, provide a review and support following a suicide.
- Critical incident debriefing is available on request to CCDHB staff.

EQUITABLE ACCESS TO CONTRACEPTION

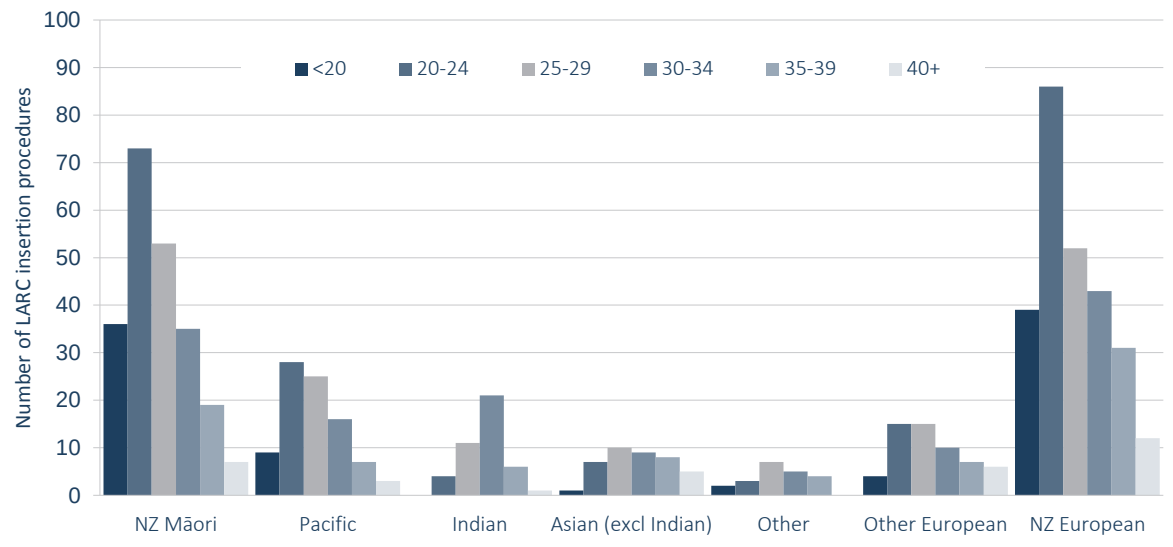
The need for equitable access to contraception was recognised and has been widened with funding gained for free contraception consultations. This service is available to all people aged 15-44 years who live in quintile five areas, or hold a community services card, through their GP. People are also able to access free insertion and removal of long acting removable contraceptive (LARC) devices such as Mirena, Jaydess, and Jadelle from their GP.

People under LMC care (Primary) are usually offered contraceptive advice by their LMC postnatally in the community, as the LMC has the best relationship with these people. Those people who had had input from secondary care have contraception discussed and offered prior to discharge. The GP and LMC are advised of the outcome of this discussion.

In 2021 there were 735 instances of people having a contraceptive device inserted during an inpatient admission, either through Te Mahoe (Termination of Pregnancy and Counselling Service) or Maternity specialty services.

The data shows that NZ Māori (73%), Pacific (70%), European (66%), and Other (57%) people were more likely to have a LARC inserted at less than 30 years old, while Asian (60%) people were more likely to be 30 years or older. Compared to 2020, there has been a trend across all ethnicities towards insertion of LARCs at a younger age.

Figure 2: **Age and ethnicity of people receiving LARC 2021**



PRETERM BIRTH

The Perinatal Maternal Mortality Review Committee (PMMRC) Twelfth 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 Asian (excluding Indian), Other European, and New Zealand European ethnic groupings.

Wellington had good overall outcomes for these babies. Since 2020 there has been more consideration in the use of rescue dose steroids and our current policy on Antenatal Corticosteroid Administration has given more clarity around which gestations require administration as well as when to give a rescue dose.

PRETERM BIRTH AT CCDHB

In 2021, 395 people (10.9%) had a preterm birth at CCDHB. The preterm birth rate for CCDHB domiciled people was 7.6%, and 32.2% for people from other DHBs (interdistrict transfers).

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

The highest overall rates of preterm births were in Māori people (15.8%), followed by Indian people (13.4 %). The highest preterm birth rate for CCDHB domiciled people was for Māori people at 10.3%. Looking at preterm birth rates of CCDHB domiciled people over the last five years, Māori and Indian ethnicities have the highest rates with 9.3% and 9.1% respectively.

The age group with the highest preterm birth rate was the under 20 years group, with 25.4% of their births being preterm. This rate dropped down to 13.0% when restricted to CCDHB domiciled people. It is worth noting that overall pregnant people under 20 years account for 1.6% of the birthing population, and as such these results are unlikely to be a true reflection of the population.

Looking at combined data from the last five years of CCDHB domiciled births, the groups with the highest rates of preterm birth are the under 20 years group (10.5%) and the 40+ years group (9.1%).

People who had preterm births were more likely to report cigarette smoking at booking (12.0%) than people who had term births (6.5%).

Table 1: **Preterm birth rate for CCDHB domiciled people combined 2017-2021, by ethnicity group**

	<32 weeks		34 - 36 weeks		All preterm births	
Ethnicity		**%**		**%**	**% of total births of ethnicity**	
Māori	45	2.1	132	**6.2**	197	**9.3**
Pacific Peoples	27	1.9	81	**5.6**	118	8.1
Indian	31	**2.8**	59	5.3	101	**9.1**
Asian (excl Indian)	25	1.3	101	5.4	147	7.9
Other	14	**2.2**	23	3.7	45	7.2
Other European	26	1.3	93	4.6	132	6.6
NZ European	66	1.1	271	4.4	392	6.3
Total	**234**		**760**		**1132**	**7.4**

Table 2: **Preterm birth rate for CCDHB domiciled people combined 2017-2021, by age group**

	<32 weeks		34 - 36 weeks		All preterm births	
Age group		**%**		**%**	**% of total births in age group**	
<20	7	**2.2**	23	**7.3**	33	**10.5**
20-24	34	**2.5**	65	4.7	108	7.8
25-29	48	1.4	190	5.5	269	7.8
30-34	84	1.5	310	5.4	465	8.1
35-39	70	1.8	208	5.5	320	8.4
40+	18	2.0	56	**6.2**	82	**9.1**
Total	**261**		**852**		**1277**	**8.2**

A previous audit of preterm birth outcomes at CCDHB was unable to show whether there was equity of access to optimising treatments and transfer for people birthing outside Wellington Regional Hospital as limited denominator data was available. There is currently consideration for developing a subsequent audit to investigate areas where we can further optimise preterm birth.

PLACE OF BIRTH

When pregnant in Aotearoa/New Zealand, you are able to choose with your Lead Maternity Carer the location you wish to birth your baby – at home, a birthing centre or in hospital.

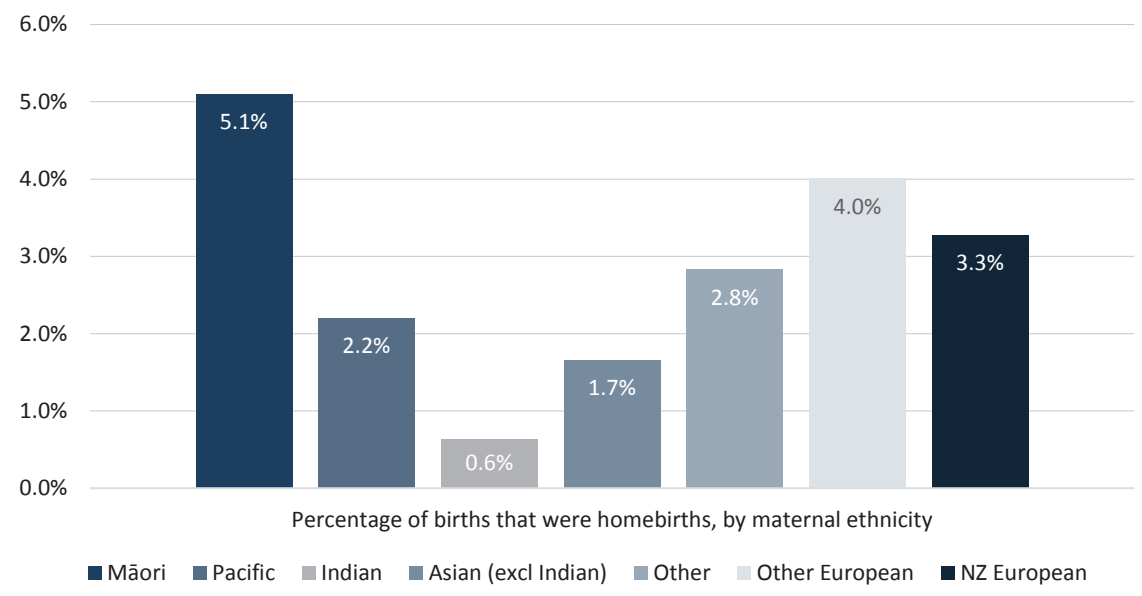
CCDHB are committed to supporting opportunities to optimise birth outcomes, and support place of birth options for the pregnant people. This includes supporting strategies for pregnant people who are well in pregnancy to access resources, which enable them to birth at home.

Homebirth is a safe choice for pregnant people who have no complications or risk factors that exclude birthing outside a hospital. Evidence shows that pregnant people who choose to birth at home or in a birth centre are more likely to have a normal birth, than those who give birth in hospital (Dixon, L., Prileszky, Guilliland,, Miller. and Anderson, 2019).

Despite this, the homebirth rates nationally reported over the past 10 years, have continued to remain less than 4 percent of all births. Reported rates of homebirths dropped as low as 3.2% in CCDHB region from 2017-2021.

The data shows that the homebirth rate was highest amongst Māori (5.1%) and Other European (4%) pregnant people. Whereas, Indian and Asian (excluding Indian) were least likely to have a homebirth with rates of 0.6% and 1.7% respectively.

Figure 3: **CCDHB Domiciled homebirths 2017-2021, by maternal ethnicity**



Source: Ministry of Health Qlik Sense hub , accessed October 11, 2022

The reasons for low homebirth rates are complex and include, but are not limited to:

- community perceptions of homebirth by birthing pregnant people and their whānau
- lack of knowledge or choice of birthplace options offered during pregnancy
- consumer fear of lack of pain relief options at home
- inability for midwife to offer homebirth, due to availability of backup or access to suitable consumables/resources
- care provided by Community Midwifery Teams who provide antenatal and postnatal care only
- lack of reporting data on homebirth through current CCDHB reporting.

In 2021, the district engaged in wide consultation with community and stakeholders to identify strategies which could improve equity of access and outcomes, in particular for Māori, Pacific People, and people with a disability. Stakeholders identified many of the barriers to homebirth, while also including the significant costs associated with the hire of pools and non-pharmaceutical pain relief options to support labour and birth at home.

In December 2021, the 2DHB Maternal and Neonatal System Plan was produced, which included a strategy to increase promotion and resourcing for homebirth for pregnant people in the CCDHB region, as a means of addressing some of the barriers the community has in accessing homebirth.

The strategy has been further developed to deliver a package of support for homebirth, and reduce the inequities that currently exist for pregnant people choosing to birth at home. This includes:

- information resources to help support evidence based choice for pregnant people and their whānau in relation to choice of birth location
- funded birth consumables packs for midwives to have continuous access to birth consumables
- loan of hospital funded birth pools (including inflation/fill kit, pool liners, and cover) to support the use of water in labour and birth
- loan of transcutaneous electrical nerve stimulation (TENs) machines to increase access to non-pharmaceutical pain relief options suitable for home
- loan of pulse oximetry machines, to allow homebirths to be offered monitoring in the first 24 hours to identify cardiac conditions in neonates – an option only currently afforded to those who birth in hospital
- education aimed at LMCs to increase knowledge and communication strategies to facilitate primary birthing at home.

2022 will see the wider development of these strategies, following the purchase of birth pools, TENs machines, and pulse oximetry that are to be located at each maternity service. Easy access for free-to-loan products are being developed, along with wider promotion through the Pēpe Ora website and consumer information.

NATIONAL RECOMMENDATIONS

MATERNITY VITAL SIGNS CHARTS (MVSC) AND MATERNITY EARLY WARNING SYSTEM (MEWS)

Introduction of the Maternity Vital Signs Charts (MVSC) with Maternity Early Warning System (MEWS) embedded was implemented in two phases at CCDHB. In December 2019, phase one was launched, which included all maternity, gynaecology, and termination of pregnancy services at Wellington hospital, KMU and PMU. In January 2021 Phase two was launched across all other adult services at CCDHB as education was targeted differently for these groups. This has led to good acceptance of the MVSCs across the hospital.

Auditing of the phase one group has revealed good compliance with the MEWS scoring. The auditing process included direct verbal feedback to staff as part of the process, and this proved useful in correcting issues early. It was intended to audit the roll out of the hospital wide charts but it has been difficult to track those who are on other wards using the MEWS scoring for those who are pregnant or have be recently pregnant (within 42 days).

NEONATAL OBSERVATION CHARTS (NOC) AND NEONATAL EARLY WARNING SCORE (NEWS)

The use of these charts within maternity is now being utilised routinely at CCDHB.

GROWTH DETECTION PROGRAMME (GAP) FOR SUSPICION AND DETECTION OF SGA

GAP is a program designed by the Perinatal Institute to improve detection of small for gestational age (SGA) babies. It has been linked to increased SGA detection, and a decrease in stillbirth in the UK (Hugh et al, 2021).

The Accident Compensation Corporation (ACC) has funded the national implementation of GAP across all DHBs in New Zealand. There has been steady improvement in detection of SGA at CCDHB throughout 2021, compared to 2020 when the program officially started, and a champion appointed. Prior to this there was some use of the GAP software, but not full implementation of the program which involves education of all clinicians, quarterly reporting of outcomes, auditing of missed SGA cases, following of the national SGA guideline, and use of algorithms to risk assess and manage pregnancies.

The rate of SGA births at CCDHB was 12.4%. This is slightly higher than the usual 10% and could be indicative of the maternity population, as CCDHB is a referral centre, and the audit is not limited to people domiciled in CCDHB.

WHERE ARE WE NOW?

Reports show that in 2021, 100% of births had a complete GAP/GROW record. The number of babies born SGA (< 10th centile) was 11.6% of total births recorded, and 4.2% for severe SGA (< 3rd centile). Antenatal detection of SGA and severe SGA has improved since 2020; 42.5% for SGA babies, an increase of 7.2% from 2020 (1.2% above national average), and 61.6% for severe SGA (2.5% above national average).

NEXT STEPS

Auditing of cases where SGA was not detected antenatally continues. GAP provides a systematic review tool for collation of data from records collected by the GAP champion. This informs a comprehensive report provided by the Perinatal Institute for CCDHB to use for quality improvement. COVID-19 has impacted planned study days, however work continues to improve engagement with GAP education. Clinicians are encouraged to attend a full GAP workshop every 3 years, and an annual e-learning update.

MQSP PROGRESS REPORT 2021

Detailed information about the projects in the following table can be found in the chapter: 'He whakatutuki kia kairangi - Steps towards excellence'.

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 3: **MQSP project progress report 2021**	**Status**
Optimising birth initiative	
Enhanced recovery after surgery care pathway	
Evaluation of a tailored approach to Antenatal Education Services	
Māori and Pasifika Midwifery Team	
Optimising preterm birth	
Hospital-wide implementation of maternity vital signs charts	
Establish a clinical pathway for pregnant people with identified placental implantation abnormalities	
Audit outcomes for pregnant people with placental implantation abnormalities	
Improving outcomes for Indian people	
Improving outcomes for people under 20 years	
Surveying people about their inpatient experience	

He whakatutuki kia kairangi

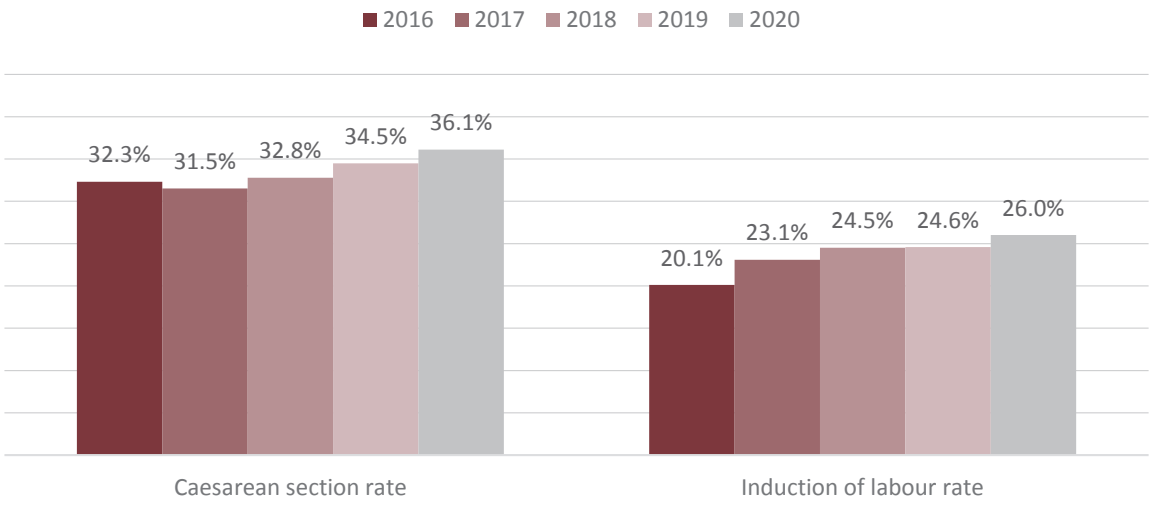
Steps towards excellence


Paula
Midwife

OPTIMISING BIRTH INITIATIVE

The Optimising Birth project was created in 2020 to interpret and respond to the rising rates of caesarean birth, and induction of labour at CCDHB.

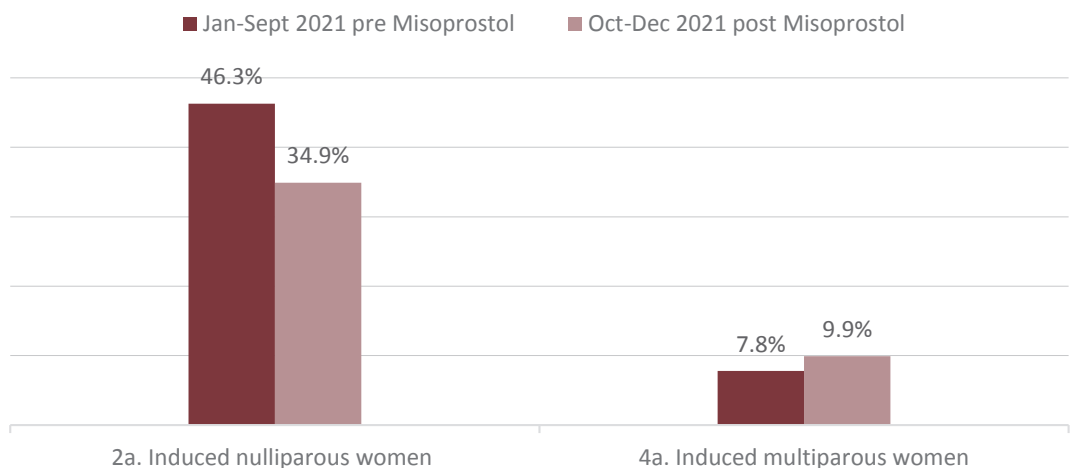
Figure 4: **Caesarean section and induction of labour rates at CCDHB 2016-2020**



In 2019, CCDHB adopted the Robson 10 reporting system to analyse birth outcomes according to a defined criteria. It became apparent during the analysis that the rates of caesarean birth were comparatively high in Group 1 (nulliparous people with a single cephalic pregnancy and ≥ 37 weeks gestation in spontaneous labour), and Group 2 (nulliparous people with a single cephalic pregnancy and ≥ 37 weeks gestation who had their labour induced or were delivered by CS before labour) with caesarean section rates of 20% and 50% respectively. This prompted a detailed audit focusing on these groups specifically. The audit revealed a number of areas for improvement in terms of service efficiency, but more importantly for people's labour experience.

Following the audit, the maternity service updated their induction of labour policy in line with evidence based, national, and international best practice. One change of practice proposed was the introduction of misoprostol as the preferred induction agent, replacing the previously used dinoprostin gel. Cochrane reviews support misoprostol to be as safe as other cervical ripening methods, with a higher success of vaginal birth. In addition it is inexpensive and administered orally, whereby making multiple vaginal assessments unnecessary. In October 2021, oral misoprostol was introduced as an alternative to dinoprostin gel for cervical ripening. By the end of 2021, there had been a reduction in the caesarean section rate in Group 2a (nulliparous people with a single cephalic pregnancy and ≥ 37 weeks gestation who had their labour induced) since the introduction of Misoprostol.

Figure 5: **Caesarean section rates at CCDHB for Robson groups 2a and 4a in 2021**



We would again like to thank our colleagues in MidCentral DHB and Palmerston North for the support and advice they shared whilst we were adopting this new approach to induction of labour.

NEXT STEPS

In collaboration with the project manager for optimising birth, an audit to monitor trends, birth outcomes, and levels of compliance with the misoprostol regime will continue. The audit will allow us to be dynamic in adjusting the induction process and policy to respond to consumer and staff feedback, and identify areas for staff education and further improvements in the birthing environment. The results of the audit are expected to be published in 2022.

ROBSON 10 CLASSIFICATION

The WHS continues to use Robson 10 reports to classify birth outcomes within CCDHB. Although there is not a significant change in the report for 2021, we are hopeful that as we see the improvements in birth outcomes following the introduction of misoprostol, the report will better reflect this in 2022. The WHS will continue to monitor birth outcomes using Robson 10 and identify areas of further improvement.

Table 4: **Robson Classification 2021: CCDHB**
Ref 1. Group size (%) = n of people in the group / total N people delivered in the hospital x 100 Ref 2. Group CS rate (%) = n of CS in the group / total N of people in the group x 100 Ref 3. Absolute contribution (%) = n of CS in the group / total N of people 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
1. Nulliparous people with a single cephalic pregnancy and ≥ 37 weeks gestation in spontaneous labour
2. Nulliparous people with a single cephalic pregnancy and ≥ 37 weeks gestation who had their labour induced or were delivered by CS before labour
2a. Labour induced
2b. CS before labour
3. Multiparous people without a previous CS with a single cephalic pregnancy and ≥37 weeks gestation in spontaneous labour
4. Multiparous people without a previous CS with a single cephalic pregnancy and ≥37 weeks gestation who had their labour induced or were delivered by CS before labour
4a. Labour induced
4b. CS before labour
5. All multiparous people with at least one previous CS with a single cephalic pregnancy and ≥37 weeks gestation
5a. One previous CS
5b. Two or more previous CS
6. All nulliparous people with a single breech pregnancy
7. All multiparous people with a single breech pregnancy including people with previous CS(s)
8. All people with multiple pregnancies including people with previous CS(s)
9. All people with a single pregnancy with a transverse or oblique lie, including people with previous CS(s)
10. All people with a single cephalic pregnancy < 37 weeks gestation, including people with previous CS(s)
Total

	Number of CS in group	Number of people 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)
	187	862	23.7%	**21.7%**	5.1%	**14.3%**
	304	584	16.1%	52.1%	8.4%	23.2%
	214	494	13.6%	**43.3%**	5.9%	**16.4%**
	90	90	2.5%	100%	2.5%	6.9%
	23	809	22.2%	2.8%	0.6%	1.8%
	86	362	10.0%	23.8%	2.4%	6.6%
	25	301	8.3%	8.3%	0.7%	1.9%
	61	61	1.7%	100%	1.7%	4.7%
	372	485	13.3%	76.7%	10.2%	28.4%
	298	408	11.2%	73.0%	8.2%	22.8%
	74	77	2.1%	96.1%	2.0%	5.7%
	93	108	3.0%	86.1%	2.6%	7.1%
	68	73	2.0%	93.2%	1.9%	5.2%
	39	73	2.0%	53.1%	1.1%	3.0%
	12	12	0.3%	100%	0.3%	0.9%
	124	278	7.4%	45.9%	3.4%	9.5%
	Total number CS	**Total number people delivered**			**Overall CS rate**	
	1308	**3638**			**36.0%**	

ENHANCED RECOVERY AFTER SURGERY PATHWAY

The enhanced recovery after surgery (ERAS) pathway is well established and used at CCDHB. An audit of the pathway is ongoing with the report of findings anticipated in 2022.

The ERAS Patient Information Booklet is currently being reviewed, before being translated into different languages to support the diverse ethnic groups cared for at CCDHB. The revised booklet should be ready for use in 2022.

PATIENT CONTROLLED ORAL ANALGESIA (PCOA) FOR ELECTIVE CAESAREAN SECTION

An audit conducted by colleagues at Hutt Valley DHB in 2017 revealed that chronic post-surgical pain (lasting more than two months) occurred in as many as 55% of postpartum people. As part of a quality improvement training project, problems were identified such as; poor rates of early mobility, delayed return to normal mobility, and high pain scores during inpatient admission.

An audit of clinical notes, and feedback found the following.

- Perceived practice by staff was not the same as the practice received by people, in regards to the timing of pain analgesia.
- Practice varies between staff when managing pain and inpatient recovery.
- People missing a dose of prescribed analgesia occurred often.
- 90% of people stated they would have preferred to self-manage their analgesia.
- All staff agreed implementing PCOA would be a worthwhile improvement.

Patient Controlled Oral Analgesia (PCOA) has been implemented in different DHBs around the country. We thank those at Hutt Valley DHB for allowing us to adapt their guideline for use at CCDHB.

A small trial consisting of four people undergoing elective caesarean section at CCDHB in 2021 concluded the following.

- The outsourced pharmacy PCOA process worked well
- Multimodal analgesia commenced in PACU happened in all cases.
- The need for further opioids to manage pain was reduced compared with previous audit.
- No doses of prescribed analgesia were missed.
- There was reduction in pain scores experienced by the people.
- Staff have started to improve rates of completed pain scores assessments.

Feedback from the people was positive throughout the trial. They spoke of empowerment; easy to self-manage; not reliant of staff; and transitioning to home was easy.

Bedside cabinets in each of the rooms on the postnatal ward will be used for people to store their self-administering analgesia blister packs safely. We expect to commence the PCOA project in 2022.

NEXT STEPS

Planned work for 2022 includes:

- Full roll out of self-administering analgesia blister packs.
- Investigation into the potential of a midwifery-led discharge process, with the intention to streamline the discharge process, leading to families being discharged home in a timely manner.
- Translation of the ERAS pamphlet into several languages increasing equitable access to care.
- Ongoing education for the post anaesthetic care unit team, medical staff, nurses and midwives involved in this exciting update.

TE WAI BEREAVEMENT PROCESS

The introduction of Te Wai is to honour the Māori traditional practice of using water when someone passes away. Te Wai represents the significance of water as the source of life and spirituality. In this context Te Wai signifies the ebbs and flows of one's life mimicking the natural flow of water and the ocean, linking people and the environment together as one. In the end we become part of the ever-flowing waters of life. Introducing Te Wai supports this particular tikanga practice, making it accessible for when a bereavement has occurred. The Te Wai bereavement symbol was created to acknowledge and notify staff that a death has occurred. The Te Wai trolleys are available for use when, or if, whānau wish. Having water to wash over your hands or to cleanse yourself when leaving a space with a tūpāpaku (deceased person) in it, is normal practice in te ao Māori. The rationale behind this is to remove the tapu (sacred) of one area where there is a tūpāpaku, and safely enter into the next area that is noa (not sacred).

AHO PĒPI WRAPS

Aho Pèpi wraps were introduced to improve the bereavement process for whānau. The wraps are culturally appropriate and a beautiful addition to the resources kept in the Pōhutukawa bereavement room. The resources support whānau to spend time with, and care for their pépe during this difficult time. These wraps are given to whānau to use for their pépe who are sadly in palliative care or have passed away. The Aho Pèpi wraps which were funded by the MQSP, are designed in Aotearoa and are made from 100% organic cotton. Aho work with production teams who practice kaitakitanga. The processes of creating the muslin wraps are both sustainable for the whenua, and also the people who grow and sew the materials.

OPTIMISING THE BIRTH ENVIRONMENT

Feedback from pregnant people and whānau in the birth unit identified an opportunity for the WHS to visually improve the birthing environment. The design of a birthing room influences the physical and emotional outcomes of people, and therefore it stands to reason that displaying new imagery would be a step toward promoting a more comfortable and de-medicalised birth space. It is thought that nature imagery creates a positive impact on people and so scenes of New Zealand were chosen to create a means of distraction, relaxation, and comfort.

UPDATE OF VIRTUAL TOURS & POSTNATAL EDUCATION CHANNEL

Virtual tours were created for Wellington Regional Hospital, Kenepuru Maternity Unit and Paraparaumu Maternity Unit to aid in making this a more manageable and less stressful experience. The content of the virtual tours has been updated to reflect our current maternity service with the following elements:

- Voice overs – this is an important way to communicate important information and engages auditory learners.
- Use of actors – following the same actor throughout the process will appeal to people who are visual and kinetic learners.
- Subtitles – the virtual tours can now be translated in the following languages; English, Te Reo Māori, Samoan, Hindi, Mandarin, Spanish, and Arabic.

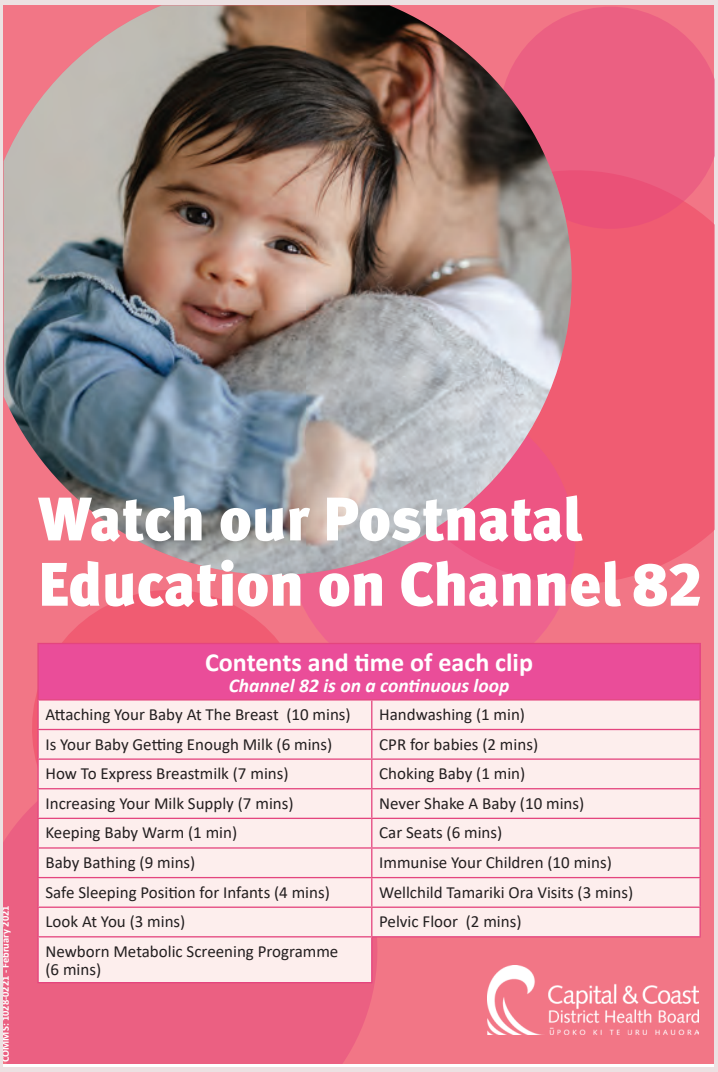
Wellington Regional Hospital: https://www.ccdhb.org.nz/our-services/maternity/giving-birth-at-our-hospitals/wellington-regional-hospital-birthing-suite/

Kenepuru Maternity Unit: https://www.ccdhb.org.nz/our-services/maternity/giving-birth-at-our-hospitals/kenepuru-community-hospital-maternity-unit/

Paraparaumu Maternity Unit: https://www.ccdhb.org.nz/our-services/maternity/giving-birth-at-our-hospitals/paraparaumu-maternity-unit/

The postnatal education channel was also updated. The channel is available for people and whānau to watch during their stay on the postnatal wards. Content were updated to reflect current practices and recommendations, and timings of each clip was reviewed to better engage viewers. The channel aims to educate people and whānau on some of the following:

- Breastfeeding
- Pelvic floor exercises
- Health, safety, and hygiene for babies
- Safe sleeping
- Newborn screening and immunisation programmes
- Providing first aid to babies
- Shaken baby



EQUALITY FOR OUR POPULATION

HAPŪ WĀNANGA – TAILORED ANTENATAL EDUCATION

Hapū Wānanga is a kaupapa Māori antenatal education offering that has been developed nationally. In 2021, a small collective of CCDHB Māori midwives and the maternal health coordinator travelled to Te Awamutu to observe a well established Hapu Wananga ki Tainui, and train with midwife Tamara Karu, and tāonga pūoro (traditional Māori musical instruments) expert Libby Gray, with a view to develop and deliver Hapū Wānanga education for the CCDHB region.

Through MQSP and 2DHB Strategy Performance & Planning, it was agreed that the development of a prototype, 10 month programme would be procured to support this fledgling initiative.

By the end of 2021, the Hapū Wānanga programme had been fully developed, and the initial set of classes had supported 30 māmā and whānau to access culturally responsive, kaupapa Māori hapūtanga education alongside best practice clinical information about pregnancy, birth, and life with a new pēpi. We look forward to reflecting at the end of 2022 on how the establishment of this programme went, how people benefited from attending it, and the strengths and challenges faced along the way.

TE AO MARAMA MIDWIFERY

In June 2020, three self-employed LMCs based in Porirua ceased clinical practice. These three experienced midwives had a combined caseload of 215 pregnant people of which 61 were Māori, and 91 were Pasifika. Porirua has the highest birth rate of all CCDHB localities.

The Community Midwifery Team (CMT) acts as the provider of last resort for pregnant people who are unable to find a community based LMC. While the CMT provide a good service, the full cost for the CMT falls to the DHB. Pregnant people under the care of the CMT must birth at WRH and they do not have the same midwife throughout pregnancy, labour, and the postnatal period. Relying on the CMT to fill the gap of midwifery care for Porirua would increase cost to the DHB and would not ensure the best health outcomes or experience for Māori and Pacific mothers and babies.

The benefits of Māori and Pacific people receiving antenatal, intrapartum, and postnatal care through a Māori and Pacific Midwifery Continuity of Care Team are well understood. Investing in this team will also reduce the burden on the CMT and increase the number of births occurring in primary birthing facilities.

A proposal for the creation of a Māori and Pasifika Midwifery Team was put forward to planning and funding and an alternative model of care was approved, and in December 2020, Te Ao Marama Midwifery Tapui Limited was formed.

Te Ao Marama Midwifery has a kaupapa of improving birth outcomes for Māori and Pasifika whānau in the Porirua region and provides antenatal, labour, birth, and postnatal care for wāhine and pēpi.

Te Ao Marama is made up of a group of five experienced Māori and Pasifika midwives who share a passion for providing culturally safe and relevant midwifery care in their community. They prioritise birthing in the primary birthing unit which is based at their local hospital campus in Kenepuru Maternity Unit. This approach has multiple benefits including keeping low risk whānau out of a tertiary hospital, which in turn keeps them nearer to their support systems.

Te Ao Marama use a team care approach which means all five midwives are responsible for care, rather than just one individual. This aides in

sustainability of the team and ensures the entire team has overview and input to care, adding depth to their service.

A strong part of Te Ao Marama's kaupapa is building up and future proofing the midwifery workforce, through supporting midwifery students. To this end, Te Ao Marama have students of all levels working alongside them. This is something they will not compromise on, therefore pregnant people and whānau are aware of this from the outset. This reinforces Te Ao Marama's commitment to training Māori and Pasifika students successfully through the midwifery programme, but more importantly it promotes a model of care that is culturally appropriate.

When choosing a site to set up the clinic, there were a few issues that needed consideration, to be mindful of equity. Te Ao Marama's purposefully sought out a location that was central to public access, yet allowed for privacy. The clinic is based on level four of North City Shopping Centre, a local shopping mall in Porirua. Other services that are located on the same floor as the clinic include Horizon Radiology and Family Planning.

Te Ao Marama have endeavoured to remove as many barriers as possible that could potentially prevent whānau from engaging with the service. Whānau who are unable to attend clinic appointments are offered home visits.

The measures of success for Te Ao Marama and CCDHB is multifaceted. Service objectives for Te Ao Marama include ensuring at least 80% of their caseload are Māori or Pasifika, improving pregnancy experiences and outcomes for Māori and Pasifika whānau, and providing flexible and culturally responsive midwifery care to people during their pregnancy.

Birthing at KMU has many benefits for Porirua based whānau. Primary birthing equates to less medical intervention, higher breastfeeding rates, and better health outcomes for whānau. It has the added benefit of being local so unnecessary travel is avoided, thereby reducing stress on whānau caused by fuel and parking costs, or by limited accessibility for those with no private transport.

Te Ao Marama will continue to build trusting relationships with other health and social support services in the community, in order to support pregnant people and their whānau. This includes breastfeeding services, Well Child / Tamariki Ora services, immunisations services, and other culturally appropriate services.

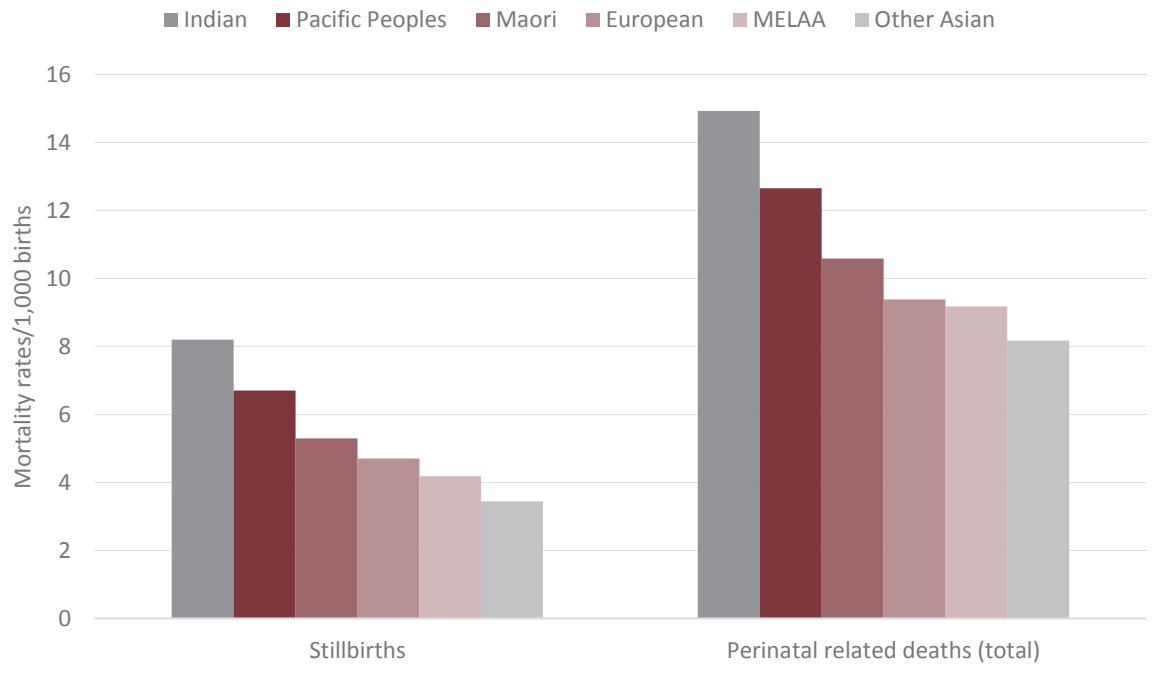
LOOKING AHEAD

Te Ao Marama's caseload is exceeding their service objectives, currently with 99% of pregnant people enrolled being Māori and Pacific. They are supporting all pregnant people to access other health providers, with currently 100% of people leaving their care being enrolled with a GP and Well Child Tamariki Ora provider. Te Ao Marama has so far supported 5 Māori and Pacific student midwives to succeed in their study. Māori and Pacific midwives are under-represented in the workforce, and we hope that Te Ao Marama's success will continue to attract and retain more into the profession. We look forward to seeing Te Ao Marama's further success and improvements on Māori and Pacific health outcomes, as they enter their first year as a team.

IMPROVING MATERNITY OUTCOMES FOR THE INDIAN COMMUNITY

The Thirteenth Annual Report from the PMMRC found that in New Zealand, Indian people had the highest rate of stillbirth, and they are the only ethnic group not to have had a significant reduction in the stillbirth rates since 2007. Indian mothers and babies are also over-represented in NICU admissions, emergency caesarean sections, and formula feeding. PMMRC have since called for all DHBs to demonstrate how they are planning and implementing models of care that meet the needs of Indian people.

Figure 6: **Perinatal related mortality rates (per 1,000 births) by maternal prioritised ethnic group 2013-2017**



MELAA = Middle Eastern, Latin American, or African.
Source: Thirteenth Annual Report of the Perinatal and Maternal Mortality Review Committee Reporting mortality and morbidity 2017

In 2021, Indian people made up 8.7% of the CCDHB birthing population. For the CMT, Indian people accounted for 14.5% of their caseload. In 2021, CMT midwife Clare Bardsley undertook an improvement project to develop a plan of action with specific recommendations of change. Steps of the improvement project included:

- Literature search around Vitamin D supplementation
- Discussion with members of Indian communities around care received
- Discussion with dieticians around dietary advice to prevent gestational diabetes
- Literature search around aspirin administration in first trimester to pregnant people whose only risk factor is Indian ethnicity

Findings included:

Mortality rates are higher amongst Indian people

due to preterm birth, placental dysfunction, and antepartum haemorrhage. It is known that higher rates of complications in pregnancy such as diabetes, anaemia, and cholestasis may be a contributory factor. Despite this, it remains unclear what causes poorer outcomes amongst Indian people, with limited evidence on how best to address this within clinical practice.

A literature search to explore the efficacy of commencing aspirin in the first trimester for people who only have Indian ethnicity as a risk factor found limited evidence that this could reduce adverse outcomes. A literature search exploring vitamin D supplementation in pregnancy, found promising evidence that offering supplementation to mothers of Indian, Māori and Pacific ethnicities could improve outcomes.

Following informal discussions with Indian people cared for by CMT, feedback identified the following:

- Varying levels of expectation around care received
- Limited understanding of how the New Zealand maternity system works
- People felt supported by antenatal and postnatal community care
- Workforce pressures and understaffing on postnatal wards limited the time staff could spend supporting people

Further feedback is needed to explore the above points in more depth, and help determine how best to improve outcomes and support Indian people.

The project finalised the following recommendations for change:

- Create a vitamin D guideline
- Develop feedback mechanisms to improve our understanding of pregnant Indian people
- Create a DHB specific addendum to the national gestational diabetes testing guideline
- Further investigate the influence of ethnicity on gestational length variance
- Assess cultural appropriateness of information given to people, and improve availability of translated material

VITAMIN D SUPPLEMENTATION IN PREGNANCY

There is growing evidence that vitamin D deficiency contributes to obstetric conditions such as gestational diabetes, pre-eclampsia, and intrauterine growth restriction (IUGR). Over 40% of people in Aotearoa of childbearing age are deficient in Vitamin D. The Australian and New Zealand College of Obstetricians has recommended supplementation for pregnant or breastfeeding people considered to be at risk of deficiency.

In response to these recommendations, CCDHB looked to establish a Vitamin D guideline for pregnancy. The guideline is to be used by LMCs, hospital midwives, obstetricians, medical registrars and house officers, and GPs.

Recommendations in the guideline include;

- The importance of Vitamin D to be discussed with every person at their booking appointment, including risk assessment
- Testing should only be considered for specific high risk conditions listed in the guideline
- Commence Vitamin D supplementation for those at risk of deficiency
- Toxicity is rare and occurs after several months of excessive and prolonged supplementation

Full implementation and staff education around the guideline is expected in 2022.

INTRODUCTION OF MIDWIFE CLINICAL COACHES PROGRAMME

In 2021, as part of the Midwifery Accord the MOH launched an initiative that would see a new midwife clinical coach role being introduced across New Zealand. The intention is to provide practical clinical education, demonstrating effective, evidence informed and culturally safe practice.

Clinical coaches are charged with sustaining a safe learning environment which hopefully enhances staff retention and reduces staff stress. It is a responsibility, as coaches, to evolve their own practice, keep up to date, and to continue to develop collaborative skills.

The launch of this nationwide initiative included seedling funding for the midwife clinical coach role within maternity facilities. Senior midwives appointed in these roles will provide additional support to colleagues (including midwives who may be new to the service area, or new graduate midwives), as well as acting in a supervisory capacity for midwives who are renewing their practicing certificates after taking a break. We are fortunate to have been alloated 1.5FTE for the role. This allowed us to appoint three midwife clinical coaches; Terry Wiffen, Paula Pila, and Eleanor Martin in 2021.

The midwife clinical coach team are a small ethnically diverse team with different skill sets and distinct communication styles. This diversity allows midwives to select the coach they would like to work alongside, or who best matches the skill set midwives are wanting to develop.

Key staff targeted for coaching are;

- Midwives and nurses who self-identify a need for a refresher in clinical skills or knowledge e.g. perineal repair
- Midwives wanting to develop a different skill set e.g. supporting physiological birth
- New graduate midwives
- New staff midwives and nurses
- Internationally registered midwives and nurses
- Return to practice midwives.
- Undergraduate students who will become graduate midwives.
- New maternity access agreement holders.
- Maori and Pacific midwives who may require additional cultural support

Midwives can self-refer to request coaching;

- Change of practice driven by new evidence
- Challenging or complex clinical presentations
- Physiological birth including water birth
- To devise a 'support plan' to use as evidence for your Quality Leadership Programme portfolio and annual appraisal.

IMPROVING FEEDBACK MECHANISMS – FACE-TO-FACE DISCUSSIONS

In 2020, the importance of obtaining consumer feedback was addressed and the consumer survey was redesigned in collaboration with the Māori Health Directorate. Focus was redirected towards the experience of Māori and Pacific people and their cultural needs and safety. The survey was translated into Te Reo, and a new card created to be placed in the Well Child book to make the survey accessible at a time convenient to the consumer. Despite this, there was, and continues to be poor survey participation.

In 2021, the WHS trialed a new approach of face-to-face discussions between the breastfeeding advocates and educators and Māori and Pacific people. It was thought that sharing feedback in a relaxed environment would build trust and transparency, and allow for more discussion and conclusions to be drawn. Questions were tailored towards identifying strengths and weaknesses within the service, and understanding more about how we could meet the cultural needs of Māori and Pacific people.

The feedback from people so far using this approach has been positive, however response rates have been hindered by limited face to face contact during the COVID-19 pandemic. We intend to continue this work in 2022.

GUIDELINES AND AUDITS

NEONATAL HYPOGLYCAEMIA POLICY

A serious adverse event that resulted in failure to recognise a baby's initial and ongoing risks of hypoglycaemia prompted a systems analysis review to be undertaken in 2019. Subsequently, the 'Prevention and Management of Neonatal Hypoglycaemia' policy was updated in 2020, following a comprehensive literature search and multidisciplinary collaboration between maternity services and the neonatal intensive care team.

The scope of the policy was widened to include '**All newborn infants** being cared for in NICU or WHS facilities', the list of risk factors were updated, and additional clinical features of hypoglycaemia were added to the policy.

In 2021, an audit to assess levels of compliance to the policy was undertaken in collaboration with Victoria University of Wellington, Faculty of Health Summer Scholarship Programme. Analysis of the data has taken the faculty longer than expected, and the report of findings are therefore expected in 2022.

PRE-TERM PRE-LABOUR RUPTURE OF MEMBRANES POLICY

The Spontaneous Rupture of Membranes (SROM) policy was updated and released in May 2021, following review. Pre-term pre-labour rupture of membranes (PPROM) occurs in 2% to 3% of pregnancies, but accounts for 30% of all preterm births.

Changes to this policy and related documents allowed for the different management options to be made available to people allowing for active management or expectant management depending on the clinical situation.

Outpatient management is now an option for people who have been inpatients for 72 hours, completed a course of intravenous antibiotics, and been assessed for signs of intrauterine infection.

Those that meet the criteria are allowed to go home and are seen twice weekly for assessment, once in a secondary obstetric antenatal clinic and then by a midwife.

Although the policy clearly outlines the outpatient option and criteria, it is not currently being utilised to its fullest potential.

NEXT STEPS

Low risk people need to be encouraged to attend as outpatients and clinicians need to be encouraged to consider the outpatient option.

CLINICAL PATHWAY FOR PREGNANT PEOPLE WITH IDENTIFIED PLACENTAL IMPLANTATION ABNORMALITIES

Globally the number of pregnant people with conditions where the developing placenta becomes abnormally attached to the wall of the uterus (womb) is increasing. This is thought to be due to the increasing caesarean section rate. The condition placenta accreta spectrum (PAS) is associated with a high risk of injury to the person, including major blood loss, bladder or bowel injury, and hysterectomy. Careful antenatal consultation and planning is critical.

In 2020 the WHS has developed a multidisciplinary pathway for pregnant people with PAS disorders, to allow appropriate pre-birth planning and consultation. There was involvement of all key stakeholders in the development of the document, which is evidence based and adapted to the local environment.

NEXT STEPS

The treatment journey of the first ten people with PAS will be audited.

LOOKING AHEAD TO 2022

A detailed copy of the MQSP work programme 2020-2021 can be found in: 'Appendices', under the section 'Appendix 1 – MQSP action plan 2020-2023'.

IMPROVING UNDERSTANDING OF PREGNANT PEOPLE 20 YEARS AND YOUNGER

Although pregnant people under 20 account for a minority of the CCDHB birthing population (1.6%), they are at significantly higher risk of adverse outcomes related to preterm birth, intrauterine growth restriction and are more likely to benefit from smoking cessation, and the promotion of timely antenatal care access than any other age group.

In the following table, clinical indicators in people under 20 years group are highlighted to show if the results are statistically significantly different from the average CCDHB person. Due to small sample sizes in 2020, the differences failed to reach significance for most indicators. Increasing the sample size to a five year period showed that this group are statistically significantly different to the average CCDHB domiciled person in most areas.

The data for the table below comes from CCDHB's Clinical Indicator Qlik application and shows data for the 2020 calendar year for CCDHB resident people. It is not possible to present 2021 data due to changes to the Maternity Notice which came into effect in November 2021. The changes caused the MOH pause updates on their Maternity Qlik application. They are not due to update their data until late 2022. As the MOH data feeds into the Qlik application, there is no data past October 2021. Indicators 2-9 are not included as the standard primapara person has to be at least 20 years of age. Indicators 13-15 are not included due to small numbers.

Table 5: **New Zealand Maternity Clinical Indicators 2020, by DHB of residence, showing CCDHB under 20 years group compared to the CCDHB average.**

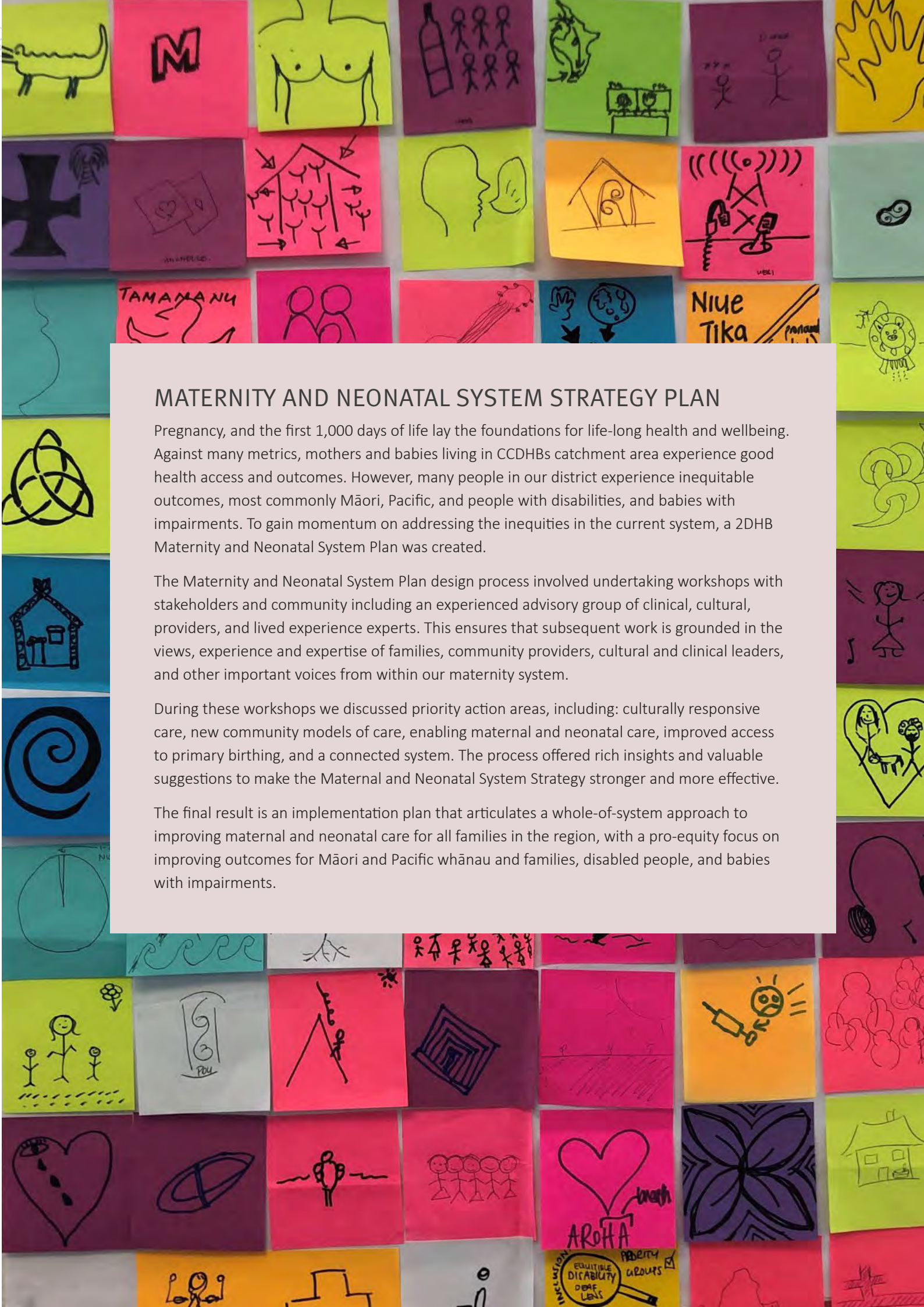
Clinical indicators: CCDHB under 20 years group compared to the CCDHB average		2016-2020	
		CCDHB	<20 years
1	Registration with an LMC in the first trimester	**76.45**	**50.6%**
10	People having a general anaesthetic for caesarean section	**7.1%**	**15.6%**
11	People requiring a blood transfusion with caesarean section	**3.1%**	**3.1%**
12	People requiring a blood transfusion with vaginal birth	**1.9%**	**2.8%**
16	Maternal tobacco use during postnatal period	**5.4%**	**23.0%**
17	Preterm birth	**7.5%**	**10.5%**
18	Small babies at term (37–42 weeks' gestation)	**2.9%**	**6.8%**
19	Small babies at term born at 40–42 weeks' gestation	**31.0%**	**52.4%**
20	Babies born at 37+ weeks' gestation requiring respiratory support	**2.7%**	**1.6%**

The results of this table are reflected in national findings of the Twelfth Annual Report from the PMMRC, which found that although the number of mothers under 20 had halved from 2007 to 2016, there was a significant increase in perinatal related mortality in this age group.

The PMMRC recommended that DHBs prioritise addressing equitable outcomes for people under 20, by co-developing acceptable and safe methods for them to access and engage with care.

Planned improvements include;

- Improve understanding of pregnant people 20 years or younger
- Explore barriers in accessing maternity services
- Develop a strategy to engage with this group of people and ensure appropriate antenatal education is offered
- Ensure all pregnant people 20 years or younger are being risk assessed for;
  - Smoking cessation
  - Sexually transmitted, and urinary tract infections
  - IUGR



MATERNITY AND NEONATAL SYSTEM STRATEGY PLAN

Pregnancy, and the first 1,000 days of life lay the foundations for life-long health and wellbeing. Against many metrics, mothers and babies living in CCDHBs catchment area experience good health access and outcomes. However, many people in our district experience inequitable outcomes, most commonly Māori, Pacific, and people with disabilities, and babies with impairments. To gain momentum on addressing the inequities in the current system, a 2DHB Maternity and Neonatal System Plan was created.

The Maternity and Neonatal System Plan design process involved undertaking workshops with stakeholders and community including an experienced advisory group of clinical, cultural, providers, and lived experience experts. This ensures that subsequent work is grounded in the views, experience and expertise of families, community providers, cultural and clinical leaders, and other important voices from within our maternity system.

During these workshops we discussed priority action areas, including: culturally responsive care, new community models of care, enabling maternal and neonatal care, improved access to primary birthing, and a connected system. The process offered rich insights and valuable suggestions to make the Maternal and Neonatal System Strategy stronger and more effective.

The final result is an implementation plan that articulates a whole-of-system approach to improving maternal and neonatal care for all families in the region, with a pro-equity focus on improving outcomes for Māori and Pacific whānau and families, disabled people, and babies with impairments.

Te whakapiki kounga taurimatanga

Improving quality of care

SOURCES OF GUIDANCE FOR MQSP WORK PROGRAMME

PERINATAL EDUCATION MEETING THEMES

CCDHB hold monthly perinatal mortality education meetings with multidisciplinary input. These meetings bring together obstetric, midwifery and neonatal staff for case reviews. The aim of these meetings is to provide an opportunity for learning, discuss practice, and identify areas for systems improvement. Other disciplines involved include, anatomic pathology and genetics services. These groups provide valuable advice, assisting with the formal PMMRC perinatal death classification process that informs the information collated in the PMMRC annual reports. This multidisciplinary collaborative approach is in keeping with PMMRC's overall theme of 'Working together across the system towards zero preventable deaths or harm for all mothers and babies, families and whānau'.

By theming case reviews we identify educational topics that relate to the cases presented, providing learning and discussion about issues in the context of clinical cases. This facilitates shared learning and insight, provides directions for possible improvements to care, service delivery, and better meets the needs of whānau who have suffered a perinatal loss.

In 2021 meeting themes included:

- COVID-19- Managed Isolation and Quarantine (MIQ)- provision of local services to meet the needs of people in MIQ facilities and measures to escalate care
- Identifying growth restriction in babies and provision of ongoing growth surveillance using GROW charts and scanning services
- Management options for people with previous small for gestational age babies
- Peri-viable birth management and care provision for whānau
- Ultrasonography services in maternal fetal medicine
- Management of complex pregnancies including complications of twin pregnancies, babies with cardiac anomalies, and understanding idiopathic hydrops
- The role of genetic services in investigations and providing input for families with identified or potential genetic issues
- Neonatal encephalopathy including hypoxic ischemic encephalopathy identification, management, and harm reduction.

We continue to look locally at ways to improve service delivery to sustain appropriate uptake of best practice investigations. We continue to strive to ensure that those whānau that experience the loss of a baby can expect to have as much information as possible for planning any future pregnancy.

MULTIDISCIPLINARY MEETINGS

Multidisciplinary maternity and gynaecology education sessions relating to practice occur monthly.

- In 2021, some of the topics included;
- Management of wound infections
- Inclusivity in childbirth services
- Preterm labour guideline update
- Pregnant people's experience of using virtual reality in labour
- C*Steroid trial

- Optimising birth: misoprostol and labour management
- Violence in the home
- Wellbeing
- Anti-D immunisation in pregnancy
- COVID-19 in pregnancy
- Vitamin D in pregnancy

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 case studies of major PPH's, postnatal seizures, continued bleeding following balloon insertion, and return to theatre case studies.

Outcomes included:

- An education session on 'Management of Migraine in Pregnancy'
- Encouraging medical teams to complete 'Recommendations for Next Pregnancy' at discharge
- Employment of obstetric physician for management of medical disorders in pregnancy
- Inclusion of whether the person requires BP support to theatre sign out
- Ensuring regular review of person if there is delay going to theatre

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

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 reducing perinatal deaths while continuously improving the quality of systems and policy.

The committee reviews the deaths of babies (from 20 weeks of pregnancy to 28 days after birth) and people who die as a result of pregnancy or child birth, and advises on how to prevent such deaths.

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. 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.

MATERNAL MORBIDITY WORKING GROUP

The PMMRC established the Maternal Morbidity Working Group (MMWG) to investigate maternal morbidity. The vision created by the MMWG is 'better outcomes for mothers in New Zealand', with an aim to 'to improve the quality and experience of maternity care for people, babies, families and whānau, informed by robust, consistent, reportable and people-centred maternal morbidity review'.

HEALTH QUALITY & SAFETY COMMISSION NEW ZEALAND

The HQSC patient deterioration programme aims to reduce harm from failures to recognise or respond to acute physical deterioration for all adult inpatients by July 2021. The programme works with hospitals to establish recognition and response systems for managing the care of acutely deteriorating patients.

ADVERSE EVENTS

Adverse events are any 'event with negative or unfavourable reactions or results that are unintended, unexpected or unplanned'. Adverse events or near misses are reported in an effort to increase patient safety by examining the situation in which the event took place. A total of 461 reportable events were generated in the WHS during 2021, with 116 (25%) events being categorised as Maternal/Childbirth, the next highest category was Staffing with 99 (21%) events, followed by Clinical Care/Service/Coordination with 78 (17%) events, and Staff and Others Health and Safety with 53 (11%) events.

SERIOUS ADVERSE EVENTS - SEVERE (SAC1) AND MAJOR (SAC2)

The Severity Assessment Code (SAC) is a numerical rating which defines the severity of an adverse event and as a consequence the required level of reporting and investigation to be undertaken for the event. (Source: www.hqsc.govt.nz/assets/Reportable-Events/Publications/National_Adverse_Events_Policy_2017/National_Adverse_Events_Policy_2017_WEB_FINAL.pdf/)

Across the WHS in 2021, there were three reportable events that were considered as severe (SAC 1) and two as major (SAC 2) events. Each event was fully investigated by review teams, with any learnings applied to reduce the risk of a similar event occurring.

Some of the recommendations included: a request for patient permission to use case studies to improve teaching experiences in relation to placental abruption, establishing and implementing a formal guideline for optimal management of placental abruption, improve awareness of identifying and managing risks for Multi Drug Resistant Organisms.

Ngā Āpitihanga
Appendices

APPENDIX 1 – MQSP ACTION PLAN

Table 6: **MQSP work programme 2020-2023**			
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	Complete
1.2	Robson 10 reporting	• Utilise the Robson 10 classification system for reporting and categorising all pregnant people	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 people	• Over a two month period, review the outcomes of all people in group 1 and group 2a whose birth resulted in a caesarean section	Complete
		• Identify recurring themes and areas requiring further investigation	Ongoing
		• Consider what, if any, alternative actions / management of care may have been required	
		• Present findings of initial audit to upcoming hui	Complete
		• Assemble a midwifery, and obstetric team to review the outcomes of group 1 and group 2a people	
		• 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	Complete
		• 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 (OP) to occiput anterior (OA) for people with cervical dilation over 8cm	• Prospective audit of current rates of OP and obstructed labours resulting in caesarean section	Yet to commence
		• Promote awareness of this labour management option	Ongoing
		• Increase training in this procedure	

1.7	Develop an ERAS pathway for people having elective caesarean sections	• Agree on a pathway with midwifery, obstetric, anaesthetic leads, and LMCs including private obstetric LMCs	Complete
		• Promote ERAS pathway and undertake relevant education	Complete
		• Amend written information given to people	Complete
		• Introduce patient controlled oral analgesia	2021-2022
		• Investigate potential of midwifery-led discharge process, streamlining the process, leading to timely discharge	
		• Translate the ERAS pamphlet in to different languages to promote equitable access to care	
1.8	Setting the scene for future pregnancies	• Develop a robust process where people whose birth has resulted in a caesarean section are advised of their likelihood of achieving a vaginal birth in a future pregnancy, before leaving hospital inpatient services	2022-2023
1.9	Develop maternity key performance indicator (KPI) dashboard	• Develop a maternity dashboard inclusive of clinical indicators which is visible to all providers of maternity care	Complete
		• The Qlik application will likely be used to provide this data	
1.10	Primipara induction of labour (IOL)	• Improve/reduce primipara IOL rates	Yet to commence
		• 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 people presenting with preterm pre-labour rupture of membranes (PPROM)	• Audit number of people admitted to CCDHB with PPROM in 2018	Complete
		• Consider the possibility of caring for people 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 person 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	Ongoing
		• Consider who best to contact in case of emergency	Complete
		• Develop brochure and screening tool for people to use in the community	
2.2	Preterm birth referrals	• Improve the antenatal screening and referral process for people at risk of preterm birth	Ongoing
		• Establish a structured triage process	
		• Modify the discharge summary information sent to people, LMCs, and GPs about the importance of early referral in future pregnancies	Complete
		• Develop a standardised letter regarding aspirin use in pregnancy	
		• Create an information sheet regarding preterm birth signs and symptoms	
		• Consider a preterm birth outpatient clinic	Not progressing

2.3	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 data with the aim of standardising care once reviewed by epidemiologist	Planning
		• In collaboration with NICU, determine 23 – 26 weeks survival rates	Ongoing
2.4	Create guideline that includes treatment of ROM inclusive of preterm birth management	• Create spontaneous pre-labour rupture of membranes guideline (PROM) that includes pre-term PROM (PPROM), to provide recommendations for management	Complete
		• Create preterm labour management algorithm to coordinate care according to gestation	
		• Create PPROM outpatient management form, to enable self-monitoring for signs of infection	
3	**Maternal Outcomes**		
3.1	New Zealand Maternity Clinical Indicator seven, standard primipara with episiotomy, without mention of third or fourth degree tear	• Aim to reduce our rates of third and fourth degree tears	Yet to commence
		• Audit the CCDHB data on clinical indicator seven	
		• Practice improvement in episiotomy method, with training	
		• Perineal support education	
3.2	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	
		• Develop a one page sepsis pathway checklist	
		• Create sepsis grab boxes/trolleys and implement a process to restock them after use	
		• Offer education to providers of maternity care	
		• Re-audit outcomes in 2021	2022-23
3.3	Following implementation of the charts in maternity, the maternity vital signs chart will be rolled out across CCDHB	• Roll out maternity vital signs chart for use on people who are pregnant or recently pregnant (within 42 days), on medical, surgical, and mental health wards	Complete
		• Provide comprehensive education to each of the ward educators, senior nurses and doctors preceding this roll out	Complete
3.4	Audit compliance of maternity vital signs chart in maternity sector	• Audit compliance with use of the chart and use of escalation pathways	Complete
		• Implement action plan if audit results show non-compliance issues	Not required

4	**Neonatal Outcomes**		
4.1	New Zealand Maternity Clinical Indicator 20, term newborns requiring respiratory support	• Aim to reduce the rate of term newborns requiring respiratory support	Yet to commence
		• Formalise GAP/GROW contract and appoint to this role	Complete
		• Detailed initial GAP/GROW mandatory training carried out by the Perinatal institute via Zoom	
		• Undertake retrospective audit of 500 births from 2017 to gain baseline rates of SGA births	
		• Continue to offer annual education in fetal surveillance education to all maternity care providers free of charge	Business as usual
		• Continue regular PROMPT days for the multidisciplinary team. Encourage LMC attendance at primary birthing unit education days.	
		• Encourage multidisciplinary engagement with the monthly morbidity and mortality meetings	
		• Encourage multidisciplinary attendance at the perinatal education meetings	
4.2	Neonatal encephalopathy (NE) outcomes	• Reduce the number of newborns born at CCDHB with NE	Ongoing
		• Use the PMMRC process and continue ongoing audit of all babies diagnosed with NE	Business as usual
		• Introduce newborn observation chart and newborn early warning score to maternity	Complete
4.3	Implement the roll out of the nationally agreed NOC/NEWS newborn observation charts	• Appoint a NOC/NEWs champion	Complete
		• Provide face to face and online education packages	
		• Purchase additional equipment to enable accurate newborn observations	
		• Agree on go-live date of 19 October 2020	
		• Implement DHB wide	
5	**Improving Equity**		
5.1	Understanding the needs and outcomes of people 20 years and younger	• Improve our understanding of pregnant people 20 years and younger	2022
		• 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	
5.2	Smoking	• Reduce the number of Māori and Pacific people smoking during pregnancy	To be reviewed
		• Engage with young Māori and Pacific people to explore the barriers to them stopping smoking during pregnancy	
		• Revisit and re-promote nicotine replacement therapy with staff	
5.3	Survey people about their inpatient experience	• Seek to find ways we can improve our services	Ongoing
		• Create an easily accessible feedback survey, which people or whānau can complete on an iPad or by scanning the QR code	Complete
		• Results will be audited monthly	Business as usual
		• Staff will be notified of feedback pertaining to their area	

5.4	Build a culturally appropriate workforce	• The ethnic diversity of our workforce should reflect that of the people we care for	Ongoing
		• Develop a midwifery Māori and Pacific continuity of care team to provide care for Māori and Pacific people, especially those with complex needs	Complete
5.5	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	Complete
		• Include specific cultural feedback on patient feedback surveys	
		• Survey Indian people about the model of care required	2022
5.6	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 pregnant people	
		• Provide wahakura and pepi pods when needed	
		• Aim to meet the MOH target for wahakura/pepi pod distribution	Complete
5.7	Monitor key maternity indicators by ethnicity to identify variations in outcomes and improve areas where there are differences in outcomes	• Create Qlik application showing maternity clinical indicators which can be filtered by ethnicity	Complete
		• Examine maternity clinical indicators by ethnicity to identify variations	Ongoing
5.8	Reduce the high number of adverse maternal and fetal outcomes for our Indian maternity community	• Improve our understanding of pregnant Indian people	Ongoing
		• Audit their birth outcomes	Complete
		• Develop a plan of action with specific recommendations of changes and actions	
		• Create an ongoing project team to implement and monitor actions	
		• Recruitment within the Indian community for a Maternity Consumer Representation of the MQSP governance group	
		• Create a vitamin D guideline	
		• DHB-specific addendum to national gestational diabetes testing guideline to be created	2022-2023
		• GROW charts usage encouraged for community team midwives	
		• Further investigation needed on influence of ethnicity of gestational length variance and guidelines following this	
		• Indian breastfeeding peer support counsellors to be recruited	
		• Review of handout material given to maternity clients to assess cultural appropriateness and possibility of translation.	

6	**Bereavement Midwife**		
6.1	Investigate the possibility of employing a bereavement midwife	• Engage stakeholders to explore difficulties or barriers to accessing LMCs and maternity services	Yet to commence
		• Develop strategies to further engage with this group	
		• The bereavement midwife will be the point of contact for people to prevent them having to re-tell their story multiple times.	
7	**NMMG recommendations**		
7.1	NMMG recs for 2020 relevant to MQSP (1)	• Encouraging low-risk people to birth at home or in a primary facility	2023
		• Promotion of primary birthing facilities	2022
7.2	NMMG recs for 2020 relevant to MQSP (2)	• Equitable access to post-partum contraception, including regular audit	2023
7.3	NMMG recs for 2020 relevant to MQSP (3)	• Equitable access to primary mental health services	Ongoing
		• Maternal mental health referral & treatment pathway	
8	**MMWG recommendations**		
8.1	MMWG (Subgroup of PMMRC) (1)	• Implementation of Hypertension guideline, with a review/ re-stock of medications to ensure easy availability & administration in acute care settings	Complete
8.2	MMWG (Subgroup of PMMRC) (2)	• Use of the Health Equity Assessment Tool (the HEAT) to assess services for the impact of health equity	2022-2023
8.3	MMWG (Subgroup of PMMRC) (3)	• Establish a clinical pathway for pregnant people with identified placental implantation abnormalities	2022

APPENDIX 2 – DEFINITIONS

This report includes maternal and infant data pertaining to people 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 people 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:

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

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, Other European, and Other Ethnicities together as a combined number where MOH nationwide data is used. Indian people are separated out from Other Asian people to reflect the growing disparity of outcomes for Indian people.

Table 7: **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

ABBREVIATIONS AND DEFINITIONS

Table 8: **Abbreviations**

2DHB	Capital & Coast, and Hutt Valley DHBs
ACC	Accident Compensation Corporation
BFHI	Baby friendly hospital initiative
CCDHB	Capital & Coast District Health Board
CMT	Community midwifery team
CS	Caesarean section
CTG	Cardiotocograph
DHB	District Health Board
ERAS	Enhanced recovery after surgery
GAP	Growth Assessment Protocol
GP	General practitioner
GROW	Gestational related optimal weight
HEAT	Health Equity Assessment Tool
HQSC	Health Quality and Safety Commission
IOL	Induction of labour
ISSN	International standard serial number
KMU	Kenepuru maternity unit
KPI	Key performance indicator
LARC	Long-acting reversible contraceptives
LMC	Lead maternity carer
MAT	National maternity collection
MEWS	Maternity early warning score
MFM	Maternal fetal medicine
MHAIDS	Mental health, addictions and intellectual disability service
MMWG	Maternity Morbidity Working Group
MOH	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
NOC/NEWS	Newborn Observation Chart/Newborn Early Warning Score
NZ	New Zealand
OA	Occiput anterior
OP	Occiput posterior
PADA	Perinatal Anxiety & Depression Aotearoa
PAS	Placenta accrete spectrum
PIMS	Perinatal information management system
PMMRC	Perinatal and Maternal Mortality Review Committee
PMU	Paraparaumu maternity unit
PPROM	Preterm pre-labour rupture of membranes
PROM	Pre-labour rupture of membranes
PROMPT	Practical obstetric multi-professional training
QR	Quick response
SAC	Severity assessment code
SGA	Small for gestational age
SMMHS	Specialist Maternal Mental Health Service
SP	Standard primiparae
SUDI	Sudden unexplained death in infancy
WHS	Women's Health Service
WRH	Wellington Regional Hospital

Table 9: **Definitions**	
Body mass index	A measure of weight adjusted for height.
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
Jaydess	A hormone releasing intra-uterine device
Kairaranga	Traditional weaver
Kaupapa	Topic, policy, matter for discussion, plan, purpose, scheme, proposal, agenda, subject, programme, theme, issue, initiative.
Mirena	A hormone releasing intra-uterine device
Misoprostol	A synthetic prostaglandin medication used to induce labour
Morbidity	The consequences and complications (other than death) that result from a disease
Multidisciplinary team	A multidisciplinary team involves a range of health professionals working together to deliver comprehensive health care
Normothermia	The maintenance of normal core body temperature
Nulliparous	Has not given birth previously
Pākehā	New Zealander of European descent
Parity	The number of previous pregnancies that were carried to 20 weeks
Pēpi	A baby or infant
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
Tamariki	Children
Tertiary	Specialised consultative health care, usually for inpatients and on referral from a primary or secondary health professional
Wahakura	A woven flax bassinet for infants up to 5-6 months of age
Wānanga	Teaching and research that maintains, advances, and disseminates knowledge and develops intellectual independence
Whānau	Extended family, family group, a familiar term of address to a number of people

APPENDIX 3 – DATA SOURCES

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

- CCDHB Business Intelligence and Analytics Unit
- CCDHB patient management system
- Perinatal Information Management System (PIMS)
- CCDHB Maternity Clinical Indicators (PIMS) Qlik application
- CCDHB Maternity Clinical Indicators (MOH) Qlik application
- MOH Report on Maternity web tool
- MOH Qlik Sense Hub

APPENDIX 4 – REFERENCES

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"Me mahi tahi tātou, mo te oranga o te katoa"
"We must work together for the wellbeing of all"
- Māori proverb