Catalysts for Change: Innovating Maternal and Infant Health

CPQCC & CMQCC 2024 Impact Report

"As families, we have a unique opportunity to create both policy change and structural change within hospitals. We also have opportunities to impact the education of medical practitioners, at medical schools, to ensure that they come out of their programs with a solid foundation of knowledge of these issues."

— **Sylvia, with NICU Graduate Felix**
NICU Mom & CPQCC California NICU Family Advisory Council Member

CPQCC
California Perinatal
Quality Care Collaborative

CPQCC's mission is to improve the quality and equity of healthcare delivery for California's most vulnerable infants and their families, from birth and NICU stay to early childhood.

CMQCC
California Maternal
Quality Care Collaborative

CMQCC's mission is to end preventable morbidity, mortality, and racial disparities in California maternity care.

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Message From Leadership

In 2024, CPQCC and CMQCC made meaningful progress toward saving lives and improving health outcomes for our state's pregnant population, babies, and families. As the State of California Perinatal Quality Collaborative, we are better positioned than ever to serve 40 million residents and innovate perinatal quality care improvement in the U.S.

With nearly 11% of U.S. births occuring in California each year, CPQCC and CMQCC's quality improvement efforts have significant impact. Our work is generously supported by our partners: member hospitals, the California Department of Public Health—Maternal, Child, and Adolescent Health Division (CDPH/MCAH), the California Department of Health Care Services, providers, funders, payors, community-based organizations, and especially, mothers and families.

By centering these perspectives and lived experiences within quality improvement efforts, we are strengthening the continuum of care for our pregnant population and babies. Our organizations work to ensure California remains an ideal place to be pregnant and have a baby. However, individual stories and clinical data demonstrate this is not the reality for every family. As long as gaps in care exist across any demographic, community, or for any medical condition, our mission remains urgent and vital.

Thank you for your ongoing collaboration in this essential work. We look forward to continuing to drive progress toward our vision of healthy pregnancies, healthy babies, and healthy births for all of California's families.

— The CPQCC/CMQCC Leadership Team

Jochen Profit, MD, MPH
Chair and Principal Investigator, CPQCC, and Co-Chair and Co-Principal Investigator, CMQCC

Deirdre Lyell, MD
Chair and Principal Investigator, CMQCC, and Co-Chair and Co-Principal Investigator, CPQCC

Leslie Kowalewski
Executive Director of Maternal, Child, and Family Health, CPQCC/CMQCC

Partners

Blue Shield of California

California Department of Health Care Services

California Department of Public Health–Maternal, Child, and Adolescent Health Division

Centers for Disease Control and Prevention

The Joseph & Vera Long Foundation

Lucile Packard Foundation for Children's Health, Palo Alto, California

March of Dimes

Merck for Mothers

National Institutes of Health

Office of the California Surgeon General

Skyline Foundation

Stanford Medicine

U.S. Health & Human Services Department–Health Resources and Services Administration

Impact in California and Beyond

-8% Neonatal Mortality

-13% Severe Intraventricular Hemorrhage

27% of HRIF Program Children Required 1+ Specialty Referrals

CPQCC Member NICU Average Health Outcomes Improvements, 2014-2023

In 2024, High Risk Infant Follow-up (HRIF) Program clinic teams identified unmet needs for specialty services requiring referral at visit. (Data capture completed in 2024 for 2020 births.)

-35% Pregnancy-Related Mortality Ratio (PRMR) Than U.S.

California's 2021 PRMR (21.6) Was 35% Lower Than U.S. PRMR (33.2) (CMQCC)

PRMR is the number of pregnancy-related deaths per 100,000 live births, up to one year after pregnancy ends, with 2021 data being the most current

<1 Hypertensive Disorders of Pregnancy (HDP) Mortality Rate, 2018-2021

California's HDP Deaths at All-Time Low (0.9 PRMR)

Attributable to statewide implementation of toolkits from CDPH/MCAH and CMQCC, despite HDP morbidity increasing, with 2021 data being the most current

60 CMQCC Member Hospitals

Sustained California's NTSV Cesarean Birth (PC-02) Target Rate of ≤23.6%, from 2021-2023

"CPQCC's Primary Care for Preterm Infants & Children Toolkit has been an invaluable resource for me in everyday practice as a primary care pediatrician caring for premature infants. I am not aware of other such resources in Massachusetts that coordinate a summary of recommendations from the American Academy of Pediatrics, CDC, and the Advisory Committee on Immunization Practices to support primary care providers in caring for preterm infants and children. The toolkit is extremely well written and easy to use. I also appreciate that it is updated regularly to reflect current guidelines."

— Ronni Goldsmith, MD
Concord, MA

"What I have always found so unique about CMQCC is their transparency and willingness to share resources and information. We look to places like CMQCC because their state has the lowest maternal mortality rate in all of the U.S., so I know that they are going to have trusted, accurate information, and that it will be the most evidence based. CMQCC's tools are being used in different ways, making different impacts, that you couldn't even imagine."

— Bridgette Schulman, PhD, MSNEd, RNC-OB, C-EFM, CPPS
Gainesville, GA

State of California Perinatal Quality Collaborative

Together, CPQCC & CMQCC support nearly 390,000 births in California–about 11% of all U.S. births*

*per provisional 2023 data from the Centers for Disease Control and Prevention, with inpatient, outpatient, and community births included
**excluding military and children's hospitals

"The sustained focus of these perinatal quality collaboratives is profoundly transformative in driving clinical care practices and clinical culture towards measurable reductions in perinatal disparities. The quality and reach of your products, pilots, initiatives, and research are too extensive to summarize. Simply put, the work is remarkable and impactful."

— California Department of Public Health / Maternal, Child, and Adolescent Health Division

Founded in 1997 as the first state perinatal quality care collaborative in the U.S., a transformative innovation in perinatal care quality

>90% of California's NICU admissions took place at 135 CPQCC member NICUs

100% of High Risk Infant Follow-up and Satellite Clinics, for children up to age three, are CPQCC members

CPQCC

Founded in 2006 as the only state perinatal quality collaborative focused solely on maternal health

>99% of California's inpatient births were at member hospitals[1] working to improve outcomes

>99% of California's labor and delivery units are members, with >200 participating**

CMQCC

Precious Lives Lost: Lessons from Infant and Maternal Deaths

INFANT MORTALITY CPQCC addresses contributors to infant mortality through comprehensive data collection, rigorous analysis, and quality improvement (QI) initiatives, especially for very low birth weight (VLBW) infants. To date, CPQCC's QI initiatives have engaged >60% of member hospitals to achieve significant outcomes, including a 21% reduction in mortality for VLBW infants. CPQCC's commitment to transparency and accountability is present in the NICU reports website, which enables clinicians to visualize and understand data on patient outcomes; identify areas for improvement; and compare their NICU's performance against statewide averages, facilitating targeted QI efforts against infant mortality.

MATERNAL MORTALITY CMQCC is a longstanding partner in the California Pregnancy-Associated Mortality Review (CA-PAMR), a program of the California Department of Public Health—Maternal, Child, and Adolescent Health Division with funding from the Title V Block Grant. CA-PAMR ascertains suspected causes of maternal deaths and evaluates their preventability. For nearly 20 years this collaboration has produced reports, peer-reviewed research[2], and, most importantly, evidence to inform QI toolkits developed by CMQCC.

There were three active review committees in 2024, comprised of volunteer clinicians and community members selected for their expertise, lived experience, and commitment to eliminating preventable maternal mortality and inequities:

1. **The California Pregnancy Mortality Surveillance System (CA-PMSS)** Since 2008, CA-PMSS has reviewed cases in which the patient died during or after pregnancy (up to one year) to determine pregnancy-relatedness and cause of death. The five members of CA-PMSS evaluate cases from the 34 counties not covered by other committees. CA-PMSS updates are available here.
2. **Southern California Pregnancy-Associated Review Committee (SoCal PARC)** Active since 2019 and funded by the Centers for Disease Control and Prevention (CDC), SoCal PARC's 26 members review cases from six counties encompassing nearly 21 million residents.[3] SoCal PARC uses a data collection tool that incorporates perspectives on social drivers of health and the potential role of discrimination/bias in maternal deaths. Data are reported to the CDC to help illuminate national drivers of maternal mortality, plus associated disparities, and develop guidance for implementing interventions in communities of highest need.
3. **NEW California Pregnancy-Associated Review Committee (CA-PARC)** Launched in 2024 with 28 members who bring location- and community-specific expertise about 18 Central Valley counties, CA-PARC plans to more fully identify QI areas and ensure opportunities to implement recommendations are widely disseminated.

CA-PAMR is currently finalizing recommendations from SoCal PARC's 2019-2021 reviews (68 cases, excluding COVID-19) and COVID PARC's 2020-2022 reviews (58 cases).

[1] Unofficial estimates, per 2023 data. Due to differences in data sources and/or methods of data cleaning, the numbers may not align with other current or future publicly available estimates.

[2] Recent publication: Krakowiak P, et al. "Pregnancy-Related Mortality in California Due to Obstetric Hemorrhage." *Obstetrics & Gynecolgy*. 2025.

[3] U.S. Census Bureau. (n.d.). QuickFacts: California. U.S. Department of Commerce. Retrieved Feb. 28, 2025.

"Moms and those with firsthand experience offer insights that go beyond statistics and medical charts. Being part of a patient advisory council gave me the opportunity to share real stories that influenced meaningful change. I saw firsthand how patient input shaped hospital practices, provider trainings, and overall care approaches.

Lived experiences provide valuable context that can lead to better communication, more compassionate care, and policies that truly reflect patient needs. When patients are heard, healthcare becomes more effective and trustworthy."

— Ky-Shana
Mom & CMQCC Low-Dose Aspirin Patient Advisory Committee Member

Collaborating to Make California an Ideal Place to Have a Baby

CPQCC and CMQCC cultivate a collaborative community of perinatal healthcare providers and multi-stakeholder partners, united in the mission to continually enhance care for mothers, babies, and families. We achieve this by transforming data into action, fostering strategic partnerships, advancing education, and, above all, driving rigorous collaborative quality improvement.

THE VALUE OF DATA

High-quality data are the foundation of evidence-based quality improvement. CPQCC's NICU and HRIF Databases and CMQCC's Maternal Data Center allow members to analyze and stratify data across a variety of patient characteristics. The data dashboards and robust member support create easy-to-use, low-burden tools for healthcare teams to monitor their performance over time and compare themselves to their peers.

THE ROLE OF HEALTH EQUITY CPQCC and CMQCC are dedicated to improving perinatal care through health equity, which involves partnerships between hospitals and communities, and elevating patient voices that represent all Californians, especially those disproportionately impacted by poor health outcomes. Health equity is central to our strategy as we assist our member hospitals in enhancing their ability to provide respectful care, bridging gaps in both care and quality, promoting the adoption of effective care models, and designing impactful interventions. We carry out our work using a blend of data-driven, evidence-based, and community-engaged approaches that offer us a profound understanding of barriers to care and the most effective methods to address them. CPQCC and CMQCC are committed to continually and intentionally tackling inequitable practices to improve the health and well-being of all families in California.

Tiny Warriors: Providing Quality NICU Care

QUALITY IMPROVEMENT

NICUs ENABLING OPTIMAL BRAIN HEALTH (NEOBRAIN) COLLABORATIVE (2022-2024) aimed to prevent brain injury in vulnerable neonates by fostering positive caregiver-infant interactions, reducing unnecessary medical interventions, and promoting family-centered care. Evidence consistently shows that these strategies support healthy brain development in newborns.

"Positive touch" refers specifically to using the hands to provide positive tactile experiences to the infant through hand hugs or gentle human touch. NEOBrain focused on ensuring that nurses and NICU staff were trained on the importance of positive touch and had a standardized method for documenting it in the patient's chart.

Together, 26 participating NICUs worked to increase the following primary outcomes:

- Increase positive touch for all eligible premature infants within 72 hours of admission
- Increase positive touch for at least five days per week with parents, and every day of the week with the care team, until 36 weeks postmenstrual age

NEOBrain NICUs collaborated in a supportive, community-driven environment, sharing best practices, offering mutual encouragement, and learning from one another throughout the process. Led by CPQCC experts, a faculty panel, and families with lived NICU parenting experience, the cohort experienced significant momentum and energy while doing joint rigorous collaborative QI work.

"While a five-month NICU stay is beyond challenging, my hospital did things that were really critical for my family. They had a "small baby" unit focused on neural protection and maximizing kangaroo care [skin-to-skin care] as soon as possible. As a result, my daughter had no severe brain hemorrhage when she was born and early in her life."

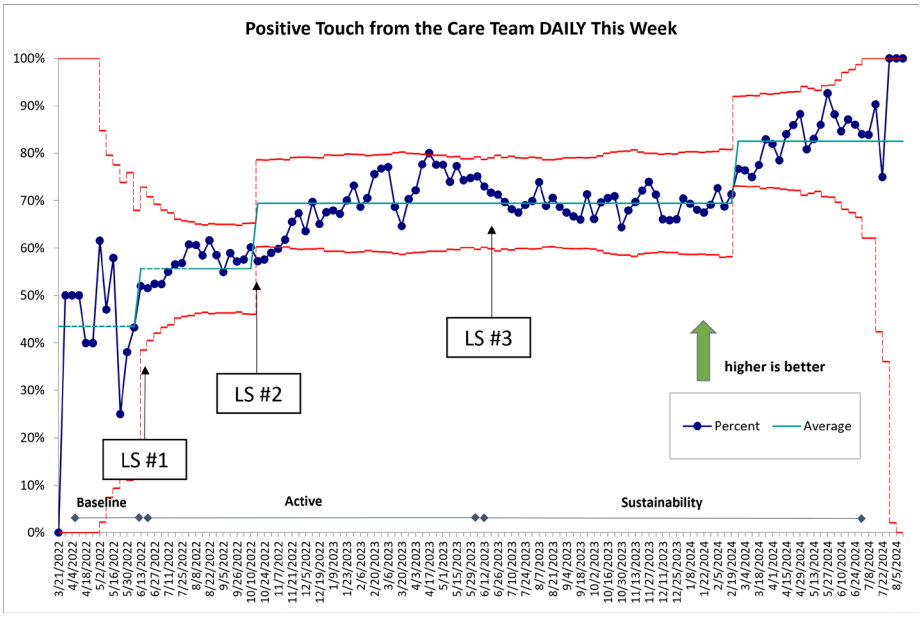
— Jill, and Derrick, with baby Niko
NICU Mom & CPQCC NEOBrain Collaborative Patient Advisor

QUALITY IMPROVEMENT

- 100% of NICU parents surveyed reported care competence at NICU discharge
- 95% of NICU parents were either “somewhat” or “fully” ready to take their baby home
- 82% of NICU parents were either “somewhat” or “fully” confident caring for their baby without a monitor

By tracking these data, NICU clinicians and families can better understand the relationship between touch and outcomes, further promoting neuroprotection strategies that enhance infant brain development during the critical early stages of life.

Positive Touch from the Care Team Daily



Baseline Phase
56% of babies received positive touch

Active Phase
69% of babies received positive touch

Sustainability Phase
After the QI initiative, 83% of babies received positive touch

"Through the NEOBrain Collaborative, we gained skills and tools to show how family partnership is evidence-based and data-driven—and therefore not just "nice," but necessary to improve outcomes. Investing in a culture of neuroprotective care will lead to positive results when your families and team members are aligned in their mission. The families see this and are grateful for the extra focus on ensuring they play an important role in care and decision-making."

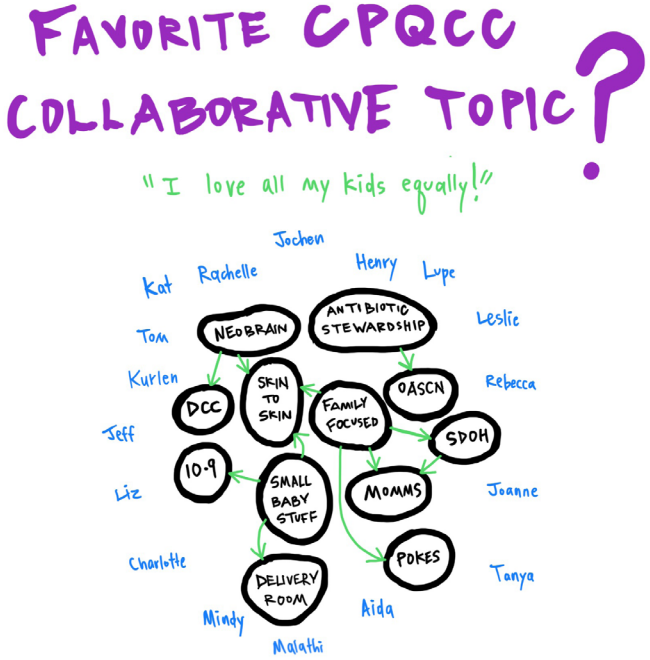
— Elizabeth E. Rogers, MD
Neonatologist, Director of the ROOTS Small Baby Programs in the Intensive Care Nursery at UCSF Benioff Children's Hospital & NEOBrain Collaborative Faculty Leader

QUALITY IMPROVEMENT

QI TOUCHPOINTS In 2024, the QI Touchpoints team launched a targeted initiative to actively engage and support 11 NICUs. The team assessed the NICUs' QI needs and goals, connection with CPQCC, current use of tools, and QI team structure, then identified CPQCC resources to support improvement efforts.

Additional sessions, called Deeper Data Dives, focused on how NICUs could use CPQCC data reports to potentially drive better practices in QI initiatives, while fostering direct engagement and facilitating knowledge-sharing.

Key takeaways from these sessions included:



Artwork by Kurlen Payton, MD, PQIP Member

1. Optimize utilization of CPQCC data reports across all NICU types.
2. Implement innovative strategies to enhance engagement with NICU reports.
3. Assess NICU needs regarding Electronic Data Entry to inform future improvements.
4. Encourage NICUs to establish a formal interdisciplinary QI team that meets quarterly and is included as a standing agenda item in Leadership meetings.
5. Ensure timely dissemination of CPQCC QI resources to support NICUs in their improvement efforts.
6. Provide clear guidance on initiating QI efforts and leveraging data effectively.

MOMMS Collaborative

Motivating and Optimizing Maternal Milk in Safety Net NICUs

QUALITY IMPROVEMENT

Motivating and Optimizing Maternal Milk in Safety Net NICUs (MOMMS, 2024-2026) is an ongoing collaborative that promotes breastfeeding among 25 safety net NICUs, with National Institutes of Health R01 grant funding. Safety net NICUs often provide care to mothers, infants and families that experience the most health and socioeconomic challenges, while working under resource constraints. Care and outcomes among these NICUs vary tremendously, so MOMMS aims to develop a community of learning, build QI capacity, and better understand factors differentiating these NICUs, while increasing rates of human milk prior to discharge from 67% to 75% for all eligible very low birth weight infants by June 1, 2025.

DATA OUTCOMES

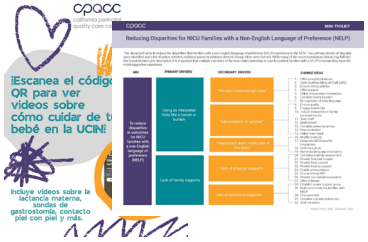
The number of eligible infants discharged home on any human milk, which is the primary outcome of MOMMS, has increased since the Collaborative's active phase began. *We look forward to sharing more outcomes and lessons learned in 2026.*

Resource Bundle

NICU Families with a Non-English Language of Preference (NELP)

355

Downloads of the NELP Resource Bundle and related resources, in 2024



The NELP Resource Bundle was compiled by the CPQCC Within the NICU Health Equity Subcommittee and presented at the Improvement Palooza 2022 Conversation Circle Webinar in January 2023. The Bundle is a mini toolkit of action-oriented, evidence-based (or evidence-derived) change ideas and tools that NICU teams can implement to improve outcomes for families with a non-English language of preference and advance health equity. CPQCC is deeply grateful to all the authors who collaborated on this effort.

COMMUNITY ENGAGEMENT

CPQCC's California NICU Family Advisory Council is comprised of family members who reflect California families and bring valuable lived experience and wisdom from their NICU journeys. Members help transform care within NICUs and connect with high-risk infant follow-up clinics to improve babies' outcomes, particularly for children who are most likely to have negative outcomes. The Council strives to make a system-wide impact by helping shape NICU projects, with funding from a grant from the Lucile Packard Foundation for Children's Health.

"One of the areas that is important is prepping parents for the longer haul of parenting a NICU graduate—there are things across the board that are opaque...Understanding the systems for supporting NICU babies when they are no longer NICU aged is critical."

— Kathryn
Mom to NICU Graduates Grace and Noah (now in high school!) & CPQCC California NICU Family Advisory Council Member

PARTNERSHIPS

NEOSPHERE 2024 CPQCC's "NEOsphere: Shaping the Future of Neonatal Care" conference brought together a cross-disciplinary community to share the latest innovations, trends and developments in neonatal care, while reimagining a bold and positive future for neonatal care 20 years from now.

Look for an exciting and groundbreaking agenda for NEOsphere 2025.

EDUCATION

IMPROVEMENT PALOOZA 2024 ("IP24") CPQCC's fifth annual Improvement Palooza (IP) conference, "Roadmap to Community Engagement: Neonatal Equity and Advocacy," highlighted the critical impact of health-related social needs on families, outcomes, equity, and mental health.

Bringing together 185 attendees, the event explored racial disparities across the care continuum and innovative strategies for advancing health equity, featuring insights from California NICU Family Advisory Council members. The conference also recognized excellence in quality improvement, with four NICU teams receiving CPQCC's Awards for outstanding QI efforts.

In 2025, CPQCC's sixth annual IP conference, "Navigating Neonatal QI: Back to Basics, Forward With Equity!", took NICU teams back to the basics with a renewed emphasis on implementation science, bolstered by a foundation of effective communication.

MID-COASTAL CALIFORNIA PERINATAL OUTREACH PROGRAM (MCCPOP) helps improve birth outcomes through education, consultation and collaboration, with a special focus on offerings for member hospitals in CMQCC's RPPC region. MCCPOP clincial experts consult on care questions, provide peer reviews and evaluate hospitals' data.

Continuing medical education, a key pillar of MCCPOP's mission, is provided through conferences and seminars. MCCPOP draws upon interdisciplinary expertise from CPQCC, CMQCC and Stanford Medicine to provide seminars addressing a variety of perinatal topics, such as perinatal morbidity and mortality reviews, and reviews of NICU/HRIF data.

15k+

Approximately 15,800 doctors, nurses, midwives and other clinicians, representing a broad cross-section of regional hospitals and healthcare systems, received continuing education from MCCPOP last year

★★★★★

10k

An estimated 10,000 surveyed attendees ranked MCCPOP's seminars as "excellent," the highest score

QUALITY IMPROVEMENT

COMING IN 2025: COLLABORATING FOR ACCESS AND RESOURCES IN EARLY LIFE (CARE) COLLABORATIVE Leveraging CPQCC's quality improvement expertise, our next QI collaborative—launching in late fall 2025—will focus on standardizing health-related social needs screening and optimizing connections to medical and social support during and after NICU hospitalization. By integrating family voices; community, State, and payor partners; as well as NICU teams, we aim to enhance workflows, improve referrals, ensure a smoother transition from NICU to home, and support optimal infant developmental trajectories.

JOIN US! CPQCC member NICUs are invited to pre-register and be part of this transformative effort to strengthen support for NICU families across California.

SIGN UP TODAY!

RESEARCH

Bonifacio SL, et al. "Trends in HIE and Use of Hypothermia in California: Opportunities for Improvement." *Pediatrics.* 2024;154(3).

Jiang S, et al. "Association Between 5-Minute Oxygen Saturation and Neonatal Death and Intraventricular Hemorrhage Among Extremely Preterm Infants." *J Perinatol.* 2024;44.

Jiang, S, et al. "Methodologic Considerations in Estimating Racial Disparity of Mortality Among Very Preterm Infants." *Pediatr Res.* 2024.

Lapcharoensap W, et al. "Quality, Outcome, and Cost of Care Provided to Very Low Birth Weight Infants in California." *J Perinatol.* 2024;44:224–230.

Liu J, et al. "Disparities in Survival Without Major Morbidity Among Very Low Birth Weight Infants in California." *Pediatrics.* 2024;154(6).

Morris M, et al. "Multidisciplinary Evidence-Based Tools for Improving Consistency of Care and Neonatal Nutrition." *J Perinatol.* 2024;44:751-759.

Pai VV, et al. "Resource and Service Use After Discharge Among Infants 22-25 Weeks Estimated Gestational Age at the First High-Risk Infant Follow-up Visit in California." *J Pediatrics.* 2024;274.

Payton KSE, et al. "28 NICUs Participating in a Quality Improvement Collaborative Targeting Early-Onset Sepsis Antibiotic Use." *J Perinatol.* 2024;1061-1068.

Quinn MK, et al. "Trends in Retinopathy of Prematurity Among Preterm Infants in California, 2012 to 2021." *JAMA Ophthalmol.* 2024;142(11):1055-1061.

PARTNERSHIPS

THE PERINATAL QUALITY IMPROVEMENT PANEL (PQIP) is a volunteer body of California neonatologists, NICU nurses, and other healthcare professionals with expertise in quality improvement. The panel guides all of CPQCC's quality improvement activities, including choosing collaborative topics, creating toolkits, and designing innovative QI models. PQIP's four subcommittees serve as action arms for the panel by creating and disseminating tools and information that help members implement PQIP's QI recommendations. CPQCC thanks this committed group of experts for their incredible contributions.

Afshan Abbasi
Irfan Ahmad
Lisa Bain
Malathi Balasundaram
David Braun
Henry Lee
Jennifer Canvasser
Rowena Cayabyab
Ritu Chitkara
Katherine Coughlin
Kamakshi Devarajan
Tanisha Dickens
Arij Faksh
Adam Frymoyer
Jeffrey Gould
Aimee Hardt
Tanya Hatfield
Bryan Homyak
Sandra Iacob
Priya Jegatheesan
Ambrisha Joshi
Robin Koeppel
Ashwini Lakshmanan
Rachel Land
Linda Lefrak
Leslie Lusk
Jessica Matei
Michel Mikhael
Brian Montenegro
Mindy Morris
Radhika Narang
Jennifer Norgaard
Guadalupe Padilla-Robb
Rohit Passi
Vidya Pai
Kurlen Payton
Pedro Paz
Asha Puri
William Rhine
Elizabeth Rogers
Catherine Rottkamp
Jane Ryu
Joseph Schulman
Rachelle Sey
Jennifer Shepherd
Antoine Soliman
Theodora (Lola) Stavroudis
Karen Sullivan
Giang Truong
Marianne Volodarskiy
Valencia P. Walker
Sunshine Weiss
Jadene Wong
John Yao
Terry Zeilinger

Maria Jocson (In Memoriam)
Aida Simonian (In Memoriam)

Thriving Babies: Ensuring Optimal Long-Term Outcomes Through High Risk Infant Follow Up Care

CPQCC's California Children's Services (CCS) High Risk Infant Follow-up (HRIF) program serves Children and Youth with Special Health Care Needs (CYSHCN) and their families after each eligible child's NICU discharge. CCS has 66 HRIF program clinics and 10 HRIF satellite clinics.

California's program is unique among U.S. states as a population-based system providing site-specific and statewide data, including to State partners, as well as reports, system tools and dashboards that support site-specific CYSHCN case management and navigation support at 66 HRIF program clinics. The HRIF program's activities create a continuum-of-care structure linking NICU and outpatient care for children through three years of age.

PARTNERSHIPS

HRIF'S EXECUTIVE COMMITTEE is comprised of volunteer experts dedicated to the care of high-risk children. CPQCC is deeply grateful to these remarkable leaders.

Madhu Bhogal
Anne DeBattista
Jessica Gates
Jeffrey Gould
Erika Gray
Susan Hintz
Yvonne Kazmer
Eileen Loh
Sandra Lombardi
Tianyao Lu
Rupalee Patel
Sara Sager
Cheryl Walker

QUALITY IMPROVEMENT

- HRIF clinicians can now record data on use of evidence-based assessments to support early cerebral palsy detection in the HRIF Database. The CCS HRIF Executive Committee and California Department of Health Care Services partners recommended the data collection expansion. In addition, in response to HRIF team responses on statewide surveys, CPQCC is facilitating regional and site-based assessment training *(see "Education," next page),* which opens the door for earlier service and program referrals and data-driven intervention.
- The HRIF Database navigation system was upgraded to ensure the seamless, real-time migration of digital records and to enhance care coordination between HRIF clinics for many children and families who move across California.
- **COMING IN 2025: NICU REFERRAL DASHBOARD** California Children's Services requires timely post-NICU-discharge referrals to HRIF clinics, but many clinical teams still miss this crucial step. A new HRIF Database dashboard will launch in early 2025 to provide NICU teams a snapshot of their patients' timely HRIF referral/registration and follow-up rates to the first standard core visit. This dashboard will be used to ensure timely HRIF enrollment and family access to services and resources.

DATA OUTCOMES

129,000

High-risk infants have been registered for CCS HRIF care since 2009, nearly half of whom were born at very low birth weight (<=1500 grams)

190,000

"Standard" and 12,500 "additional" HRIF visits have been performed since 2009

58

HRIF program clinics received the HRIF Super Star award for completing data entry closeout deliverables 30 days before the deadline—a 14% increase from 2023.

EDUCATION

- Last year, 122 HRIF team members attended HRIF training session—a 40% increase from 2023—and 48 hospitals were represented.
- Team members from more than a dozen HRIF programs have participated in training sessions for the Hammersmith Infant Neurological Examination (HINE), an evidence-based assessment for early detection of cerebral palsy. Outreach efforts and trainings continue across California.

COMMUNITY ENGAGEMENT

COMING IN 2025: PARENT VOICES PROJECT
CYSHCN parents have tremendously important perspectives on the care of high-risk children. The Parent Voices Project aims to capture CYSHCN parents' feedback and document their needs through brief, open-ended surveys and in-depth, qualitative interviews. The Project's task force includes the CCS HRIF Executive Committee, the HRIF and Transition to Home Health Equity Workgroup, a CYSHCN Parent Advisory Council, and statisticians with multimodal expertise.

"The HRIF workshop was particularly good. The pace, depth of knowledge, and a genuine sense of caring about the process, and all of us, was clear."

— HRIF Database Training Session Attendee

Healthy Pregnancies: Closing Maternity Care Gaps & Addressing Severe Maternal Morbidity

Closing Maternity Care Gaps

California Maternal Health Innovation Program & Task Force

In 2024, California's Maternal Health Innovation (MHI) Program, a U.S. Health & Human Services Department / Health Resources and Services Administration-funded initiative, successfully convened a Maternal Health Task Force (MHTF) Steering Committee and Subcommittees, representing geographies and communities across the state, to guide maternal health innovation. The Steering Committee plays a critical role in strategizing approaches to ensure that all pregnant and postpartum women who are assessed for poor outcomes can access and benefit from medical and public health services. With a focus on reducing severe maternal morbidity and mortality, the Steering Committee is also responsible for recruiting, establishing, and directing a multidisciplinary MHTF—the foundational element of this initiative. Their collective expertise shapes the program's strategic priorities, ensuring efforts are data-driven and actionable.

The MHI Program is a collaboration between the California Department of Public Health–Maternal, Child, and Adolescent Health Division, the California Department of Health Care Services, the Office of the California Surgeon General, and CMQCC.

QUALITY IMPROVEMENT

Guided by the Steering Committee, the MHI Program has identified key strategic priority areas, including:

- Providing high-quality, respectful, and trauma-informed perinatal care
- Identifying medical, behavioral, and social drivers through health risk assessments
- Increasing access and links to risk-appropriate care and follow-up
- Establishing a standard of data transparency
- Integrating and coordinating healthcare systems and programs

Additionally, the MHI Program launched a statewide assessment to analyze the impact of labor and delivery unit reductions and closures—contributing

[2] CalMatters. "California's Maternity Care Crisis is Worsening as Newsom Decides on Bills to Slow Closures." CalMatters. Published September 16, 2024. Accessed March 3, 2025. https://calmatters.org/health/2024/09/new-maternity-care-closures/

to the rise of "maternity care deserts"—on maternal and infant health outcomes. According to CalMatters, with support from California Health Care Foundation, over the past decade California has seen 50 maternity ward closures, including seven Critical Access Hospitals, with seven closures occurring in 2024 alone.[2] These closures have disproportionately affected rural communities, limiting access to risk-appropriate care and placing additional strain on remaining healthcare facilities.

Closing Maternity Care Gaps

Across the Care Continuum

QUALITY IMPROVEMENT

COMMUNITY BIRTH PARTNERSHIP INITIATIVE, with funding from Skyline Foundation, aims to improve health outcomes during pregnancy and birth by increasing the quality and whole-person safety of hospital transfer processes, when a transfer is needed for a community birth. Currently, pilot hospitals in the greater Sacramento area and Inland Empire (San Bernardino and Riverside counties) are working with community-based midwives to co-create local hospital transfer standards for women and newborns who need higher-level care in the antepartum period, during labor, or immediately following delivery. The pilot's goals are to improve collaboration between community midwives, EMS, and hospital providers, as these care systems have traditionally worked in isolation; codesign policies that reflect local/regional needs; ensure safe, coordinated, respectful transfers; use data to improve the quality of whole-person care; and enhance patient experience during transfer.

In 2025, the pilot will incorporate other facilities with the goal of understanding rural perspectives. By mid-year, CMQCC expects to have more guidance on community birth transfers available for facilities and community birth providers.

COMING SOON: POSTPARTUM DISCHARGE LANDING PAGE In 2024, CMQCC surveyed discharge nurses at 22 hospitals to identify current practices and needs. The nurses responded by requesting access to a multitude of discharge resources they could tailor for patients' individual circumstances. Following input from a multi-disciplinary clinical committee, and with funding from Merck for Mothers, CMQCC is working to develop a Postpartum Discharge Landing Page that will provide a summary of discharge care, and a myriad of clinical resources primarily for hospital nursing staff.

The Postpartum Discharge Landing Page will also include patient education. Typically postpartum nurses provide families with an extensive packet of information. New mothers are usually overwhelmed by the care of their newborns and changes in their bodies, so "readiness to learn" may be limited. Once the Landing Page is live, birthing individuals will be able to access the exact information they need when they need it; and medical, public health, social service, and community organizations will also have access at all times.

Addressing Severe Maternal Morbidity

Broad Approaches

> "[After this webinar] I intend to handle the cases more welcomingly and in a personalized way."
>
> — Physician Attendee From MCCPOP's "Demystifying Recurrent Pregnancy Loss" Webinar

EDUCATION

REGIONAL PERINATAL PROGRAMS OF CALIFORNIA (RPPC), led by the California Department of Public Health–Maternal, Child, and Adolescent Division, works to ensure mothers and babies receive the right care at the right time, and to prevent avoidable long-term or permanent disability or mortality. As an RPPC partner, CMQCC educates and influences teams at a variety of healthcare facilities, including areas with access needs, to address the special needs of high-risk pregnant women and infants. CMQCC leads RPPC's second-largest regional program by facility count. Last year, the majority of CMQCC's RPPC facilities received support for hospital QI efforts guided by maternal and neonatal outcome data; confirmed plans to implement and maintain compliant breastfeeding practices; and received guidance about including doulas in patients' birth teams.

MID-COASTAL CALIFORNIA PERINATAL OUTREACH PROGRAM (MCCPOP) helps improve birth outcomes through education, consultation, and collaboration, with a special focus on CMQCC's RPPC region. Continuing medical education is offered through conferences, CPQCC data reviews, and perinatal morbidity and mortality sessions. Last year, 300+ nurses, physicians, midwives, doulas, public health experts, and community health professionals from nearly 60% of U.S. states attended MCCPOP's highly rated Perinatal Potpourri Annual Conference.

QUALITY IMPROVEMENT

QUALITY IMPROVEMENT ACADEMY (2018-2024), with funding from Blue Shield of California, provided a dynamic learning environment and mentorship to help multidisciplinary California maternal care teams enhance their QI skills. Year-long sessions focused on implementing one of CMQCC's evidence-based toolkits or a national Alliance for Innovation on Maternal Health bundle to improve care quality and sustain care improvements.

Key outcomes of the QI Academy included:

56 hospitals and 381 individuals participated

83% of the hospitals that focused on reducing NTSV cesarean rates meaningfully improved their rates

46% of QI Academy hospital "graduates" enrolled in additional QI opportunities, proactively transitioning to larger projects requiring substantial commitments of time and resources

Preeclampsia & Preterm Birth

Low-Dose Aspirin Initiative

QUALITY IMPROVEMENT

CMQCC, with partnership and funding from March of Dimes, is collaborating with select California hospitals and community-based organizations to promote the use of daily low-dose aspirin for pregnant women who are most likely to be impacted by preeclampsia, a disorder of pregnancy associated with new-onset hypertension. Low-dose aspirin, as recommended by a healthcare provider, is the only known effective solution to prevent preeclampsia and related preterm birth.

In 2024, QI outreach spanned hospitals, outpatient clinics, and federally qualified health centers, with a special focus on organizations providing safety net care to Medi-Cal populations, and serving low-income patients and high-risk families.

COMMUNITY ENGAGEMENT

The 2023-2024 Low-Dose Aspirin Patient Advisory Committee (LDA PAC) convened individuals with lived experience of antepartum/postpartum preeclampsia and a commitment to reducing health inequities to inform outpatient, inpatient, and community-specific program and project strategies. The LDA PAC kept patient voices front and center in joint conference presentations and office hours for healthcare teams, while also guiding the development of patient education materials to ensure critical health information was stated clearly and respectfully, and materials were patient centered. Similarly, the LDA PAC's role in developing clinical training videos provided a crucial perspective, often missed, that informed guidance on respectful approaches to patient discussions about health disparities.

EDUCATION

The Low-Dose Aspirin Webinar Series attracted healthcare professionals from across California; 50% of U.S. states, including Florida, Illinois, New York, and Texas; and from Indian Health Services.

"If the doctor's office has information about STDs, they should have information on preeclampsia and low-dose aspirin. Then people can know what preeclampsia is–what it can do to you or your baby, how it can affect you in the long run. I want more people to know how serious it is because then you can ask questions. The doctors and nurses should be able to explain the causes and effects of preeclampsia. Getting the word out there is so important. Not just for African Americans, for everybody."

— Angela, with Cairo
Mom, Preeclampsia/Eclampsia Survivor & CMQCC Low-Dose Aspirin Patient Advisory Committee Member

Reducing Low-Risk Cesareans

Learning Initiative to Support Vaginal Birth Through an Equity Lens

QUALITY IMPROVEMENT

CMQCC is renewing California's efforts to reduce cesareans in all low-risk pregnant women by conducting the Learning Initiative to Support Vaginal Birth Through an Equity Lens (Learning Initiative or LI), a statewide hospital group learning experience with five-year (2022-2027) funding from the CDC. The Learning Initiative focuses on reducing disparities in low-risk cesareans with a goal of all patient groups reaching or exceeding the Healthy People 2030 target rate. CMQCC conducts the Learning Initiative in multiple cohorts for 18 months and the curriculum follows CMQCC's Hospital Action Guide for Respectful and Equity-Centered Obstetric Care *(see Education, next page)*. CMQCC also supports Learning Initiative hospitals with deploying CMQCC's Culture of Equity Survey to gain insights into health equity perspectives and efforts within their maternal care units and organizations.

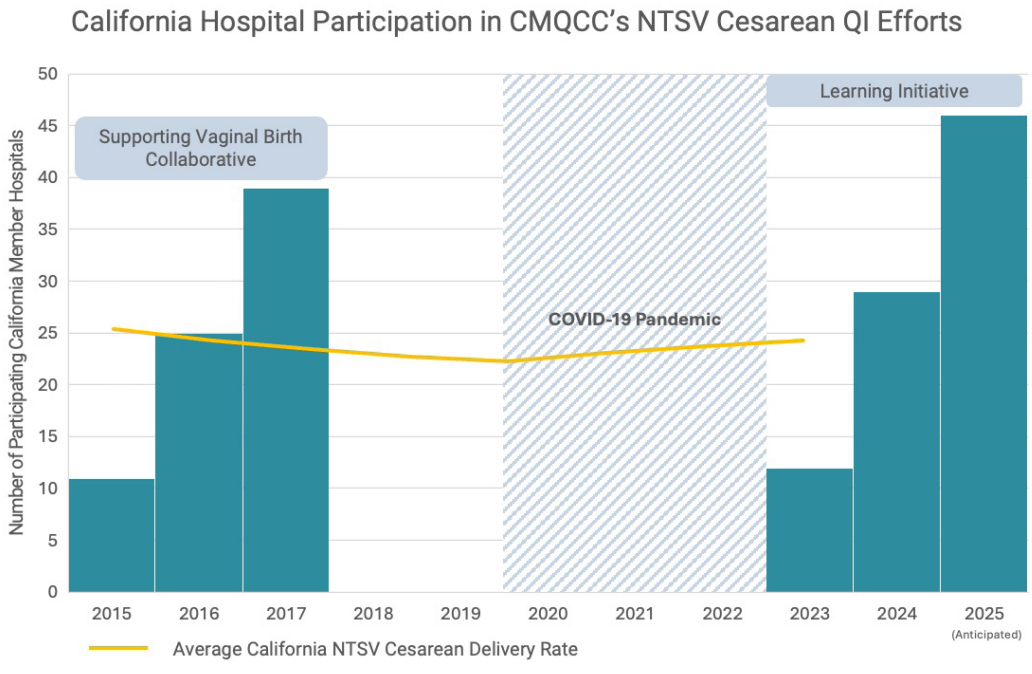
In 2024, the Learning Initiative engaged:

29 California hospitals, plus an additional 8 Critical Access Hospitals statewide

292 hospital staff members

EDUCATION

- 127 California hospitals attended CMQCC's health equity webinars
- 604 healthcare professionals–from California and 44 other states, plus 16 countries–participated



CMQCC's Supporting Vaginal Birth Collaborative (2015-2019), launched in response to California's NTSV cesarean rate exceeding the Healthy People 2030 goal, successfully decreased the statewide rate to -1.1% of target. During and after the COVID-19 pandemic, California's NTSV cesarean rate climbed +3% for multiple reasons. CMQCC's Learning Initiative aims to address this rising rate and reduce disparities in quality outcomes. We are encouraged by past success and growing interest from California member hospitals to reengage in this work.

"Thanks to the Learning Initiative, our staff is becoming more comfortable acknowledging biases and differences. When we first started talking about this, I think a lot of people were like, "Well, no, this does not apply to me. I don't have bias." With a lot of this education that we've done, such as our posters, they're realizing that yes, it does happen. I think it's definitely gotten better."

— Tammi Newsum, RNC
Perinatal Quality Coordinator, Enloe Health, Butte County

Addressing Severe Maternal Morbidity

The Hospital Action Guide for Respectful and Equity-Centered Obstetric Care

EDUCATION

With the goal of reducing inequitable outcomes across every maternal health condition, CMQCC and partners developed, piloted, and launched The Hospital Action Guide for Respectful and Equity-Centered Obstetric Care (Hospital Action Guide), supported by funding from The Joseph & Vera Long Foundation.

The Hospital Action Guide was developed with two objectives: First, to help California hospital users understand the drivers of maternal care inequities and deepen the understanding of their root causes. Second, to provide hospital maternity teams with a sample of action-oriented, health equity-centered tools and resources that go beyond implicit bias training and, if followed, may translate into real change in culture and patient care.

Since CMQCC's health equity portfolio launched in 2019:

154 California hospitals have accessed the Hospital Action Guide

199 California hospitals have participated in the Learning Initiative (or used the curriculum), accessed the Hospital Action Guide, and attended webinars supporting health equity

COMMUNITY ENGAGEMENT

As part of the Learning Initiative, CMQCC established the Health Equity Advisory Council (HEAC) to increase community and patient awareness of existing disparities in cesarean delivery rates and the unique drivers contributing to cesarean delivery. Council members bring a wealth of community expertise and a variety of lived experiences. The Council is funded by a five-year grant (2022-2027) from the CDC.

"The beauty of the HEAC is that it's bringing forward voices that are going to help inform birthing patients about how they can equip themselves to minimize the outcome of a C-section. That's the part that was missing: Patients were sort of underinformed. There's an educational component that needs to get out into our communities, and the members of the Council can really help inform that. This group is the missing link."

— Adrienne
Mom & CMQCC Health Equity Advisory Council Member

Sepsis

QUALITY IMPROVEMENT

Obstetric sepsis is the second-leading cause of maternal mortality in the U.S.[1], the third-leading cause of severe maternal morbidity (SMM) at delivery[2] and the number one cause of SMM during the antepartum and postpartum periods[3]. There are also significant racial inequalities, with Black and American Indian/Alaska Native patients experiencing sepsis two to three times more often than their White counterparts.[4]

To help improve obstetric sepsis outcomes in California and Michigan, the Dunlevie Maternal-Fetal Medicine Center at Stanford Medicine, in partnership with CMQCC, led 80+ hospitals through a pilot model collaborative to address major challenges to sepsis protocol and policy implementation. Hospitals were mentored by community and patient representatives, including survivors of severe maternal morbidity. This novel approach was informed by various resources, including the Alliance for Innovation on Maternal Health's "Sepsis In Obstetric Care" patient safety bundle and CMQCC's "Improving Diagnosis and Treatment of Obstetric Sepsis Toolkit (2020)". The year-long collaborative (2023-2024) was funded by the National Institutes for Health.

[1] Trost et al, Centers for Disease Control and Prevention, 2022. [2] Creanga AA, Syverson C, Seed K, et al. "Pregnancy-Related Mortality in the United States, 2011–2013." *Obstet Gynecol.* 2017;130(2):366-373. [3] Petersen EE, Davis NL, Goodman D, et al. "Vital Signs: Pregnancy-Related Deaths, United States, 2011-2015, and Stratgies for Prevention, 13 States, 2013-2017." *Morb Mortal Wkly Rep.* 2019;68(18):423-429. [4] Petersen EE, Davis NL, Goodman D, et al. "Racial/Ethnic Disparities in Pregnancy-Related Deaths—United States, 2007–2016." *Morb Mortal Wkly Rep.* 2019;68(35):762–765.

EDUCATION

The Sepsis Collaborative's accompanying webinar series (2023-2024) provided in-depth information to support participating hospitals' QI efforts. Experts in QI for obstetrics (OB), gynecology, maternal-fetal medicine, women's anesthesiology, OB and neonatal safety, community engagement and health disparities also supported hospitals in addressing unit- and organization-specific challenges.

"Something that stood out to me was seeing how hospitals are using posters [about sepsis signs and symptoms]. Something as simple as that can make a world of difference for patients, especially when you're already scared, you're having a baby, your body's changing. There are hospitals that are implementing these, and in this collaborative, you all have them in every single hospital."

— Leah
Mom, Obstetric Sepsis Survivor & Obstetric Sepsis Collaborative Patient Mentor

Anemia

QUALITY IMPROVEMENT

PRIHSM (PReventing Inequities in Hemorrhage-related Severe Maternal Morbidity) is a National Institutes of Health-funded Maternal Health Research Center of Excellence at Stanford Medicine, in partnership with CMQCC. The Center aims to reduce postpartum hemorrhage in California and beyond by addressing disparities in two precursors to postpartum hemorrhage-related severe maternal morbidity and mortality, one of which is iron deficiency anemia.

The problem of maternal iron deficiency anemia is vastly under-recognized, yet it affects approximately 16 percent of pregnancies in the U.S. Rates are three to four times higher among Black people and one and a half to two times higher among Latina/e people compared to their white counterparts. This translates to higher rates of postpartum hemorrhage-related severe maternal morbidity.

PRIHSM provides training opportunities to build research and clinical expertise relevant to postpartum hemorrhage and its precursors, especially within academic settings and for individuals with key perspectives on and experience working with the highest-risk patient populations and communities.

RESEARCH

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PARTNERSHIPS

CMQCC'S EXECUTIVE COMMITTEE provides guidance on strategies and priorities that support CMQCC's mission of reducing preventable maternal morbidity, mortality, and racial disparities in California maternity care.

CMQCC extends our deepest gratitude to these dedicated leaders for their expert guidance and unwavering commitment to our mission. Their efforts and hard work make a profound difference, and ensure CMQCC continues to serve our state and have a positive impact for all of California's families. We are incredibly fortunate to have their continued support, vision, and generosity. Together, we are making a lasting impact.

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