

Using Data to Improve Maternity Care in California: Research Collaborations and Future Opportunities

Symposium Summary

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Overview

The use of big data¹ is revolutionizing many industries, although as with many things having to do with information technology, health care as an industry has been relatively slow in using big data. Perhaps nowhere is this more evident than in maternity care.

Pregnancy and delivery are the most common reasons for hospital admissions in California and the nation. Notwithstanding improvements in maternity outcomes and infant mortality rates in recent decades, increasing concerns have been voiced in recent years about the high and highly variable rates of early elective deliveries and Cesarean sections (C-sections), and the costs and complications associated with these procedures.

Large health care data sets are available within various state agencies that can provide a better understanding about opportunities for quality improvement (QI), but barriers to accessing those data have prevented researchers from using them to their full potential. Better methods and systems are needed to access, use, and disseminate available data so that, among other things, they can be used to support clinical decision-making and better align performance measures and payment models with care delivery.

Medi-Cal is the largest single payer for maternity care in California, covering more than half of the state's deliveries. As such, it would seem evident that evaluating Medi-Cal claims data would hold great potential for identifying opportunities for improving the quality and efficiency of maternity care for hundreds of thousands of Californians each year.

With the above in mind, on June 19-20, 2014, the Institute for Population Health Improvement (IPHI), UC Davis Health System, in collaboration with the California Department of Health Care Services (DHCS) and the California Health Care Foundation (CHCF), convened a symposium to explore ways to improve the quality of maternity care in California through better use of Medi-Cal and other data. A diverse group of approximately 150 individuals came together for the two-day symposium, *Using Data to Improve Maternity Care in California: Research Collaborations and Future Opportunities* (see Appendix for the agenda). Attendees included persons who create, manage, and use data, including consumers, providers, researchers, health plans, and state and local health agency staff.

This report highlights in summary form many of the issues raised at the symposium, including comments by invited panelists and presenters and comments from attendees that were made during breakout discussions and question and answer sessions.²

Federal and State Issues

Panelists opened the symposium with a discussion about the current state of maternity care in California. The presentations represented the perspectives of hospitals, physicians, patients, researchers, and policymakers. Their comments made clear that the state's strategies have been successful in so far as reducing infant mortality to a record low, as well as reducing teen birth rates. However, many areas for improvement remain, such as:

- access to early prenatal care;
- socioeconomic disparities in birth outcomes, particularly for African Americans;
- mental health care for postpartum depression;
- patient education and engagement in clinical decision-making;

¹ The Gartner information technology research group defines *big data* as "high-volume, high-velocity, and/or high-variety information assets that require new forms of processing to enable enhanced decision making, insight discovery and process optimization."

² Presenters' slides are available at: <http://www.dhcs.ca.gov/services/calendar/Pages/Symposium.aspx>.

- alignment of hospital and physician payment and performance goals;
- data about maternity care quality, at the health system and provider levels;
- expansions in the obstetrician workforce; and
- rates of early elective deliveries and C-sections.

Key opportunities to improve California maternity care are made possible by provisions within the Affordable Care Act (ACA), which will support comprehensive, continuous care for women and families, as well as within the California State Innovation Model (CalSIM), a state-specific effort that will test payment reforms to drive better quality. Both ACA and CalSIM also include provisions that could better integrate public health with health care delivery. Together, the ACA and CalSIM offer the potential to bring about the type of disruptive change that is needed to achieve the triple aims of better care, better health, and lower health care costs.

Accessing and Using Public Health Agency Data

A wealth of data related to maternity care and delivery outcomes is available from multiple California health agencies, but limited knowledge about what data are available and how they can be accessed have been key barriers to their use by researchers. Presenters from each of the three major state health agencies discussed challenges and opportunities in working with maternity care data.

- ***California Department of Health Care Services (DHCS)***. The DHCS administers the California Medical Assistance Program (Medi-Cal), the nation’s largest Medicaid program. Medi-Cal is a potential gold mine of data for researchers. DHCS has a repository of 10 years of data, with over 3.8 million claims records covering both fee-for-service and managed care plans. Although the data have limitations, efforts are underway to improve it. A DHCS Data and Research Committee and the California Health and Human Services (CHHS) Agency’s Committee for the Protection of Human Subjects (CPHS) review all researchers’ requests for data. Access is approved based on methodological rigor, data security safeguards, investigator qualifications, potential benefit to Medi-Cal members, and the level of DHCS resources needed to fulfill and oversee the data request.
- ***California Department of Public Health (CDPH)***. CDPH oversees a number of epidemiological surveillance activities related to maternity care and outcomes. Vital records are the most commonly accessed data for maternity care researchers – birth certificates, in particular. The CDPH Vital Statistics Advisory Committee and CPHS review researcher access requests for confidential vital records files. Public use statistics and data tables are also made available on CDPH’s website.
- ***California Office of Statewide Health Planning and Development (OSHPD)***. OSHPD maintains both public, de-identified data sets, and confidential hospital patient records, which include about four million hospital inpatient and 10 million emergency department records per year. Maternity care-specific measures that are compiled and reported nationally using OSHPD data include rates of low birth weight, C-section, and vaginal birth after C-section (VBAC). Researchers’ data access requests are also reviewed by CPHS and an internal OSHPD committee. Detailed justifications for the specific data requested, particularly for sensitive data, help to facilitate access requests for confidential hospital data.

Maternity Care Research

Current research paints a mixed and sometimes troubling picture about the state of maternity care in California. Several efforts are underway to use data for improvement interventions. Key findings of research presentations are highlighted below:

- ***Maternity care in California is characterized by a degree of variability that is too high to be reasonably justified by differences in patient preferences or clinical need.*** The California Maternal Quality Care Collaborative (CMQCC), a public-private initiative to link state and hospital data, reports that individual hospital C-section rates in California range from 15% to 71%. The national target rate of 24% is met by only about one-third of California hospitals. The CMQCC is working to provide hospitals with the data reporting and QI support needed to reduce unexplained high C-section rates and meet other quality goals.
- ***Women face multiple other stressors that impact their maternal health, and these risk factors cannot be addressed by the health care system alone.*** California’s annual Maternal Infant Health Assessment postpartum survey found that 12% of women were facing separation or divorce, 29% were food insecure, and low income was common for many women with private insurance as well as those on Medi-Cal. These findings underscore the need for a broader, population health perspective.
- ***Maternity care increasingly relies on technology, and with this comes concerns about overuse or underuse of services with respect to patient preferences and values.*** Mothers are facing greater pressure from providers to have C-sections and inductions for early elective delivery, according to the national Listening to Mothers III survey, and many women lack the knowledge to meaningfully engage in these decisions. Stronger consumer engagement and activation are needed for better patient care experiences.
- ***Disparities in timely postpartum care are largest in African-American Medi-Cal managed care plan members, though care is not timely for Medi-Cal managed care plan members overall.*** Several plans saw only about one-quarter of African-American women in a timely manner for postpartum care, and across all Medi-Cal managed care plans, only about half of members receive timely postpartum care. Targeted QI collaboratives can improve performance on this and other measures, and are beginning to be implemented as part of the DHCS QI strategy.
- ***The Latino health paradox – better birth outcomes despite multiple risk factors – is well documented, but more equitable, high-quality care is still needed for Latinas.*** Mexican immigrant women receive lower quality care in California than Caucasian women. They are less likely to give birth in hospitals that perform above average on obstetric quality measures, more likely to have a pre-term delivery, and more likely to experience delivery complications (e.g., severe lacerations, postpartum hemorrhage, and infections) than Caucasian women.

Priorities for Improving Maternity Care

The symposium organized four breakout discussion groups to discuss the presentations and to generate recommendations for next steps to improve maternity care in California. Each group focused on priorities for improving patient-centered care, reducing disparities, improving quality, or reforming payment, respectively. The common framework for each group’s discussion was to identify what is known about the topic, describe what research to date was thought to have been most valuable, explore remaining challenges and research gaps, and make recommendations on priorities and next steps. Several groups’ recommendations overlapped, so highlights of all the groups’ recommendations are summarized together here.

- ***Quality Measures.*** National performance measures commonly used to evaluate health plans, such as the Healthcare Effectiveness Data Information Set (HEDIS) and Consumer Assessment of Health Plans, fall short for patients, health plans, and providers, since they do not address many important areas and are not reported in a manner that is useful in guiding the day-to-day decisions faced by each of these groups, with

respect to maternity care quality. Performance measure sets such as HEDIS should be expanded to include more maternity care measures, such as safety (e.g., severe complications, mortality), patient empowerment and activation, and health outcomes. They should also include socioeconomic data to allow for stratification of results by subgroup.

HEDIS measures do not speak to the day-to-day practical needs of clinicians, are aggregated and reported at too high of a level to be compelling to individual hospitals, and are not available in a format that helps patients choose higher-quality providers. Local data are most effective in moving people to action, and measures that reflect state or national data are not as compelling. Many quality measure reporting requirements need to be streamlined to reduce the cost, burden, and confusion for plans, physicians, and hospitals. Without agreement on what the key metrics are, it is difficult for the health care system to know how to direct its improvement efforts.

Finally, where HEDIS-type measures end, better qualitative data should begin. Administrative and claims data cannot tell the rich, narrative story of patients' needs and experiences in the way that efforts such as the Listening to Mothers survey do. Ongoing support for this type of research is needed. Non-structured fields in electronic health records may help to capture this information, albeit this may increase the difficulty in accessing and analyzing these data.

- ***Comprehensive Approaches to Health and Well-Being.*** Maternal health care and outcomes are linked to social services and other needs that extend well beyond the health care delivery system. Achieving progress on reducing socioeconomic disparities requires better literacy, numeracy, health education, and community resources, with stronger connections between social services, health care, and public health. Efforts need to focus more on “upstream” determinants of health. A more comprehensive and patient-centered approach will require a more expansive view of health services, one in which services from doulas, midwives, birthing centers, and medical homes are validated and covered under health care plans, and in which health data are readily shared among various provider entities.
- ***Continuity of Coverage.*** The health of a pregnancy begins well before conception, and it begins with the overall health of the mother. The health of a pregnancy also does not end 60 days after childbirth, even if Medi-Cal coverage does. The ACA will better support comprehensive, continuous coverage through Medi-Cal, beyond the pre- through post-partum period. The expanded coverage should facilitate better health care access for women and should improve the quality of data about health issues that develop later (i.e., beyond the 60 days that have been historically covered).
- ***Data Tracking.*** Improved, real-time population-based tracking of data to identify newly pregnant and high-risk pregnant women is needed to better meet their health needs. The current global billing and coding system does not support this type of data tracking, and it does not properly align incentives to reimburse providers for the services that these groups need. Efforts at DHCS are underway to deconstruct its global billing and coding system, which ultimately should help to achieve this goal.
- ***Aligning Systems and Incentives.*** Within the traditional maternal care delivery system, better alignment of incentives is needed between hospitals, physicians, plans, and state agencies. The current clinical and financial incentive system does not reward physicians for improving the value of maternity care. To achieve this, public and private payers need to develop incentives that are consistent with the business and fiscal

realities facing the health care industry and realign existing incentives to be mutually beneficial for patients, physicians, and hospitals.

- **Research Gaps.** Additional research is needed to better understand precisely where and how to target QI interventions and payment reforms to achieve better maternity outcomes. Priorities include the need for more research and better data on: stress and its long-term effects on maternal and child health; discrimination within the health care system, especially for African American women; the clinical and financial value of various maternity care models, including midwives, doulas, and birthing centers; the impact of work-family balance issues for mothers; and the role of fathers in maternal and child health. To move from research to action, an appropriately targeted and supported state-led task force could be helpful in recommending the best practices and interventions for addressing the identified challenges, paying particular attention to what works in specific racial/ethnic, income, and other subgroups.

A Blueprint for Action

Childbirth Connection, a program of the National Partnership for Women and Families, developed a 2020 Vision for a High Quality, High Performing Maternity Care System and a corresponding Blueprint for Action,³ which makes specific recommendations in 11 focus areas to achieve that vision. Presented as the keynote address, which followed the breakout group reports, Childbirth Connection’s vision builds upon national quality aims and frameworks, and it articulates six aims: i.e., a high quality, high performing maternity care system should be woman-centered, safe, effective, timely, efficient, and equitable.

Figure 1. Childbirth Connection’s 2020 Vision for a High Quality, High Performing Maternity Care System

Childbirth Connection recommends a set of foundational values and principles:

- A life-changing experience for women and families;
- Care processes that promote, support and protect physiologic childbirth;
- Effective care with the least harm;
- Evidence-based care;
- Quality which is measured and disclosed for quality improvement and public reporting;
- Care that includes support for shared decision making and choice;
- Care that is coordinated; and
- Caregiver satisfaction and fulfillment as a core value.

Childbirth Connection recommends that these values be applied at four different levels:

- Women and their support networks;
- Microsystems that provide direct care;
- Health care organizations that house and support clinical microsystems; and
- The macro environment of policy, payment, regulation, accreditation, litigation, etc., that influence the delivery of maternity care.

³ Available at: <http://transform.childbirthconnection.org>.

Figure 2. Childbirth Connection’s Blueprint for Action: 11 Focus Areas

- Performance measurement for quality improvement and public reporting
- Innovative payment and delivery systems to align incentives with quality
- Disparities in access and outcomes of maternity care
- Improved functioning of the liability system
- Scope of covered services for maternity care
- Coordination of maternity care across time, settings, and disciplines
- Clinical controversies (e.g., home birth, VBAC, vaginal breech and twin birth, elective induction)
- Shared decision making and consumer choice among a wide range of providers, settings, and services
- Scope, content, and availability of health professions education
- Workforce composition and distribution
- Development and use of health information technology

Many of the recommendations within the Blueprint for Action were reflected or reinforced in the breakout group discussions. In the area of performance measurement, for example, the Blueprint for Action makes recommendations to develop a full set of maternity care measures, improve data collection, publicly report on maternity care performance, and use reported data to foster improvement.

Conclusion

The *Using Data to Improve Maternity Care* symposium revealed that maternity care and neonatal outcomes in California have materially improved over the years, though many opportunities for further improvement remain. California’s Health and Human Services agencies are working hard to meet the triple aim of better care, better health, and lower health care cost, and they must engage diverse and sometimes unconventional stakeholders to achieve these goals. Rapid gains in the quality, outcomes, and value of maternity care are within reach. To achieve the desired changes, continued deliberative and collaborative, multi-stakeholder efforts are needed to break down barriers and facilitate active engagement.

Within individual hospitals and health plans, and within the several relevant state agencies, data are available that can be better used to identify variations or deficiencies in maternity care processes, outcomes, service utilization, and costs.

Harnessing those data to create actionable knowledge could go far in guiding clinical and population health improvements, creating more effective incentives to reward high-value care, and designing better performance measures to track progress.

Acknowledgements

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Appendix: Agenda

Using Data to Improve Maternity Care in California: Research Collaborations and Future Opportunities

June 19-20, 2014

Sacramento Convention Center, 1400 J St, Sacramento, CA

Thursday, June 19

- 1:00–1:30 **Registration**
- 1:30–1:45 **Welcome and Symposium Overview**
- Kenneth W. Kizer, MD, MPH, Director, Institute for Population Health Improvement (IPHI), UC Davis Health System
 - Toby Douglas, MPP, MPH, Director, California Department of Health Care Services (DHCS)
 - Chris Perrone, MPP, Director, Health Reform and Public Programs Initiative, California HealthCare Foundation (CHCF)
- 1:45–2:45 **Panel Discussion: Key State and Federal Policy Issues Related to Improving Maternity Care**
Panelists will discuss policy efforts to address maternity care quality issues such as elective deliveries and C-sections, as well as disparities in access to maternity care and maternity care outcomes. They will identify policy changes that are part of the Affordable Care Act that represent new opportunities for maternity coverage or care.
- Moderator – Chris Perrone, MPP, Director, Health Reform and Public Programs Initiative, CHCF
 - Laurie Gregg, MD, Chair, District IX, American Congress of Obstetricians and Gynecologists
 - Anne McLeod, Senior Vice President of Health Policy, California Hospital Association
 - Richard Pan, MD, MPH, Chair, California Assembly Committee on Health
 - Patricia Powers, MPA, Innovation Director, California State Innovation Model
 - Leslie Kowalewski, Associate State Director, California State Chapter, March of Dimes
- 2:45–3:05 **Description of DHCS Datasets that Can Support the Improvement of Maternity Care: A User’s Perspective**
The DHCS data warehouse has nearly 3 billion records that include information related to fee-for-service claims, managed care encounters, monthly eligibility, and provider enrollment. This session will describe how this powerful database can support research and quality improvement initiatives related to maternity care.
- Brian Paciotti, PhD, MS, Quality Scientist, IPHI
- 3:05–3:20 **Break**

3:20–4:50

Data, Measures, and Methods: Research Efforts Underway to Identify Changes in Maternity Care that Lead to Improved Patient Experiences of Care and Outcomes

Speakers will describe research efforts underway in California to better understand variations in maternity care process and outcome measures as well as changes in the delivery of care that have the potential to improve patient experiences of care and outcomes. They will describe what issues are being informed by current research and identify areas that require further research.

- Moderator – Neal Kohatsu, MD, MPH, Medical Director, DHCS
- Using California Maternity Data to Drive Quality Improvement – Elliott Main, MD, Medical Director, California Maternal Quality Care Collaborative
- Improving Postpartum Care through Quality Improvement – Julia Logan, MD, MPH, Quality Officer, DHCS
- Why We Need a Vastly Expanded Version of Maternity Care – Paula Braveman, MD, MPH, Professor of Family and Community Medicine and Director, Center on Social Disparities in Health, UC San Francisco
- Maternal Health and Birth Outcomes of U.S. and Foreign Born Women of Mexican Origin – Sylvia Guendelman, PhD, MSW, Professor of Community Health and Human Development, UC Berkeley School of Public Health

4:50-5:00

Closing Comments

Diana Dooley, JD, Secretary, California Health and Human Services Agency

5:00–6:30

Reception

Friday, June 20

- 9:00–9:15 **Welcome and Symposium Overview**
- Neal Kohatsu, MD, MPH, Medical Director, DHCS
- 9:15–9:45 **New Mothers Speak Out: Key Findings from the Listening to Mothers III National Survey of Women's Childbearing Experiences**
- This session will highlight a landmark effort that sheds light on women's attitudes, beliefs, preferences and knowledge about maternity care, and which reports on many items that are not otherwise gathered at the national level.
- Maureen P. Corry, MPH, Executive Director, Childbirth Connection
- 9:45–11:00 **Using Data for Research: Considerations and Constraints**
- This session will address how data requests submitted to CDPH, OSHPD, and DHCS are reviewed and processed, and explore additional opportunities to combine maternity care data from linkages between multiple sources.
- Moderator – Helen Wu, PhD, Policy and Research Analyst, IPHI
 - How Researchers Can Access CDPH Data – Terri Mack, MPA, Chief, Health Information and Research Section, California Department of Public Health (CDPH)
 - How Researchers Can Access OSHPD Data – Ron Spingarn, Deputy Director, Healthcare Information Division, California Office of Statewide Health Planning & Development (OSHPD)
 - How Researchers Can Access DHCS Data – Linette T. Scott, MD, MPH, Chief Medical Information Officer, DHCS
- 11:00–11:15 **Break**
- 11:15–1:15 **Breakout Groups: Generating Research Ideas/Questions**
- Participants will attend one moderated discussion group of their choice. Groups should spend about 45 minutes brainstorming ideas (11:15-12:00), then break for lunch (12:00-12:30), and reconvene with the entire group to report out top priorities/areas of inquiry for each topic (12:30-1:15).
- GROUP 1: Patient-Centered Quality**
- Moderator: Helen Wu, PhD, Policy and Research Analyst, IPHI
- Participants will discuss what health care quality improvements patients and their families would value most from the research community, outlining the key opportunities and challenges to in advancing quality of care research that is patient-centered, addressing concerns such as health outcomes and complications.
- GROUP 2: Quality of Care**
- Moderator: Julia Logan, MD, MPH, Quality Officer, DHCS
- Participants will discuss pressing issues in the quality of maternal health care, including links between health care delivery and outcomes, and geographic variation in utilization.

GROUP 3: Disparities

Moderator: Sylvia Guendelman, PhD, MSW, Professor of Community Health and Human Development, UC Berkeley School of Public Health

Participants will discuss documented socioeconomic disparities in health outcomes and the delivery of care, and highlight short-term priority areas for action to reduce these disparities.

GROUP 4: Payment Reform for Quality

Moderators: Pat Powers, MPA, Director, California State Innovation Model, and Kate Chenok, MBA, Director, California Joint Replacement Initiative, Pacific Business Group on Health

Participants will explore how alternate payment methodologies or value-based payment may affect maternity care quality. They will discuss the relationship between payment and quality, how to reward providers for high-quality care, and what the role of payment should be in improving maternity care and outcomes.

1:15–1:30

Break

1:30-2:15

Keynote Address – Transforming Maternity Care: A 2020 Vision for a High-Quality, High-Value Maternity Care System and Blueprint for Action

This presentation will describe a multi-stakeholder process that resulted in the development of a national vision to improve maternity care, including delivery system transformations required to ensure that high quality, high-value care is reliably delivered.

- Maureen P. Corry, MPH, Executive Director, Childbirth Connection

2:15–3:15

Panel Discussion: Developing a Future Research Agenda

This discussion session will build on the priority research areas identified during the breakout groups. Panelists will reflect on what research can reasonably be conducted in the next 1-2 years using data from DHCS and other state sources that will improve maternity care quality. Panelists also will be asked to identify what resources are needed/what they each can contribute to increase the likelihood of these research efforts being successful.

- Moderator – Kenneth W. Kizer, MD, MPH, Director, IPHI
- Neal Kohatsu, MD, MPH, Medical Director, DHCS
- Elizabeth Lawton, MHS, Epidemiologist, Maternal, Child and Adolescent Health, California Department of Public Health
- Robert Moore, MD, Medical Director, Partnership Health Plan

3:15–3:30

Conclusions and Next Steps

- Chris Perrone, MPP, Director, Health Reform and Public Programs Initiative, CHCF

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