Studying the Use of Research Evidence in Perinatal Policymaking

Analysis Plan -- *FINAL*

PLAN HIGHLIGHTS:

- This study aims to understand—and improve—**use of research evidence (URE) during policy decision-making** that shapes the lives of pregnant and parenting people.
- A "**numbers and narratives"** mixed methods approach is used to triangulate data that provides both past and future-forward understandings of URE in Colorado.
- Findings will help **uncover URE barriers, facilitators, and processes** at play in policy decision-making, as well as identify **activation pathways** for change.
- Study results will be used to co-create data-informed guidance on how Colorado can advance evidence-based decision-making that drives towards perinatal health and reduces disparities.

AUTHORS:

Courtney L. Everson, PhD
Sr. Researcher/Project Director, Colorado Evaluation and Action Lab

Lauren Gase, PhD
Sr. Researcher/Project Director, Colorado Evaluation and Action Lab

Erin Wu, MPH
Staff Researcher, Colorado Evaluation and Action Lab

For inquiries contact: Courtney L. Everson | courtney@coloradolab.org | www.ColoradoLab.org

Report Number: 22-02-D2. Date: August 15, 2022

Table of Contents

Introduction

SB21-194 (Maternal Health Providers) passed in the 2021 legislative session with a provision to study the use of research evidence in policy decisions that shape the lives of pregnant and parenting people.

CDPHE has partnered with the Colorado Evaluation and Action Lab to fulfill this legislative provision and generate data-informed guidance on how Colorado can advance evidence-based decision-making that drives perinatal health and reduces disparities.

In 2021, Colorado passed the landmark Birth Equity Bill Package (SB21-193, SB21-194, SB21-101) to protect human rights, improve well-being outcomes, and decrease health disparities during the perinatal period. SB21-194 (Maternal Health Providers) has a special focus on promoting use of research evidence (URE) in policy decisions that shape the lives of pregnant and parenting people. The Colorado Department of Public Health and Environment (CDPHE) is the state agency tasked with fulfilling this provision.

Specifically, Section 25-52-104 states: "study the use of research evidence in policies related to the perinatal period in Colorado and, no later than September 1, 2023, report to the Senate Committee of Health and Human Services and the House of Representatives Committee on Health and Insurance, or their successor committees, on the use of research evidence in policies related to the perinatal period in the State, including public and private payment systems and malpractice insurance policies, using the implementation science framework."

To fulfill this provision, CDPHE has partnered with the Colorado Evaluation and Action Lab (Colorado Lab) to conduct a study on improving URE in perinatal policy decision-making. The study fits within the Department's 2019-2023 strategic plan under:

- **Goal #1:** Create an equitable Colorado to cultivate an environment where all individuals, families, and communities can thrive; and
- **Objective #1:** Reduce perinatal health disparities and promote the equitable achievement of perinatal well-being for Coloradans.

Study Aims

This study aims to: (a) explicate the barriers, facilitators, and processes that drive—or limit—URE during perinatal[1] policy decision-making; and (b) co-create data-informed guidance for how Colorado can advance evidence-based decision-making that drives towards perinatal health and reduces disparities.

What is Evidence-based Decision-making in Policymaking?

Evidence-based decision-making is the intersection of the best available research evidence, policymakers' expertise, and constituent needs and context.

[1] In this study, the term "perinatal" refers to the period of pregnancy to birth through the first year of life.

UNIVERSITY of DENVER

COLORADO EVALUATION AND ACTION LAB

Conceptualizing Use of Research Evidence: A Primer

Conceptualizing Use of Research Evidence: A Primer

This primer was created based on a literature review of URE as a form of implementation science. A special focus of the literature review is on URE science (broadly) and URE in policymaking (more specifically). Please see the Literature Review section for details.

Origins of URE

The origins of studying URE in education, human service, health, and justice systems date back to the 1970s and 1980s, when knowledge utilization and translation became a spotlight for scholars and practitioners alike.[1] URE is a form of implementation science[2] and focuses on how, why, and to what extent evidence is used in decision-making, especially at the policy level.[3] This URE study harnesses the power of the URE field. As such, we begin with a primer on URE and its implications for CDPHE's commitment to evidence-based policy and practice that promote equitable achievement of perinatal well-being for Coloradans.

Why A Focus on URE?

Generating research findings does not create change by itself. Despite decades of funding flowing to evaluation and research of perinatal programs, services, and practices in the United States, research evidence remains underused during decision-making.[4] Yet, research evidence can be a vital tool for agency leadership, policymakers, program managers, providers, and communities during policy creation, practice implementation, and service delivery. Bridging the gap between "research findings" and "real-world application" requires an evidence-informed understanding of (1) the conditions that enable URE; and (2) the strategies that can cultivate enabling conditions as critical decisions shaping pregnant and parenting peoples' lives are made.

Creating a Shared Understanding: Key Definitions

In this section, we provide key definitions that guide this study, in an effort to create shared understanding across the Colorado Lab team, CDPHE partners, and the many stakeholders co-designing study priorities and the data-informed guidance that will result from study findings.

Policy Decision-makers and Policy Influencers

> **This URE study focuses primarily on *policy decision-makers*—those who create policies or are responsible for policy implementation.**
>
> **A secondary focus is on *policy influencers*—those who inform creation or implementation of policies.**

Policy decisions-makers are individuals and entities who create policies or are responsible for the implementation of policies that shape pregnant and parenting peoples' lives. Decision-makers include agency leaders, organizational managers, program administrators, and local, state, and federal policymakers. Policy influencers heavily inform the creation of policy or the extent to which it is implemented with fidelity. Influencers include both intermediaries (e.g., advocacy organizations, technical assistance providers, professional associations) and constituents (e.g., childbearing people).

Policymaking Levels

The Centers for Disease Control and Prevention (CDC) have identified three different policy types that play a vital role in improving the public's health.[5] These types exist at the macro, meso, and micro level of policymaking.

- **Macro:** Legislative policies are laws or ordinances which can be created at the local (city or county), state, or federal level.
- **Meso:** Regulatory policies are rules, standards, principles, or guidelines created by government agencies with regulatory authority (i.e., government agencies with authorization to make regulations through state laws).
- **Micro:** Organizational policies are rules or practices established within an agency or organization, such as those developed by a private hospital or hospital association, local educational agencies, governmental internal policies governing staffing, community-based and faith-based organizations, businesses such as health insurance coverage and liability companies, and professional associations of providers and professionals.

Research Evidence

Building on the William T. Grant Foundation's rich descriptions[6] of URE, we define "research evidence" as:

> **Research Evidence: empirical findings generated from the systematic and rigorous application of methods and analyses to help answer a question, hypothesis, or topical investigation.**

Research activities engaged in this systematic and rigorous application may include descriptive studies, intervention studies, program evaluations, outcome studies, qualitative inquiries, meta-analyses, systematic reviews, and cost-effectiveness studies. As such, findings from formal studies on the effectiveness of an intervention (for example), experiences of a practice (for example), as well as systematic analysis and application of administrative data (as another example) are included in this definition of research evidence.

Other Evidence

Research evidence is not the only form of evidence used by decision-makers.[7] Other evidence includes professional experiences, local data without systematic application of methods and analyses (e.g., raw counts without context), translational information (e.g., best practice documents), national/state/local guidance, and family experiences, preferences, needs, and cultural values.[8, 9]

Defining URE

We build on Langer's[10] conceptualization of evidence use as behavioral change in defining URE.

> **The proposed study leverages the framework of evidence use as behavior change with three behavioral components: research evidence acquisition/generation, processing/meaning making, and application.**

- **Acquisition/generation**: the sources and pathways by which decision-makers acquire research evidence, such as through colleagues, conferences, peer-reviewed literature, pre-appraised literature, or Clearinghouses. While acquisition relies on pre-existing evidence, "generation" acknowledges that evidence to inform a given issue or topic may not yet be available. This is particularly important to consider when uncovering evidence-informed understandings of perinatal health disparities and solutions that drive equitable opportunity. Generation of research evidence may come, for instance, from systematic analyses of administrative data or national birth registries, or co-generation of new studies within a research-practice partnership.

- **Processing/meaning making:** the processes by which decision-makers organize (e.g., sort, group, and choose), critically appraise (e.g., evaluate for reliability, validity, methodological rigor), and interpret for relevance (e.g., agency context, political pressures, family characteristics of local population) acquired/generated research evidence. Processing also involves how decision-makers make meaning of and incorporate the research evidence into the larger decision-making picture, acknowledging that rarely is research evidence alone the exclusive determining factor.

- **Application**: how research evidence is subsequently used by decision-makers, such as in influencing a decision, an action or adoption of a practice, or changes in thinking about a policy or practice issue.

Forms of URE

From acquisition to application, URE can be further understood in how it "shows up" during the decision-making process.

Five forms of URE are explored in this study:

- **Conceptual use**
- **Instrumental use**
- **Imposed use**
- **Relational use**
- **Symbolic or strategic use**

Each of these forms have rich definitions, as defined below.[11, 12, 13, 14] In this study, we will explore how each of these unfold in Colorado policy decision-making related to the perinatal period.[15, 16, 17, 18]

- **Conceptual use**: how research influences decision-makers' understanding of problems and solutions by introducing new thought processes, orientations, and frames by which to think about the issue.
- **Instrumental use:** how distinct research evidence is directly applied to a particular decision (e.g., adoption of an evidence-based practice).
- **Imposed use:** how policy mandates dictate decision-makers engagement with research and/or tie funding mechanisms to the adoption of evidence-based practices.
- **Relational use:** how research evidence is used to build trust with or educate colleagues, stakeholders, constituents, or other partners.

- **Symbolic or Strategic use:** how decision-makers may cite using research evidence to justify a decision previously made, to advocate for a particular position to others, or where ongoing data collection and evaluation work are being done, but with no real intention or strategy for meaningfully using the results.

Evidence-based Decision-making

> **Evidence-based decision-making (EBDM) is the intersection of the best available research evidence, policymakers' expertise, and constituent needs and context. EBDM recognizes that research evidence alone is not the only contributing factor to policy, practice, and budget decisions.**

Strategies to promote EBDM[19, 20, 21, 22] are systematic and replicable approaches intended to improve URE by decision-makers or to maximize URE's impact on decisions.[23] During EBDM, the best available research evidence acts as a central input into the decision, with recognition that other inputs will also inform the decision-making and how the research evidence is ultimately applied. For example, resourcing options, policy context, cultural strengths, racial disparities, public opinion, feasibility of implementation, affordability, sustainability, and acceptability to stakeholders are all additional key inputs that must factor into the decision.

Importantly, a focus on evidence-based decision-making should *not* be confused with the concept of "evidence-based programs" (EBPs) – which are most often given the designation of "evidence-based" through rigorous outcome studies demonstrating efficacy and associated reviews by national Clearinghouses (e.g., Title IV-E Prevention Services Clearinghouse. While EBPs are a leading application of evidence use (i.e., instrumental use), they are not the sole way evidence can or should be used to strengthen the policymaking process and drive outcomes.

Understanding the Context-informed Nature of URE

Many factors pull at decision-makers and decision-making is a social process. To understand the driving processes, barriers, and facilitators for URE in policy creation and implementation related to the perinatal period in Colorado, this study will focus on both social and structural conditions of URE.

Social Conditions

Social conditions in URE are the **interpersonal relationships**, **intrapersonal experiences** with research evidence, and **cultural meaning-making** around evidence, including what constitutes evidence and whose knowledge "counts" as evidence in decision-making.

On *interpersonal relationships*, previous research documents that, simply put, relationships matter in the flow and use of research evidence.[24, 25, 26, 27, 28, 29, 30, 31, 32] Trusted colleagues often serve as a key source of information for decision-makers and can influence the flow and application of research evidence. Similarly, long-term transactional relationships that are cultivated in research-practice-policy partnerships can increase understanding and application of research evidence in context by local decision-makers. While practitioners and policymakers often have fractured relationships with researchers, when trusting relationships are cultivated, the inclusion and application of research is increased.

On *intrapersonal experiences*, a growing body of literature explores how individual uses of research evidence vary widely based on a variety of factors, such as educational level, position/role, exposure to evidence-informed climates, research fluency levels, and attitudes towards research evidence.[33, 34, 35]

Drawing on anthropological and sociological scholarship,[36] *cultural meaning-making* around evidence takes two conceptual forms: (1) meaning-making as it involves human perception and response to specific inputs; and (2) meaning-making as it involves collective negotiations of concepts, processes, values, and behaviors. When exploring URE, meaning-making occurs around what types of evidence are valued, how research and other evidence is produced, interpreted and subsequently applied, and who benefits or is harmed by the application of research and other evidence.[37, 38, 39, 40]

Structural Conditions

Structural conditions in URE are the **organizational culture and climate**, agency and community operating **context**, and **political landscape** in which decisions are made and enacted.

We adopt the distinction between *organizational culture and climate* used by Glisson (2015),[41] where "organizational culture" refers to shared behavioral norms and expectations of the working environment and "organizational climate" refers to how individuals perceive and experience their working environment. Previous studies demonstrate that participatory engagement with research, agencies that support evidence-based practice, leadership that values research evidence, and incentive structures that encourage collaborations between researchers and practitioners can all positively improve URE in practice and policy decision-making.[42, 43, 44, 45]

Other studies have found that agency and community operating *context* can either promote or inhibit URE, such as agency size, urbanicity, business structure, agency resources, and characteristics of families served (e.g., socioeconomic status, race and ethnicity, family structure, ages).[46, 47, 48]

Larger state and federal *political landscapes* also influence URE. For instance, policymakers may (mis)use research evidence when making decisions about how to structure a policy,[49] validated screening and assessment tools may be (in)consistently applied during health care or medical practice,[50, 51] and political debates on whether state/federal dollars should be prioritized for prevention, treatment, or intervention efforts can hinder evidence-based care.[52, 53]

URE in Public Health and Health Care

The most well-known understanding of URE in public health and health care stems from the advent of evidence-based medicine (EBM) in the 1980s to 1990s,[54] which has grown to be accepted as the "gold standard" for decision-making in medical and health practice and policy over the last 20 years. A leading definition of EBM is "the conscientious, explicit and judicious use of best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical experience with the best available external clinical evidence from systematic research."[55]

In more recent years, increasing attention has been given to other ways research evidence does—or should—show up in health policymaking, beyond the clinical practice of EBM. Three systematic reviews

lead the way in understanding barriers, facilitators, and extent of URE in public health and health care policy decision-making. Table 1 summarizes major factors influencing URE in health policymaking.

Table 1. Factors Influencing URE in Health Policymaking from Three Systematic Reviews

	Systematic Review 1 [56]	Systematic Review 2 [57]	Systematic Review 3 [58]
Factor 1	Personal/trusted relationships (with colleagues, with researchers)	Capacity-building to improve policymakers' ability to read, critically appraise, and interpret research evidence	Collaboration between researchers and policymakers
Factor 2	Timely relevance of research evidence	Sustained dialogue between researchers and end users (policymakers)	Relevance of research evidence
Factor 3	Inclusion of research evidence summaries with policy recommendations	URE-valued culture (e.g., incentives)	Access to research evidence and ability to read, appraise, and apply research evidence

URE Enabling Conditions

These factors are not unique to the public health and health care space. In fact, across policy areas, URE studies have coalesced around three specific conditions that enable URE and, when not present, inhibit:

1. "research is timely and relevant, addressing decision-makers' needs and local contexts.
2. trusted relationships between researchers, intermediaries, and decision-makers enable collective sense-making of research and deliberation over how to use it.
3. evidence use is integrated into decision-makers' existing routines, tools, and processes." [59]

This URE study will leverage these leading factors and aim to identify specific strategies for improving URE within these enabling social and structural conditions to improve social and health outcomes.

UNIVERSITY of DENVER

COLORADO EVALUATION AND ACTION LAB

Analysis Plan Development Activities

Analysis Plan Development Activities

Narrative literature reviews were conducted to identify (a) major drivers of perinatal health outcomes and disparities and (b) URE in policymaking, with a focus on public health policymaking.

Stakeholder interviews and focus groups were conducted to inform priorities for this study, including policy levels, decision-makers, and major issues.

Ongoing partnership meetings with CDPHE tie analysis plan development to Department needs and strategic goals.

Development of this analysis plan was guided by three overarching goals: (1) ground study priorities, methodologies, and ultimate use in the existing evidence base on perinatal health and URE; (2) co-design study priorities and application with stakeholders; and (3) make actionable study findings by connecting study priorities and approaches to real-time issues and opportunities presenting in Colorado's perinatal health, equity, and policy landscapes. To this end, three major activities were undertaken to inform development of this analysis plan; a summary of each is provided below.

Literature Review on Perinatal Health Outcomes and Disparities

A literature review on perinatal health outcomes and disparities was conducted to create the study's context and grounding framework.

Major drivers of perinatal health outcomes are mapped to levels of the social-ecological model (SEM) in public health:

- **Societal** factors involve federal, state, and local laws, policies, and structures, including systems of oppression and cultural norms.
- **Community** factors involve community settings in which social relationships occur and how settings are designed and accessed.
- **Institutional** factors involve organizational culture, climate, capacity, structure, protocols, and policies.
- **Relationship** factors involve interpersonal relationships, both personal and professional, and transactional exchange.
- **Individual** factors involve biological, personal, and social characteristics as well as knowledge, skills, attitudes, and behaviors.

Drivers of outcomes are not experienced the same by all—disparities exist within outcomes and when this occurs, drivers of disparity emerge.

Literature Review Methods

The Colorado Lab conducted a narrative literature review between March and May 2022 to identify driving factors of perinatal health outcomes and disparities. PubMed was used with the following keywords—and variations—guiding the search: disparities, perinatal, health, outcomes, policies, practices. Backward and forward chaining were used to expand initial search results and saturate findings. The search was then limited to peer-reviewed articles and grey literature published between 2017 and 2022 to ensure a current and relevant understanding of drivers, meeting the best practice medical and health standard of "last five years" in literature searches. Some foundational articles, published pre-2017, were also included. Articles were critically appraised for rigor and relevancy, with a focus on meta-analyses and systematic reviews to attain breadth and depth in perinatal health outcome trends and current drivers.

Literature Reviewing Findings

Articles identified key outcomes defining perinatal health and where major disparities by race, ethnicity, socioeconomic status, and other markers of vulnerability exist. Key outcomes reviewed in the studies include prematurity, low birth weight, mode of birth (cesarean, unassisted vaginal, assisted vaginal), major maternal complications (hemorrhage, surgical site infection, perineal trauma), perinatal depression, lactation, infant mortality, and maternal mortality.

In understanding drivers of health outcomes, an expansive picture of perinatal health correlates emerged. Perinatal health correlates include social and structural factors related to:

- physiologic health (e.g., pregnancy-induced hypertension),
- behavioral health (e.g., substance use disorders),
- health care practices (e.g., mode of delivery),
- health care systems (e.g., prenatal care coverage),
- socio-economic status (e.g., poverty),
- racial and cultural oppression (e.g., systemic racism),
- family and friend support (e.g., social connections), and
- community settings (e.g., resource availability).

These correlates align well with Colorado's Perinatal Continuum of Care, a framework developed by the Colorado Maternal Mental Health Collaborative to illustrate the various services that families may encounter and identify opportunities to support mental health and well-being for parents, caregivers, babies, and families during the perinatal period. Although the Perinatal Continuum of Care focuses on promoting and addressing mental health, many aspects of the framework can be applied to the broader topic of perinatal health; as such, it was used to inform development of the SEM for perinatal health.

Several vital pathways by which practices and policies can contribute to reducing disparities in outcomes and drivers, especially racial and ethnic disparities, were also identified from this literature review. These include quality of perinatal care, hospital policies on care coordination and support, mandatory paid leave policies, Medicaid expansion, state-based perinatal quality collaboratives, and lactation policies. Importantly, policies and practices that focus on modifiable factors related to social determinants of health (SDOH) are most likely to produce a measurable difference in outcomes. Findings also underscore

the need to address root causes of negative health outcomes and experiences (e.g., systemic racism) and take a cross-system, cross-level approach to promoting equitable well-being, including participation by providers, program managers, system leaders, clinical teams, community organizations, childbearing families, advocacy organizations, and policy decision-makers at the local, state, and federal level.

A Social-Ecological Model for Perinatal Health

Figure 1 and Table 2 synthesize the *major drivers of perinatal health outcomes* that resulted from this literature review. Drivers are mapped to levels of the social-ecological model (SEM) in public health.[60] Drivers of outcomes are not experienced the same by all; *disparities exist within outcomes and when this occurs, drivers of perinatal health inequity emerge*. Legislative, regulatory, and organizational policies impact and are influenced by drivers in each level. The SEM helps visualize the contours of SDOH bearing down on perinatal outcomes. As defined by the World Health Organization, SDOH are "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life."[61] They cross five main categories: economic stability, education, health and health care, neighborhood and environment, and social and community context. This definition aligns with CDPHE's definition of SDOH.

This SEM for Perinatal Health, developed by the Colorado Lab, is used as the study's guiding framework and helps contextualize the data-informed guidance for EBDM in perinatal policymaking generated from project findings.

Figure 1. A Social-Ecological Model for Perinatal Health

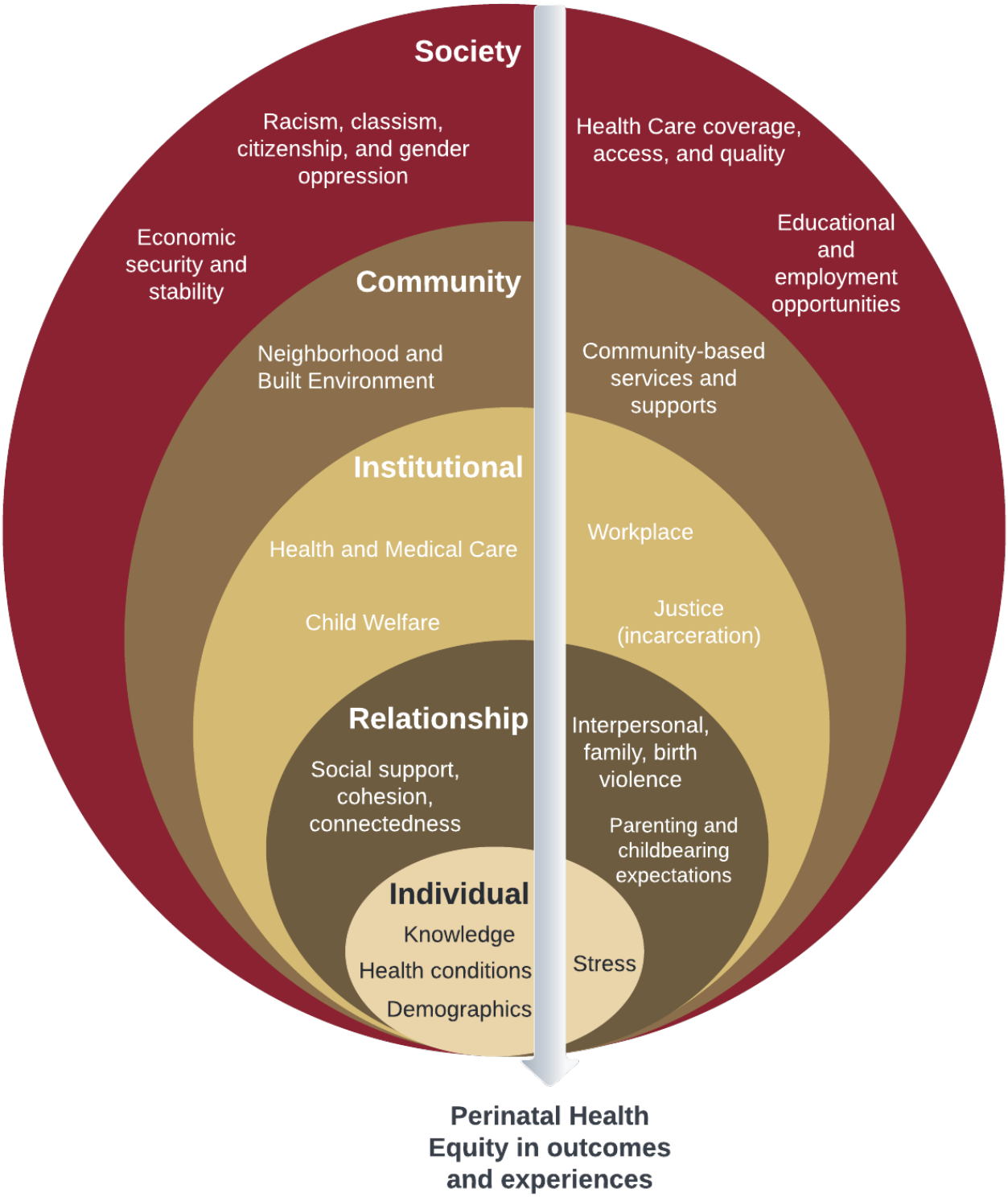


Table 2. Drivers of Perinatal Health Outcomes and Disparities

SEM Level	Drivers of Perinatal Health Outcomes
Society	● Racism, classism, citizenship, and gender oppression ○ Systemic racism experienced in daily life[62, 63, 64] ○ Structural racism in health, human service, educational, and justice systems[65, 66] ○ Institutional bias based on socioeconomic status[67] ○ Denial of access to services based on citizenship status[68, 69] ○ Gender-based violence and discrimination on the basis of gender[70] ● Health care coverage, access, and quality ○ Lack of access to health insurance, including adequate Medicaid coverage[71] ○ Limited access to perinatal supports, such as midwives, doulas, and community health workers[72, 73, 74] ● Economic security and stability ○ Inadequate living wages, experiences of poverty[75, 76] ○ Low availability of paid parental leave[77] ○ Housing insecurity/housing unaffordability[78] ○ Food insecurity[79] ○ Inadequate public assistance (e.g., Special Supplemental Nutrition Program for Women, Infants, and Children; Temporary Assistance for Needy Families; Supplemental Nutrition Assistance Program)[80] ● Educational and employment opportunities ○ Lack of funding for adult and child educational programs[81] ○ Low availability of workforce development opportunities[82] ○ Employment challenges for pregnant and parenting people[83]
Community	● Neighborhood and built environment ○ Living in an area that lacks access to healthy foods or opportunities for physical activity[84] ○ Insufficient public transportation[85] ○ Old housing stock (e.g., lead paint)[86] ○ Polluted air, water, and soil[87] ○ High crime rates and community violence[88] ○ Gentrification and segregation of communities[89] ○ Living in areas without smoke-free legislation[90] ● Community-based services and supports ○ Low access to perinatal support groups, classes, or activities[91]

SEM Level	Drivers of Perinatal Health Outcomes
	○ Inadequate community-based family and early childhood supports[92, 93] ○ Limited access to behavioral and mental health prevention, treatment, and recovery services and supports[94]
Institutional	● Health and medical care ○ Hospital quality[95, 96] ○ Limited community birth options[97] ○ Regulations limiting patient-centered health decision-making[98, 99] ○ Lack of access to providers that practice patient-centered and culturally responsive care[100] ○ Lack of access to racially- and culturally-matched providers[101] ○ Lack of effective quality improvement initiatives[102] ○ Outdated lactation, parent-infant bonding, and support person guidelines[103] ● Workplace ○ Inadequate benefits and paid time off[104] ○ Lack of organizational supports for lactation and child care gaps[105, 106] ● Child welfare ○ Unnecessary family separation[107] ○ Limiting family reunification[108] ○ Low opportunity for infant-parent bonding when separated[109] ● Justice system – incarceration ○ Use of shackling during labor/birth[110] ○ Limiting access to labor supports[111] ○ Low availability of prenatal education[112] ○ Lack of access to lactation support[113] ○ Low opportunity for infant-parent bonding[114]
Relationship	● Interpersonal, family, or birth violence ○ History of interpersonal violence (IPV) or current IPV in pregnancy[115, 116] ○ History of violence in the home, targeted at adults and/or children, or current violence in the home[117] ○ Violence experienced in previous births, including traumatic experiences on physical or psychosocial levels[118] ● Parenting and childbearing expectations ○ Incongruent with personal needs or evidence-based practices[119] ○ Cultural practices not honored[120] ● Social support, cohesion and connectedness

SEM Level	Drivers of Perinatal Health Outcomes
	○ Low social support and social isolation[121] ○ Unhealthy social network (e.g., high rates of substance use by friends/family)[122] ○ Distrust of medical professionals and other helping professions[123] ○ Stigma experienced during pregnancy or parenting (e.g., as a teen parent)[124]
Individual	● Personal demographics ○ Maternal age[125] ○ Partner or spousal status[126] ○ Socioeconomic status[127] ○ Race and ethnicity[128] ● Experiences of stress (e.g., racial, neighborhood, financial, network)[129] ● Knowledge and beliefs about pregnancy, labor/birth, postpartum and newborn care, parenting and infant development[130] ○ (Lack of) access to evidence-based perinatal health information[131] ● Health conditions ○ Pre-pregnancy health conditions (e.g., hypertension, depression)[132] ○ Pregnancy-related health conditions (e.g., gestational diabetes, preeclampsia)[133] ○ Behavioral, mental health, and/or substance use issues or disorders[134, 135]

Literature Review on URE in Policymaking

A literature review was conducted on URE in policymaking, with a focus on public health policymaking.

> **URE is a form of implementation science. When research evidence is meaningfully—and appropriately—used during policy decision-making, policies are more likely to drive positive outcomes and reduce disparities.**
>
> **Advancing EBDM in perinatal health requires attention to:**
>
> - **Types of evidence**
> - **URE as behavioral change**
> - **Types of URE**
> - **Social and structural conditions of URE**
> - **Frameworks to advance evidence-based decision-making**

Literature Review Methods

The Colorado Lab conducted a narrative literature review between March and May 2022 on URE science (broadly) and URE in policymaking (more specifically). Within this, public health URE—including perinatal health specifically, where possible—was prioritized. Several scientific databases (i.e., PubMed, Google Scholar, University of Denver OneSearch, and Science Direct) were used with the following keywords—and variations—guiding the search: URE, implementation science, public health, health, policymaking, evidence-informed policymaking, evidence-based policymaking, research use, policymakers, decision-making, policy, and perinatal. Grey literature was also used, primarily coming from the William T. Grant Foundation, who is the leading entity on URE science in the United States. Backward and forward chaining were used to expand initial search results and saturate findings. Search years were intentionally not limited upon initial search to capture the evolving nature of URE and implementation science, as well as to ground understandings of evidence-based health policymaking in early origins of EBM. In developing study definitions, key concepts, and strategies, most recent (i.e., last five years) literature was centered. Articles were critically appraised for rigor and relevancy, with a focus on where the URE science is converging and showing most promising results for improving health outcomes and advancing equity.

Literature Reviewing Findings

Results were organized into two major buckets: (1) URE foundations and (2) URE in policymaking. Major findings of the literature review are presented in the URE primer section that opens this analysis plan, as well as in the theory of change proposed below.

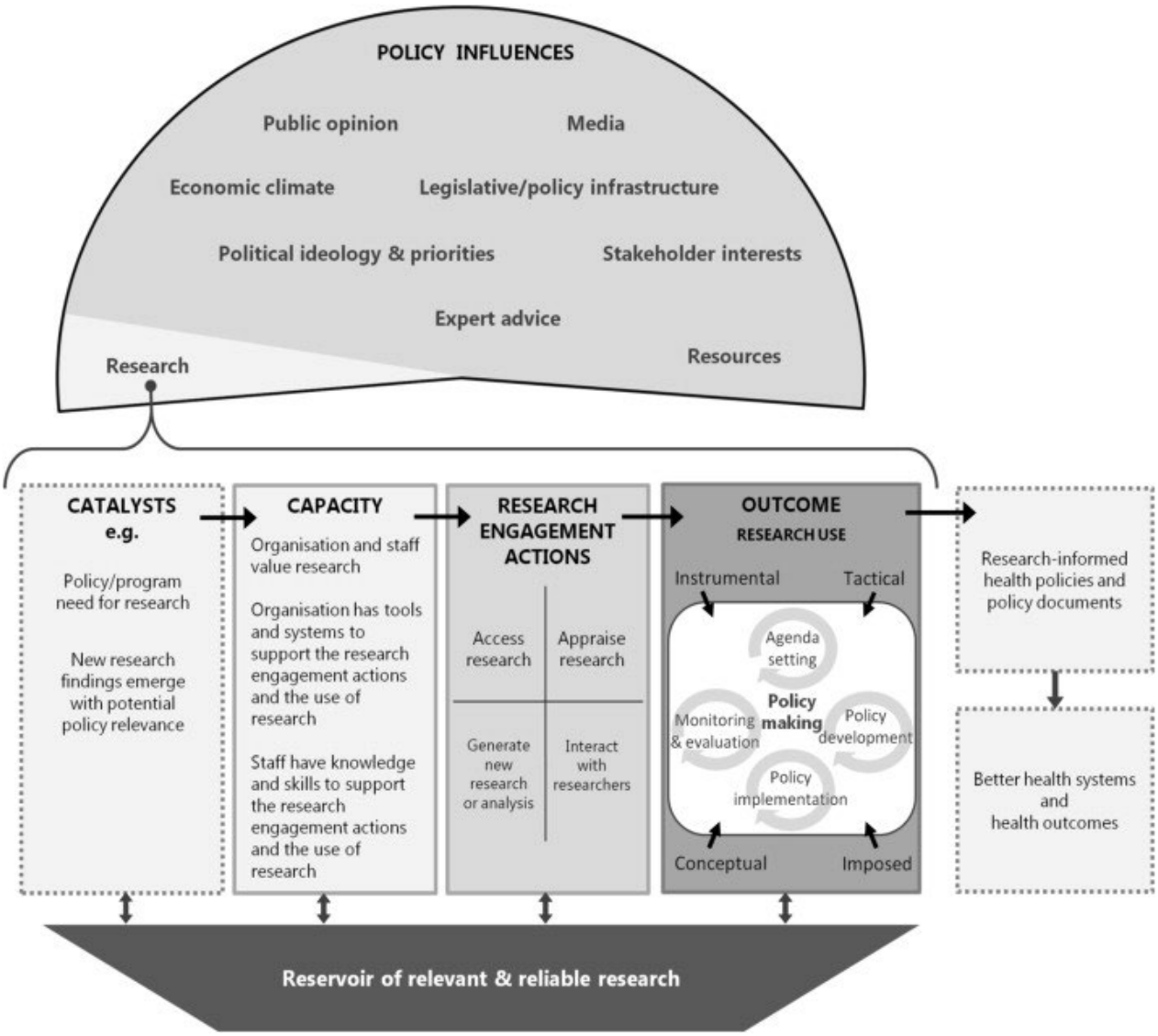
Theory of Change: The SPIRIT Action Framework

There are dozens of frameworks that have been proposed, developed, and tested for guiding studies that aim to improve URE among decision-makers.[136] Many of these are study or niche specific and so, while informative, are not appropriate for use in this study. Ultimately, the study team chose one leading framework that best captures this URE study's intent and is most relevant to public health policymaking: the SPIRIT Action Framework (Figure 2).[137] The SPIRIT Action Framework recognizes that health policymaking is influenced by a number of contextual factors and structural circumstances and, as such,

research evidence alone is never the only contributing factor to policy decision-making. The framework cohesively ties together proposed URE mechanisms, leverage points in the social and structural conditions of URE, and URE types to elucidate the drivers of change for improving EBDM and, ultimately, promoting better health systems and outcomes.

This framework is being adapted by the Colorado Lab to serve as the study's theory of change in designing and implementing study activities to advance EBDM for perinatal health and equity.

Figure 2. SPIRIT Action Framework (reprinted from Redman et al., 2015)[138]



Stakeholder Interviews and Focus Groups

For advancements in EBDM for perinatal health to occur, it is vital that this study connects with the pressing needs, actionable opportunities, and strategic goals of state decision-makers, community leaders, and childbearing families ultimately impacted by policymaking. To this end, the analysis plan was co-designed with stakeholders from across systems and communities.

Approach

In collaboration with CDPHE, seven stakeholder groups were identified for interviews/focus groups. Six of these were cross-system representatives and one centered the lived experiences of childbearing families. System leaders were invited to participate in a 45-minute online interview with one of the lead researchers. Families were invited to participate in a 90-minute in-person focus group through a partnership with Clayton Early Learning. This was a family-friendly focus group where we provided dinner, activities for the children, and a modest $50 participant incentive for parents in appreciation for their time and expertise. The focus group was co-facilitated by the study's principal investigator and a community research consultant who holds trusted rapport with these families and experience in community design work. (All protocols are available by request).

All online interviews were audio-recorded and an automated transcript produced. Field notes were taken at the focus group and transcribed immediately following the session. Interview and focus group narratives were then analyzed using a structured coding model to identify: (a) top issues impacting perinatal health outcomes and disparities for Colorado families; (b) existing/current policies positively or negatively influencing perinatal health, per issue; (c) where policies and issues map on the SEM; (d) level of policy (legislative, regulatory, organizational); and (e) decision-makers and influencers.

Sample

In total, eight leaders representing six systems impacting perinatal health and policy in Colorado and eight childbearing people participated (*n* = 16 stakeholder narratives) (Figure 3).

Figure 3. Participant Sample

16 Narratives Informed Study Priorities

Stakeholders represented a breadth of experiences, personal and professional identities, and decision-making responsibilities and scope, providing rich insights to inform study priorities and activities, as illustrated in Figures 4 through 7 below.[ii] Participant characteristics reported were prioritized for inclusion as they are well-known SDOH and understanding the position of participants who helped shape this study is critical to relevance, rigor, and actionability.

Figure 4. Race and Ethnicity of Participants

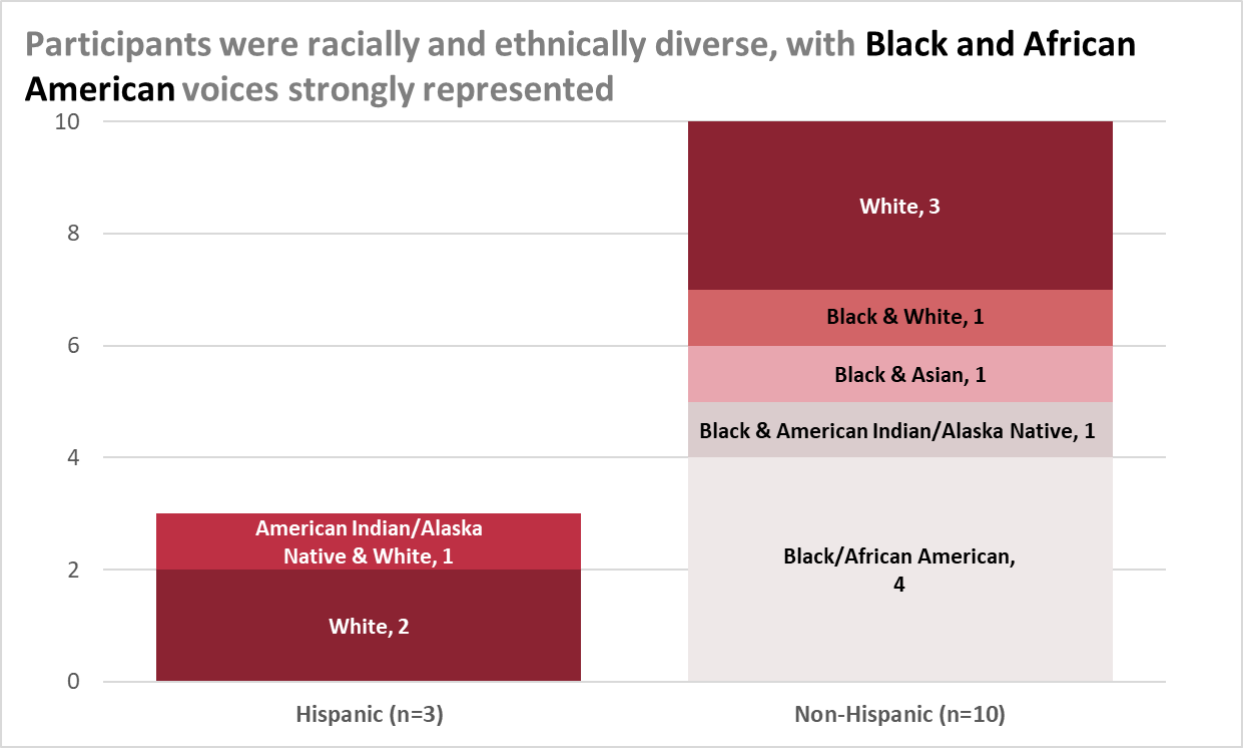
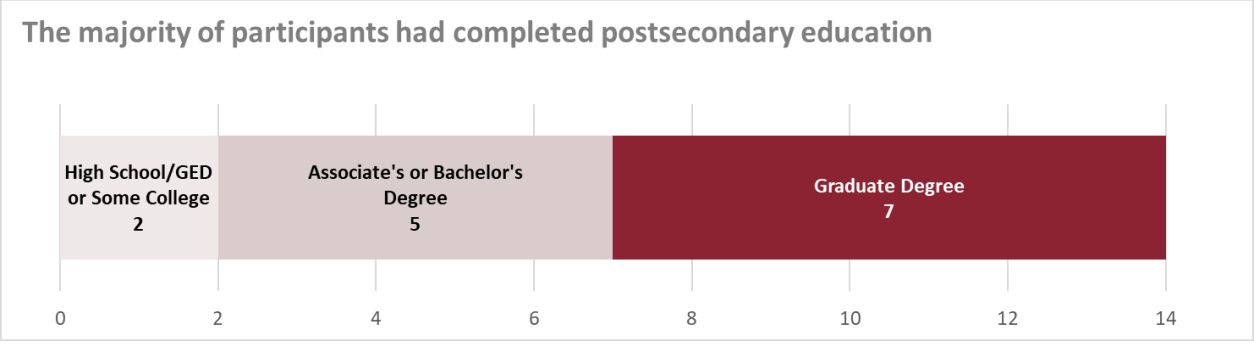


Figure 5. Educational Background of Participants



[ii] All demographic questions were optional for participants. Two participants (one system leader, one parent with lived experience) declined to provide all demographic information. In addition, racial identity was missing for one person who identified as Hispanic ethnicity; since both pieces of information (i.e., race and ethnicity) were not available, this participant was dropped from Figure 4.

Figure 6. Lived Experiences with Immigration Barriers or Citizenship Concerns

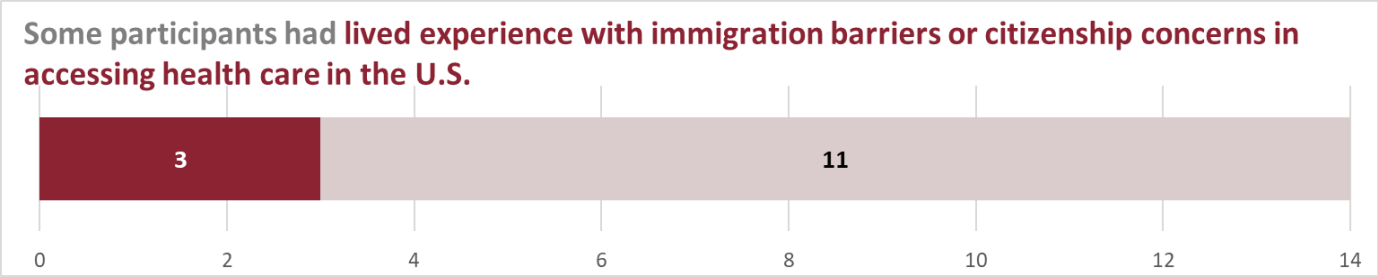


Figure 7. Lived Experiences with Poverty

Findings

For the purposes of this analysis plan, we report on major findings in the areas of policy issues, policy levels, and policy decision-makers that inform proposed study priorities (see Study Priorities for details) and uncover "catalysts" to URE with traction in Colorado, in alignment with the SPIRIT Action Framework.

Next Steps

Narrative data revealed rich insights beyond the initial goal of co-designing study priorities. To this end, additional structured and thematic analyses will be undertaken on interview and focus group narratives during planned study activities.

Partnership Meetings with CDPHE

The Colorado Lab strives to be a trusted, collaborative partner to government and community partners, learning together and activating findings for sustained change. To this end, ongoing partnership meetings with CDPHE help tie analysis plan development to Department needs and strategic goals. Table 3 illustrates the sequence and meeting goals of these partnership meetings.

Table 3. Partnership Meetings with CDPHE

When	Meeting Goal	Coverage	Next Steps
March 2022	Identify Department goals and tie to development of study priorities.	Top issues. Policies helping and hurting. Decision-makers. Stakeholders who can expand our thinking.	Colorado Lab develop initial framework to bound and ground study, as well as stakeholder interview/focus group sample and approach.
April 2022	Refine proposed framework and stakeholder interview/focus group sample and approach.	SEM for perinatal health. URE primer and definitions. Initial stakeholder sampling and protocol.	Colorado Lab conduct stakeholder interviews/focus groups.
Deliver draft analysis plan to CDPHE by 6/15/2022 for review			
June 2022	Create shared understanding of analysis plan and cross-walk with Department goals. Decide on study priorities based on findings. Identify opportunities for stakeholder engagement.	Analysis plan verbal review and revisions. Study priority decisions. Stakeholder engagement ideas.	Colorado Lab refine analysis plan based on feedback.
Deliver final analysis plan to CDPHE by 8/15/2022.			
August 2022	Generate consensus on analysis plan with CDPHE.	Revisions made to draft analysis plan. Identify any additional revisions still needed.	Circulate summary of study design to stakeholders. Colorado Lab finalize analysis plan and prepare for study activities kick-off.
Deliver study design synthesis to stakeholders. Launch study activities.			

In addition to these formal meetings, CDPHE and the Colorado Lab maintain regular communication. CDPHE has been instrumental in connecting the Lab with key stakeholders for interviews/focus groups and in answering analysis plan development questions.

Stakeholder Engagement of Analysis Plan

Stakeholder engagement in development of the analysis plan is an iterative process. To this end, the Colorado Lab will share a synthesis document summarizing major decisions based on the stakeholder co-

design process and interview findings (anticipated: late August). Any formative feedback received will be taken into consideration during study execution by the research team. Any blocking concerns will be discussed with CDPHE to determine if revisions to the analysis plan are feasible, relevant, and appropriate.

In addition, the Colorado Lab and CDPHE co-developed a 1-pager on the two primary SB21-194 studies (this study being one of the two) to promote alignment as CDPHE and the Colorado Lab engage shared stakeholders. This 1-pager is located here.

UNIVERSITY of DENVER

COLORADO EVALUATION AND ACTION LAB

Analysis Plan Overview

Analysis Plan Overview

Findings from the development activities were used to generate the study's focus and proposed activities.

Study Aim

> **This study aims to:**
>
> **(a) explicate the barriers, facilitators, and processes that drive—or limit—use of research evidence during perinatal policy decision-making; and**
>
> **(b) co-create data-informed guidance for how Colorado can advance evidence-based decision-making that drives towards perinatal health and reduces disparities.**

Research Questions

Three research questions guide study activities.

> **Research Question #1:** What are the driving barriers and facilitators to URE in the development and implementation of perinatal policies in Colorado?
>
> **Research Question #2:** Where are there examples of how research evidence has and has not been used in the development and implementation of perinatal policies in Colorado?
>
> **Research Question #3:** What processes and spaces (i.e., levers) can be leveraged to improve URE in the development and implementation of perinatal policies in Colorado?

Study Design

Mixed Methods

This study uses a mixed methodology approach,[139, 140] in alignment with our exploratory aims, to inform rich understandings of EBDM in perinatal health policy. The use of multiple methods will enable us to rigorously address different parts of our research questions and, when combined, will provide a more nuanced understanding of URE than any one method alone could accomplish. Also, since all methods have particular limitations and strengths, a mixed methods approach can help mitigate limitations and elevate strengths. We apply Palinkas and colleagues (2011)[141] taxonomy of mixed methods designs to characterize our study and illustrate the sequencing of events. For structure, we employ a "QUAN + QUAL" structure, where we give equal weight to both data types, simultaneously collect and analyze these data, and use this simultaneous collection for the purposes of exploration around our theory of change (SPIRIT Action Framework). For function, we apply a "complementarity" lens, where we use both types of data to answer the same set of research questions. For process, we apply a "connect" approach, where varying data sources collected build upon one another for elaboration on emerging results and theory-building.

Learning from the Past, Activating for the Future

This study uses a combination of retrospective activities (i.e., looking back on URE in perinatal policymaking—barriers, levers, success stories—for insights that can be applied future-forward) and

prospective activities (i.e., understanding current URE patterns and identifying macro-level opportunities for systemic change). In doing so, we aim to identify both concrete, proximal actionability around specific policy areas as well as longer-term, sustained opportunities for improving URE in perinatal health policymaking.

We take an iterative case study approach to:

a. **Identify** examples of past policies in perinatal health where evidence-based decision-making has successfully occurred, as well as policies where there was a breakdown in effective URE from policy creation to implementation.

b. **Map** what these policy processes have in common—their strategies, their sticking points, and their champions.

c. **Understand** the current URE landscape in Colorado, as experienced by policy decision-makers and influencers.

d. **Recommend** strategies for improving URE in perinatal health policymaking.

e. **Leverage** opportunities with traction to activate recommended strategies.

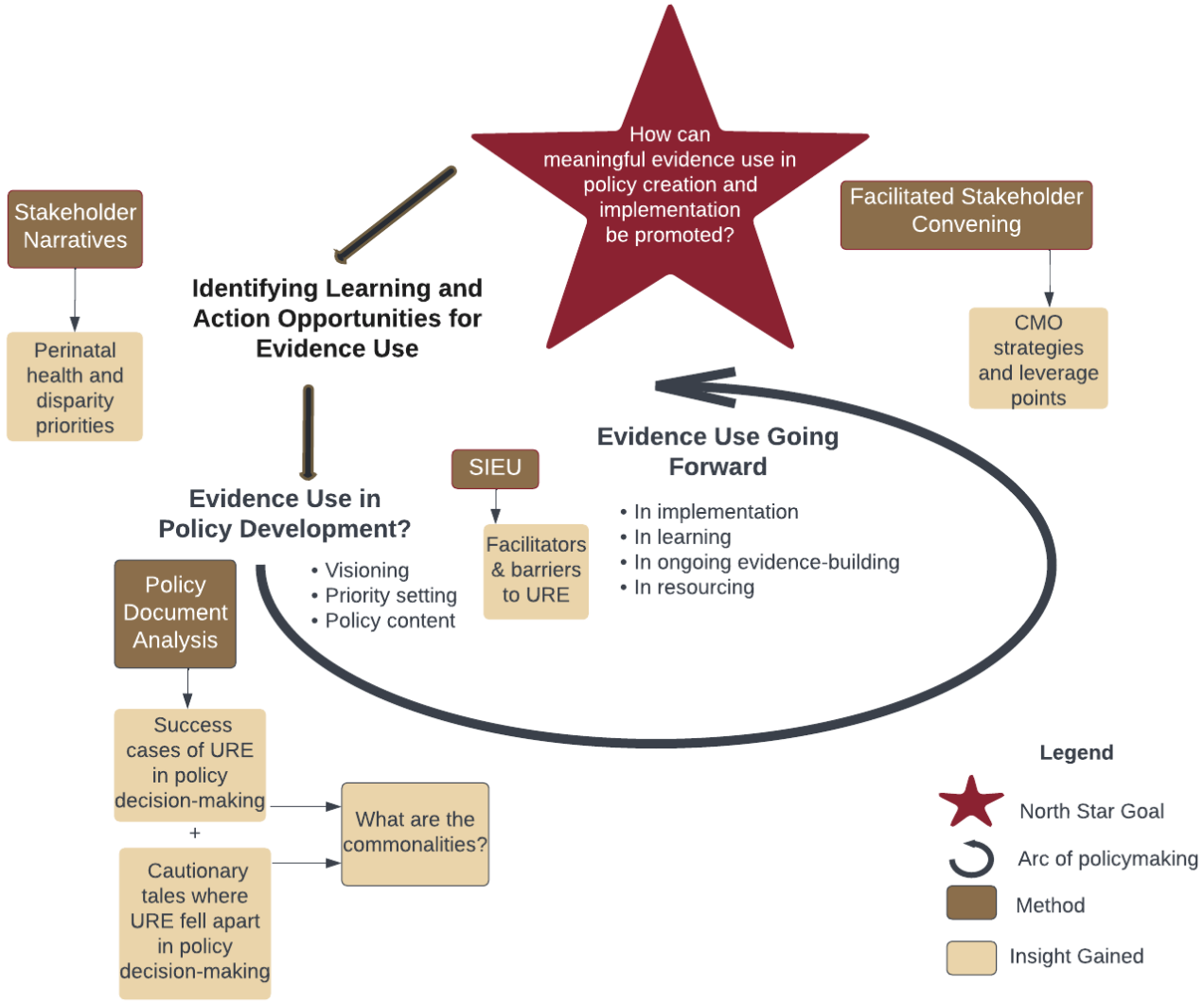
URE in Perinatal Policymaking as a Case Study for EBDM in Colorado

This URE study is working to tease out specific strategies for improving URE during policymaking – from creation to implementation. In doing so, the project serves as a real-life case study to inform the larger culture of evidence-based decision-making in Colorado.

Study priorities identified serve as examples to illustrate how we strengthen URE facilitators and breakdown barriers that get in the way of a strong and sustained EBDM culture.

To illustrate how this case study can help inform the larger EBDM culture of Colorado, the arc of policymaking is overlaid with the specific methods proposed in this study to drive toward a north star goal of meaningful evidence use in policy creation and implementation (Figure 8).

Figure 8. URE Study Methods and Evidence Use in Policymaking



Study Priorities

In selecting the study sample, we sought diversity along three intersecting planes: **policy area**, **policy level**, and **decision-maker**. We used results from the literature reviews, stakeholder interviews and focus groups, and partnership meetings with CDPHE to select priorities within each of these planes, with an eye toward maximizing the following guiding criteria: (a) the magnitude of impact (what are the major issue areas impacting perinatal health outcomes and disparities?), (b) actionability (which issue areas have potential policy leverage points and where are there upcoming opportunities?) (c) scalability (what will allow us to develop data-informed guidance on EBDM that can be adopted in multiple spheres?); and (d) what issue, policies, and opportunities cross-cut multiple policy areas to promote a "360" look and elicit depth?

We grounded our framing of **policy areas** in the SEM for Perinatal Health. We identified health and health care policies as the primary focal point (anchor) of the study, in alignment with the legislative intent. We

identified three policy areas within this anchor that were prioritized by stakeholders and align with actionable opportunities to drive change in URE during policy decision-making.

In selecting, policy levels, we prioritized macro- and meso-level state policies, as these are most aligned with SB21-194 legislative intent (when compared with federal macro policies or micro-level polices). While the study will not have an explicit focus on micro-level policies, we will consider the relationship between state-level macro- and meso- policies and institutional-level micro-policies.

In addition, because the policymaking process and structure looks different for tribal policies, sovereign tribal policies are outside of the scope of the project. However, we recognize that state policies also have deep impact on tribal communities and health (in)equities faced by indigenous populations; as such, tribal voice and indigenous impacts will be elevated through collaboration with the Office of Health Equity's tribal liaison.

For each policy area, Table 4 summarizes priorities for: (1) major issues identified in stakeholder interviews/focus groups; (2) policy document selections (retrospective—past insights); (3) upcoming opportunities to activate URE guidance (prospective—future application); (4) synthesis of study priorities based on prioritized study issues and opportunities; and (5) policy level based on chosen priorities. *Note:* this table serves as a roadmap in executing study activities. The research team will remain responsive to emergent opportunities and be open to pivots in policy selection based on preliminary study findings and stakeholder feedback.

In selecting these priorities, we paid close attention to the interplay of *policy creation* with *policy implementation (or uptake).*

Stakeholder narratives and literature review findings revealed a key gap between policy vision, creation, and implementation. Improving URE during policymaking can help bridge this gap and create an activation pathway to drive outcomes.

Table 4. URE Study Priorities

Policy Area	Issue Details	Possible Policy Selections	Upcoming Opportunities	Study Priority	Policy Level
Health Care Coverage	Prioritized **Exclusion of community-based maternity providers** as covered entities or low reimbursement rates, which limits access to patient choice and culturally congruent care **Insurance access gap for families not eligible for Medicaid,** but also without resources to pay for adequate private insurance (i.e., families between "poverty" and "low income") Additional Themes Inadequate Medicaid coverage of services (e.g., labor companion support, prescriptions) Insurance access gap for undocumented families Insurance reach gap for postpartum care (maternal and infant care)	Prioritized SB21-194 (Maternal Health Providers) HB21-1232 (Standardized Health Benefit Plan Colorado Option) Other Considerations HB22-1289 Section 1332 of the Affordable Care Act SB20-215 (Health Insurance Affordability Enterprise)	Prioritized Colorado Option (benefit design and network standards) Intersecting Opportunities Maternity-Bundled Payment (value-based payments)	Synthesis Increased access to health care coverage, including community-based health providers, to decrease disparities	Macro-state Meso-DOI, HCPF
Racism in Medical Practice	Prioritized **Provider bias during care that leads to mistreatment** and not trusting the patient, which can contribute to maternal and infant morbidity and mortality **Lack of provider and institutional accountability** to non-evidenced-based care, poor care, and mistreatment during care Additional Themes Lack of a culturally, racially, and socially congruent workforce	Prioritized SB21-193 HB19-1122 (Maternal Mortality Review Committee) Other Considerations H.R. 959 (MOMNIBUS Act) HB22-1267 (Culturally Relevant Training Health Professionals)	Prioritized Colorado Civil Rights Commission reporting mechanism for mistreatment Intersecting Opportunities Stimulus funds for workforce development	Synthesis Accelerate mechanisms to improve transparency in health outcomes and use data to promote accountability	Macro-state Meso-CDPHE, DORA

Policy Area	Issue Details	Possible Policy Selections	Upcoming Opportunities	Study Priority	Policy Level
	Data privacy laws that restrict release of small sample sizes, making inequities invisible for many populations[3]				
Integrated Behavioral Health and Maternity Care	Prioritized **Barriers to coordinated care**, including closed loop communication systems and data sharing challenges, which reduces effective wraparound support for childbearing families experiencing substance use and/or mental health issues Additional Themes Limited or inadequate reimbursement for behavioral health screenings Providers lacking motivation, capacity, and structure to uptake integrated models, even when reimbursement is available Lack of clear guidance and organizational policies on toxicology testing and health supports for families impacted by perinatal substance use, including role of child welfare and disproportionately in reporting	Prioritized HB22-1278 (Behavioral Health Administration) HB22-1302 (Health-care Practice Transformation) Other Considerations State Innovation Model (SIM) 1.0 – Supporting Legislation (as documented in final report) Increase in reimbursement for maternal depression screenings (2017 HCPF Medicaid Program Rules) SB19-228 (Substance Use Disorders Prevention Measures) SB20-028 (Substance Use Disorder Recovery)	Prioritized IMPACT[4] (Improve Perinatal Access, Coordination & Treatment) Behavioral Health program Other Intersecting Opportunities Maternal Opioid Misuse Model Grant "SIM 2.0" – HB22-1302	Synthesis Explore models for integrated perinatal behavioral health care to improve holistic health outcomes	Macro-state Meso-BHA

[3] Issue of reporting will also be a focus of the "Data Collection and Reporting" study led by CDPHE as another provision of SB21-194.

[4] While not connected to a specific policy in origin, the IMPACT Behavioral Health program is funded through a blend of a Maternal Health Block Grant, a Substance Abuse Block Grant, stimulus funds and State Opioid Response grant dollars from SAMHSA.

Decision-makers and Influencers

Based on emergent issues, policy examples, and future-forward opportunities identified from stakeholder interviews/focus groups and the literature, the following stakeholders are recommended for inclusion in the study sample (Table 5).

Table 5. Policy Decision-makers and Influencers for Study Sample

State Departments	Health Care Policy & Finance (HCPF), CDPHE, Behavioral Health Administration (BHA), Department of Insurance (DOI), Department of Regulatory Agencies (DORA)
General Assembly	Legislators, Joint Budget Committee (JBC) budget and policy staff
System Influencers	Colorado Consumer Health Initiative (CCHI), Colorado Hospital Association (CHA), Colorado Perinatal Care Quality Collaborative (CPCQC)
Community/Family Influencers	Perinatal advocacy organizations,[5] HCPF Maternal Advisory Committee, CDPHE Maternal Mortality Review Committee

These stakeholders include both policy decision-makers and influencers positioned to lead change on the prioritized policy issues. To catalyze **systemic change,** decision-makers at the legislative (macro) and regulatory (meso) policy levels were chosen as a focus for all three issue areas. In recognition that institutional policies at the micro level serve as a key implementation sticking point—and are often influenced by intermediaries (e.g., advocacy organizations, professional associations)—system-level and community-level influencers were also prioritized for inclusion.

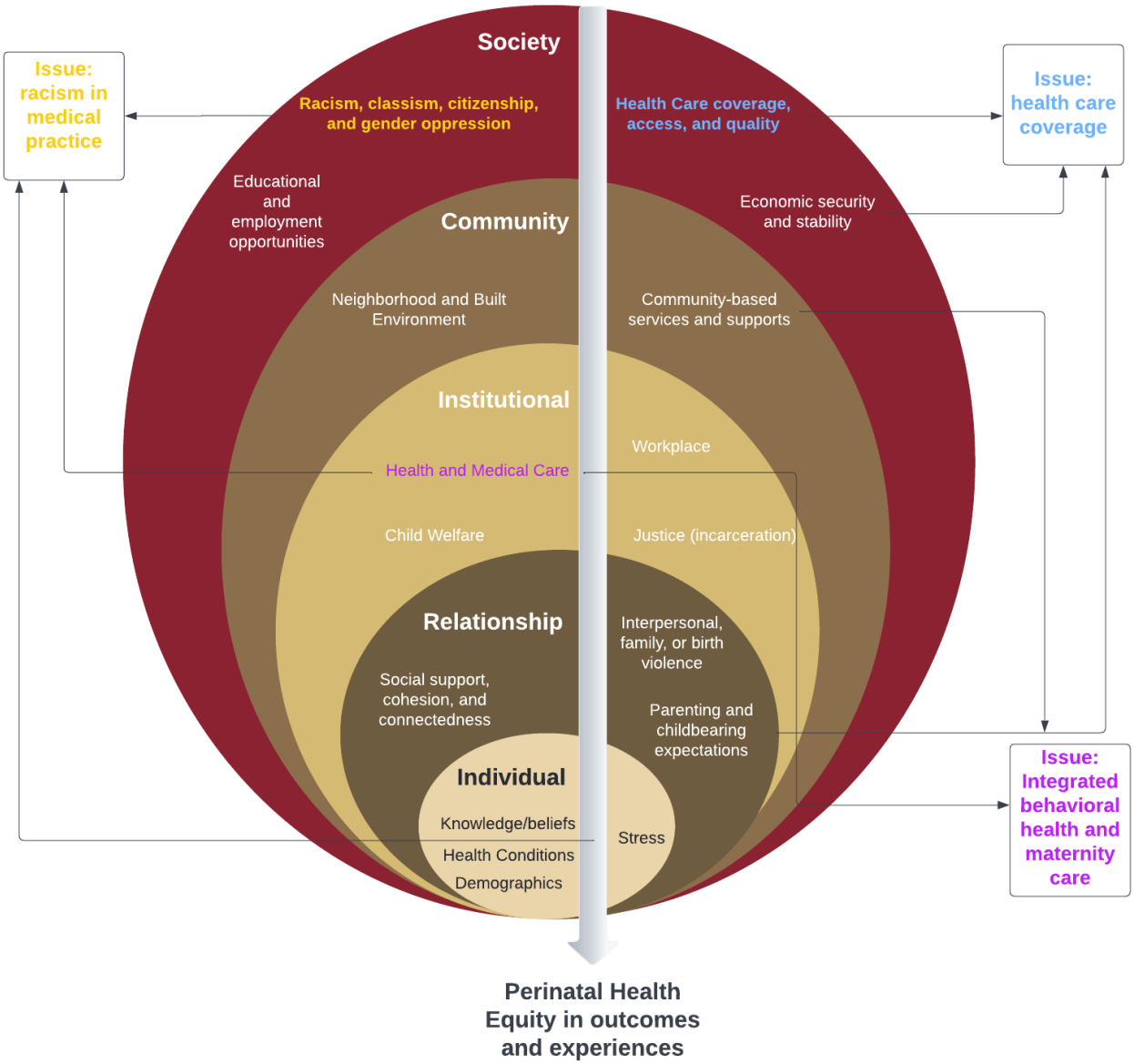
Producers of researcher—those conducting studies, such as academics, applied researchers, data scientists, and evaluators—are not included in the study sample; rather, they are audiences that will be targeted for dissemination of study results, with the hopes that lessons learned can influence the strategies and intentionality with which they conduct evidence-building and evaluation.

Cross-section of SEM with Study Priorities

When overlaid with the SEM for Perinatal Health (Figure 9), the cross-section of policy areas and leverage points can be visualized in relationship to multiple SDOH. While the study will not explicitly focus on several important drivers of perinatal health outcomes and disparities—such as economic security, child care, neighborhood built environment, and social norms—we believe that lessons learned through this study sample will provide insight that can be applied to other policy issues, levels, and decision-makers of interest. Moreover, even with a focus on issues within health and health care, the ripple effect for other SDOH and policy areas is large. For example, integrating behavioral health and maternity care models will have an impact on community-based supports, which in turn can change norms around mental health stigma and improve social connections.

[5] Perinatal advocacy organizations identified for priority include: Colorado Organization for Latina Opportunity and Reproductive Rights, Raise Colorado, Elephant Circle, Children's Campaign, and Illuminate Colorado.

Figure 9. Cross-section of SEM with Study Priorities



Study Activities

Three data collection activities are planned that—together with results of initial stakeholder interviews/focus groups and an updated literature review—will inform the final data-informed guidance developed by the Colorado Lab in partnership with CDPHE.

Document Analysis

For each of the three prioritized policy areas, and associated study priorities, we will conduct an analysis of written policy documents. Document analysis focuses on the analysis of texts to determine the explanations and processes that occur over a distinct period of time through the interpretation of "mute evidence."[142] Document analysis is our primary retrospective activity (i.e., looking back on URE in

perinatal policymaking—barriers, levers, success stories—for insights that can be applied future-forward). Analyzing policy documents will allow us to understand if/how evidence is reflected in or aligned with past policy decision-making. This corresponds with the "research use" component of the SPIRIT Action Framework.

Data Collection

For this study, we are defining policy documents as written institutional documents, including:

- policy language (e.g., statue, state department rule, hospital-based policy),
- documents produced during the policymaking process (e.g., committee hearings and reports, floor debates),
- associated guidance on policy development or implementation (e.g., administrative memos, program guidelines, user's manual), and
- any citations or references mentioned in the previous three bullets.

Policy documents will be identified through formal search strategies, including keyword searches of the Colorado General Assembly's Bill Search feature and organizational websites. In addition, stakeholder narratives from interviews/focus groups, with associated follow-up conversations (as needed), will be thematically analyzed to identify policy documents.

Up to two policies and up to three policy documents for each policy area will be reviewed. In alignment with the SPIRIT Action Framework, policy documents will be selected based on (1) relevance to the policy area, (2) recency (within the last five years), and (3) current implementation of the policy or upcoming opportunity to leverage. In addition, to support our goals of actionability and scale, we will seek to include at least some policy documents that explicitly integrate evidence on social and structural determinants of perinatal disparities. This will allow us to identify "best practice" examples to inform subsequent guidance.

Data Analysis

Document analysis will be guided by a structured coding model to identify the extent to which policies related to the perinatal period were informed by evidence. The analysis will focus on both document content and themes.[143] Embedded in the structured coding model will be a racial, social, and cultural impact analysis to identify policies that explicitly integrate evidence on social and structural determinants of perinatal disparities. See Table 6 for variables to be coded through a systematized coding guide.

Table 6. Variables to Be Examined Though the Policy Document Analysis

Variable	Who supplied the evidence (e.g., legislator, researcher, practitioner)
	The context in which the evidence was used (e.g., hearing, policy negotiation)
	When the evidence was used (i.e., timing)
	The type of evidence (e.g., statistical fact, study findings)
	The source of the evidence (e.g., academic research, advocacy research)
	The content/focus of the evidence (e.g., social/structural determinants)

	The valence of the evidence (e.g., pro, con, two-sided, neutral)
	Why evidence was used (e.g., problem identification, preferred policy solution)
	The motivation for use of the evidence (e.g., instrumental, conceptual)

Structured Interview for Evidence Use

The Structured Interview for Evidence Use (SIEU) is a 45-item instrument that measures engagement with research evidence in the areas of evidence acquisition (17 items), evidence processing (16 items), and evidence application (12 items) when deciding on whether or not to adopt a particular policy or practice.[144, 145] These domains map directly to the three behavioral change components that constitute URE. The SIEU will help uncover and test drivers of "capacity" and "research engagement actions" within the SPIRIT Action Framework. In doing so, results will allow us to assess URE patterns among different levels of decision-makers and influencers, including identification of barriers and facilitators. This positions the tool as a prospective data collection mechanism for identifying macro-level opportunities for systemic change.

To complete the SIEU, survey participants respond to each statement on a scale of 1 to 5, where higher scores indicate higher levels of agreement. Reliability of the total scale and subscales was assessed using Cronbach's α internal consistency (overall α score of .88), while convergent validity and discriminant validity was assessed using Pearson's product-moment correlations with two other instruments, the Evidence-Based Practice Attitudes Scale and the Organizational Social Context scale (Palinkas et al., 2016).[146] We will also include brief questions on personal characteristics (e.g., gender, age, and race) and professional characteristics shown to influence the social conditions of URE.[147, 148]

Data Collection

The SIEU will be administered electronically (online platform: Qualtrics) to fours levels of decision-makers and influencers: (Level 1) System-level influencers, (Level 2) Department/agency staff, (Level 3) System decision-makers, and (Level 4) Legislators and legislative policy analysts (see Table 7). Exact respondents for each level will be decided on in collaboration with CDPHE and agency contacts.

Table 7. SIEU Sample

Department/Agency	Level 1	Level 2	Level 3	Level 4	Targeted Number (Total)
HCPF		4	4		8
CDPHE		4	4		8
BHA		4	4		8
DOI		3	3		6
DORA		3	3		6
CHA	6				6
CPCQC	6				6
CCHI	6				6
Legislators				4	4
JBC Budget and Policy Analysts				4	4
Total	**18**	**18**	**18**	**8**	**62**

Data Analysis

Each scale will be analyzed for a section score, which can then be used to produce a total SIEU score that measures URE overall. Each scale also contains sub-scales that can be isolated during analysis. The acquisition scale is grouped into three sub-scales by source of evidence (local networks, external experts, global documents), the processing scale is grouped into three sub-scales by types of evaluation (self-assessment for validity/reliability, self-assessment for relevance to clients/patients/constituents, reliance on others for assessment of validity/reliability/relevance), and the output scale is grouped into a binary sub-scale of application (use the evidence, ignore the evidence).

Overall URE scores, section scores, and sub-scale scores will be analyzed using descriptive statistics and then disaggregated and compared along the following dimensions: (a) the four levels of decision-makers and influencers (Levels 1 to 4); (b) across agencies/decision-making entity; and (c) within categorical groupings of agencies/decision-making entity, as aligned with the study's priorities (Table 4):

- Grouping One: State Departments (HCPF, CDPHE, DOI, DORA, BHA)
- Grouping Two: General Assembly (Legislators, Budget and Policy Analysts)
- Grouping Three: System-level Influencers (CCHI, CHA, CPCQC)

Sample size allowing, we will also use regression analyses to examine how personal and professional characteristics, as well as agency affiliation, correlate to URE patterns. In addition, stakeholder narratives from interviews/focus groups will be thematically analyzed for (a) URE barriers and facilitators and (b) strategies and levers for URE. This cross-walk of narrative findings with SIEU scores will provide a more nuanced understanding of URE patterns and give context when interpreting assessment results.

Facilitate Stakeholder Convening

The facilitated stakeholder convening will be used as a "meaning-making and action" opportunity to co-develop guidance on concrete strategies that Colorado can adopt to improve URE during perinatal policy decision-making. The stakeholder meeting will use the capability-motivation-and-opportunity behavioral framework (CMO-B) to create data-informed guidance matched to the structural and social conditions of URE in Colorado.[149] Table 8 delineates how the CMO-B framework will be used in the design of the stakeholder convening and in producing recommended activation pathways for improving URE.

Table 8. Using the CMO-B Framework in the Facilitated Stakeholder Meeting

CMO-B Framework Step	Timing	Purpose
1. Identity major barriers, facilitators and processes for URE in Colorado	Pre-convening preparation	Bring results of the SIEU, policy document analysis, stakeholder narratives, and literature reviews to bear on strategies recommended (Step 2)
2. Brainstorm CMO strategies that could overcome barriers, promote facilitators, and catalyze activation pathways for URE	Pre-convening preparation + refined during stakeholder convening	Ground the convening in a set of proposed strategies to refine, build on, and member check during the convening
3. Consider relevant leverage points that can effectively influence identified CMO strategies	Focus of convening	Use multi-stakeholder voice to identify leverage points and connect with proposed strategies
4. Consider possible combinations of leverage points	Post-convening follow-up	Ensure the right combination of leverage points to maximize return on investment across systems
5. Prioritize or sequence strategies for feasibility during EBDM	Post-convening follow-up + initial prioritizing during convening	Receive stakeholder buy-in around priorities and sequencing. Then, refine further based on complete study findings and ground in evidence base.

Ultimately, the CMO-B-facilitated stakeholder convening will add to our understanding of the "capacity," "research engagement actions," and "research use" components of the SPIRIT Action Framework. Collectively, study findings will elucidate activation pathways for improving URE in policy decision-making to drive better health outcomes and health systems (i.e., outcomes of the SPIRIT Action Framework).

Representatives from each stakeholder group will be invited to create a breadth and depth of participants, while keeping the size manageable for facilitation and actionable work (Table 9).

Table 9. Convening Composition

Stakeholder Group	Targeted Number (up to)
HCPF	3
CDPHE (includes Maternal Mortality Review Committee)	3
BHA	2
DOI	1
DORA	1
CHA	2
CPCQC	2
CCHI	1
Legislators	2
JBC Budget and Policy Analysts	1
Perinatal Advocacy Organizations	3
Childbearing Families (includes: Maternal Advisory Committee)	4
Total	**25**

Data Analysis

In preparing for the facilitated stakeholder meeting, the Colorado Lab will categorize barriers, processes, and facilitators as a "capability," "motivation," or "opportunity" factor and also as either a URE social or structural condition (Step 1 of CMO-B framework). Following, we will identify possible strategies matched to the CMO factor and condition (Step 2 of the CMO-B framework). Mapping barriers, facilitators, and processes along these two dimensions (CMO factor and social or structural condition) is vital to identifying a balanced set of strategies for systemic change, since no one factor or condition alone can truly move the needle on EBDM. An example of this two-dimensional mapping and strategy identification is in Table 10.

Table 10. Mapping Facilitators, Barriers, and Processes to Identify Matched CMO Strategies

	Capability	Motivation	Opportunity	CMO Strategy
Social Condition	Low research fluency of decision-maker (inhibiting factor) – mitigate	Evidence-based practices are valued by the decision-maker in policy creation (enabling factor) – cultivate		
Structural Condition			Privacy policies limit ability to disaggregate data by race (inhibiting factor) – mitigate	Provide data equity best practice guidance on working with small sample sizes

During the stakeholder meeting, strategies will be refined and leverage points identified and prioritized. Following, recommendations from the stakeholder convening will be cross-walked with the evidence base for URE in public health policymaking to create the final data-informed guidance. We will circulate a copy of the data-informed guidance to stakeholder attendees and meet iteratively with CDPHE to refine recommendations and cultivate cross-system co-ownership of activation pathways identified.

A Data Equity Lens

Overcoming structural inequities that drive perinatal health disparities requires a redistribution of power and centering, lifting, and acting upon the voices of both agents and targets of change. The study's grounding framework—an SEM for Perinatal Health—makes explicit the SDOH that shape the lives of pregnant and parenting people, *and* that policies impact and intersect with. In analysis plan development, we intentionally included not only system-level decision-makers and influencers—who are the focus of this URE study—but also advocacy organizations, community providers, and childbearing families because policy studies and policymaking *must be connected to real people's lives.* For each study activity, an equity impact lens is included that critically considers cultural contexts and power dynamics during URE in the practice-policy environment, and that works to identify populations disproportionately impacted as well as opportunities to leverage cultural and social strengths during EBDM. Final data-informed guidance will also be mapped to specific equity issues and disparities that the strategy is positioned to influence.

Limitations

As with any study, it is important to note the study's limitations. First, to keep the study within a feasible scope, we had to prioritize a small number of policy areas, policy levels, and decision-makers and influencers. Therefore, the study will not explicitly focus on several important drivers of perinatal health outcomes and disparities; however, we believe that lessons learned will provide insights that can be applied to future areas of interest.

Second, data collected from the SIEU and during the stakeholder meetings will rely on participant self-reporting. There is a potential for individuals to provide what they perceive as socially acceptable answers,

rather than being truthful. Relatedly, individuals may not be able to accurately assess themselves, or their decision-making processes, due to internalized/unrecognized ways of thinking. To help address these limitations we will provide framing that supports individuals in being honest and interrogating their thought patterns, and address issues of confidentiality. In addition, the study will use document review to triangulate self-reported information.

Third, documents may not be complete; they may only represent certain perspectives and, in the case of legislation or policy, may not include viewpoints that were not preserved in the final enactment of policy. Moreover, documents may not be written in a way that allows the research team to identify if and or how research evidence was used; for example, policy intent or research evidence may or may not be explicitly mentioned. To address this limitation, we will conduct a “rapid” review of the literature to assess the extent to which policies align with the existing evidence base. Finally, documents rarely include evidence or direct observation of the processes that led to the production of the texts. We will use information from qualitative methods to gain a deeper understanding of policy intent and the process by which research evidence was used in policy development.

UNIVERSITY of DENVER

COLORADO EVALUATION AND ACTION LAB

Deliverables and Timeline

Deliverables Summary

We envision two primary deliverables resulting from this study that catalyze proximal, concrete actionability around specific policy areas as well as macro-level guidance that supports future-forward systemic change.

1. **Top Line Summary** that visualizes URE patterns in perinatal health policy decision-making in Colorado, including URE behaviors (acquire, process, apply) among Colorado policy-decision makers and influences, and major barriers (e.g., low research fluency) and facilitators (e.g., trusted relationship with researchers) to URE in policymaking. To illustrate the points in action, the summary will include brief case examples ("success stories") of EBDM for perinatal health.
2. **Policy Brief** on recommended activation pathways for improving URE in policy decision-making, including those that cross systems and can be sustained overtime. This data-informed guidance may include recommendations such as: connecting researchers as boundary spanners to state decision-makers during the budget development process; creating a shared set of measures for perinatal health across systems, linking data, and tracking progress on how state strategies are contributing to shared indicators; creating data dashboards of linked perinatal data from across systems to visualize outcomes and contours of disparities; issuing data equity best practices for reporting and using data in policy decision-making; or mapping resource allocation on the perinatal period to show how values, data, funding, and strategies align (or do not align).

Ultimately, data-informed guidance issued in the policy brief will be co-designed with stakeholders and CDPHE, based on visioning done during the facilitated stakeholder meeting and then cross-walked to strategies known to advance EDM for improved health systems and health outcomes. Activation pathways in the policy brief will be accompanied by guidance on who (e.g., policy decision-makers, influencers, research producers) are well-positioned to mobilize the findings, as well as near-term opportunities to activate the guidance.

Both the top line summary and policy brief will be accompanied by a full technical report of study methods, findings, and recommendations.

In contributing to field-building in Colorado and nationally, the Colorado Lab may also submit results of the study to the William T. Grant Foundation-funded *URE Methods Repository*.

Stakeholder Engagement

Stakeholder engagement is centered from analysis plan development through study activities and development of the final data-informed guidance for improving EBDM in perinatal health. Numerous stakeholders—including governmental and nonprofit leaders, and community members—helped to shape the scope of this analysis plan by participating in interviews and focus groups. Likewise, stakeholder engagement is at the core of both the SIEU and the stakeholder convening. By engaging stakeholders throughout the process of developing and implementing the analysis plan, we intend to foster co-ownership of findings and lay the groundwork for collaborative, future uptake of project deliverables.

Timeline

	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	March 2023	April 2023	May 2023	June 2023
1.1 Qualitatively analyze stakeholder narratives to inform policy selection	8/15-9/15										
1.2 Identify policy documents using formal search strategies	8/15-9/15										
1.3 Develop systemized coding guide for analysis		9/1-9/30									
1.4 Analyze policy documents using structured coding methodology			10/1-12/31								
2.1 Identify assessment participants per sampling frame proposed	8/15-9/15										
2.2 Build and test SIEU assessment in Qualtrics	8/15-9/15										
2.3 Administer online assessment; monitor response rates; follow up as needed		9/15-10/15									
2.4 Clean, code, and quantitatively analyze assessment data			10/15-12/31								
2.5 Qualitatively analyze stakeholder narratives to contextualize survey assessment findings			10/15-12/31								
3.1 Identify representatives to invite to stakeholder convening; begin recruitment						1/1-1/31					
3.2 Engage pre-preparation work, in alignment with CMO-B Framework steps						1/1-2/28					
3.3 Develop protocol/guiding document for stakeholder convening							2/1-2/28				
3.4 Facilitate the stakeholder convening								3/1-3/31			
3.5 Engage post-convening work in alignment with CMO-B Framework steps									4/1-4/30		
4.1 Top Line Summary that visualizes URE patterns										5/1-5/31	
4.2 Policy Brief on recommended activation pathways for improving URE										5/1-5/31	
4.3 Provide written and verbal opportunities for stakeholder feedback on final deliverables											6/1-6/30

Legend: 1. Policy Document Analysis; 2. Structured Interview for Evidence Use (SIEU); 3. Facilitated Stakeholder Convening; 4. Data-informed Guidance Deliverables

Endnotes

[1] Tseng, V. (2012). The uses of research in policy and practice. *Social Policy Report, 26*(2), 1-24.

[2] Brownson, R.C., Shelton, R. C., Geng, E. H., & Glasgow, R. E. (2022). Revisiting concepts of evidence in implementation science. *Implementation Science : IS, 17*(1), 26–26. https://doi.org/10.1186/s13012-022-01201-y

[3] Oliver, K., Https://doi.org/10.1371/journal.pone.0021704, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Services Research, 14*(1), 2–2. https://doi.org/10.1186/1472-6963-14-2

[4] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[5] Centers for Disease Control and Prevention. (2015). *The state health department's role in the policy process: A tool for state health department injury and violence prevention programs*. Retrieved from https://www.cdc.gov/injury/pdfs/shd_policy_tool-a.pdf.

[6] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[7] Lery, B., Wiegmann, W., & Berrick, J. (2015). Building an evidence-driven child welfare workforce: A university-agency partnership. *Journal of Social Work Education, 51*(Supp. 2), S283-S298.

[8] Palinkas, L., Saldana, L., Chou, C-P., & Chamberlain, P. (2017). Use of research evidence and implementation of evidence-based practices in youth-serving systems. *Children & Youth Services Review, 83,* 242-247. https://doi.org/10.1016/j.childyouth.2017.11.005

[9] Turner, S., D'Lima, D., Hudson, E., Morris, S., Sheringham, J., Swart, N., & Fulop, N. (2017). Evidence use in decision-making on introducing innovations: A systematic scoping review with stakeholder feedback. *Implementation Science, 12*(145), 1-2. https://doi.org/10.1186/s13012-017-0669-6

[10] Langer, L., Tripney, J., & Gough, D. (2016). *The science of using science: Researching the use of research evidence in decision-making*. London: EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London.

[11] Bogenschneider, K., Day, E., & Parrott, E. (2019). Revisiting theory on research use: Turning to policymakers for fresh insights. *The American Psychologist, 74*(7), 778–793. https://doi.org/10.1037/amp0000460

[12] National Research Council of the National Academies. (2012). *Using science as evidence in public policy.* Washington, DC: The National Academies Press.

[13] Tseng, V. (2012). The uses of research in policy and practice. *Social Policy Report, 26*(2), 1-24.

[14] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[15] Bogenschneider, K., Day, E., & Parrott, E. (2019). Revisiting theory on research use: Turning to policymakers for fresh insights. *The American Psychologist, 74*(7), 778–793. https://doi.org/10.1037/amp0000460

[16] National Research Council of the National Academies. (2012). *Using science as evidence in public policy.* Washington, DC: The National Academies Press.

[17] Tseng, V. (2012). The uses of research in policy and practice. *Social Policy Report, 26*(2), 1-24.

[18] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[19] Khalid, A. F., Lavis, J. N., El-Jardali, F., & Vanstone, M. (2020). Supporting the use of research evidence in decision-making in crisis zones in low- and middle-income countries: A critical interpretive synthesis. *Health Research Policy & Systems, 18*(21). 1-12. https://doi.org/10.1186/s12961-020-0530-2

[20] Langer, L., Tripney, J., & Gough, D. (2016). *The science of using science: Researching the use of research evidence in decision-making*. London: EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London. Retrieved from https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3504.

[21] Poot, C., van der Kleij, R., Brakema, E., Vermond, D., Williams, S., Cragg, L., van den Broek, J., & Chavannes, N. (2018). From research to evidence-informed decision making: A systematic approach. *Journal of Public Health, 40*(Supp. 1), i3-i12. https://doi.org/10.1093/pubmed/fdx153

[22] World Health Organization. (2021). *Evidence, policy, impact: WHO guide for evidence-informed decision-making.* World Health Organization. https://apps.who.int/iris/handle/10665/350994. License: CC BY-NC-SA 3.0 IGO

[23] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[24] Asen, R., & Gurke, D. (2014). The research on education, deliberation, and decision-making (REDD) project. In K.S. Finnigan & A.J. Daly (Eds.), *Using research evidence in education: From the schoolhouse door to Capitol Hill* (pp. 53-68). Heidelberg: Springer.

[25] Barnes, C.A., Goertz, M.E., & Massel, D. (2014). How state education agencies acquire and use research knowledge for school improvement. In K.S. Finnigan & A.J. Daly (Eds.), *Using research evidence in education: From the schoolhouse door to Capitol Hill* (pp. 99-116). Heidelberg: Springer.

[26] Bogenschneider, K., & Corbett, T. (2010). *Evidence-based policymaking: Insights from policy-minded researchers and research-minded policymakers.* New York: Taylor & Francis Group.

[27] Davies, H. T. O., Nutley, S., & Walter, I. (2008). Why "knowledge transfer" is misconceived for applied social research. *Journal of Health Services Research Policy, 13*, 188-190. https://doi.org/10.1258/jhsrp.2008.008055

[28] Finnigan, K. S., & Daly, A. J. (2012). Mind the gap: Learning, trust, and relationships in an underperforming urban system. *American Journal of Education, 119*(1), 41-71.

[29] Honig, M. I., Venkateswaran, P. M., & Twitchell, J. M. (2014). Leaders' use of research for fundamental change in school district offices: Processes and challenges. In K.S. Finnigan & A.J. Daly (Eds.), *Using research evidence in education: From the schoolhouse door to Capitol Hill* (pp. 33-52). Heidelberg: Springer.

[30] Palinkas, L.A., Garcia, A. R., Aarons, G. A., Finno-Velasquez, M., Holloway, I. W., Mackie, T. I., Leslie, L. K., & Chamberlain, P. (2016). Measuring use of research evidence: The structured interview for evidence use. *Research on Social Work Practice, 26*(5), 550–564. https://doi.org/10.1177/1049731514560413

[31] Palinkas, L. A., Holloway, I. W., Rice, E., Brown, C. H., Valente, T. W., & Chamberlain, P. (2013). Influence network linkages across implementation strategy conditions in a randomized controlled trial of two strategies for scaling up evidence-based practices in public youth-serving systems. *Implementation Science*, *8*(1), 133. https://doi.org/10.1186/1748-5908-8-133

[32] Penuel, W.R., Allen, A.-R., Coburn, C. E., & Farrell, C. (2015). Conceptualizing research-practice partnerships as joint work at boundaries. *Journal of Education for Students Placed at Risk, 20*(1-2), 182–197. https://doi.org/10.1080/10824669.2014.988334

[33] Bussiéres, A. E., Terhorst, L., Leach, M., Stuber, K., Evans, R., Schneider, M. J. (2015). Self-reported attitudes, skills and use of evidence-based practice among Canadian doctors of chiropractic: A national survey. *Journal of the Canadian Chiropractic Association, 59*(4), 332-348.

[34] Squires, J., Estabrooks, C., Gustavsson, P., & Wallin, L. (2011). Individual determinants of research utilization by nurses: A systematic review update. *Implementation Science, 6*(1), 1-20. https://doi.org/10.1186/1748-5908-6-1

[35] Turner, S., D'Lima, D., Hudson, E., Morris, S., Sheringham, J., Swart, N., & Fulop, N. (2017). Evidence use in decision-making on introducing innovations: A systematic scoping review with stakeholder feedback. *Implementation Science, 12*(145), 1-2. https://doi.org/10.1186/s13012-017-0669-6

[36] Kurzman, C. (2008). Meaning-making in social movements. *Anthropological Quarterly, 81*(1), 5-15. https://doi.org/ 10.1353/anq.2008.0003

[37] Doucet, F. (2019). *Centering the margins: (Re)defining useful research evidence through critical perspectives.* New York: William T. Grant Foundation.

[38] Hood, S., Hopson, R., & Kirkhart, K. E. (2015). Culturally responsive evaluation. In: K. E. Newcomer, H. P. Hatry, & J. S. Wholey (Eds.), *Handbook of practical program evaluation* (4th ed., pp. 281-317). San Francisco: Wiley Blackwell.

[39] Khalil, D., & Kier, M. (2017). Critical race design: An emerging methodological approach to anti-racist design and implementation research. *International Journal of Adult Vocational Education and Technology, 8*(2), 54-71.

[40] Kirkland, D. E. (2019). *No small matters: Reimaging the use of research evidence from a racial justice perspective*. New York: William T. Grant Foundation.

[41] Glisson, C. (2015). The role of organizational culture and climate in innovation and effectiveness. *Human Services Organization Journal, 39*(4), 245-250. https://doi.org/10.1080/23303131.2015.1087770

[42] Honig, M. I., Venkateswaran, P. M., & Twitchell, J. M. (2014). Leaders' use of research for fundamental change in school district offices: Processes and challenges. In K.S. Finnigan & A.J. Daly (Eds.), *Using research evidence in education: From the schoolhouse door to Capitol Hill* (pp. 33-52). Heidelberg: Springer.

[43] McDonnell, L., & Weatherford, S. (2014). Research evidence and the common care state standards. In K.S. Finnigan & A.J. Daly (Eds.), *Using research evidence in education: From the schoolhouse door to Capitol Hill* (pp. 69-89). Heidelberg: Springer.

[44] National Research Council of the National Academies. (2012). *Using science as evidence in public policy.* Washington, DC: The National Academies Press.

[45] Nutley, S. M., Walter, I., & Davies, H. T. O. (2007). *Using evidence: How research can inform public services.* Bristol: The Policy Press.

[46] Armstrong, R., Water, E., Moore, L., Dobbins, M., Pettman, T., Burns, C., Swinburn, B., Anderson, L., & Petticrew, M. (2014). Understanding evidence: A statewide survey to explore evidence-informed public health decision-making in a local government setting. *Implementation Science, 9*(188), 1-11. https://doi.org/10.1186/s13012-014-0188-7

[47] Katova, S., Novins, D., & DeCarlo, S. C. (2010). The practice of evidence-based treatments for ethnic minority youth. *Child and Adolescent Psychiatric Clinics of North America, 19*(4), 775-789. https://doi.org/10.1016/j.chc.2010.07.008

[48] Wulczyn, F., Alpert, L., Monahan-Price, K., Huhr, S., Palinkas, L., & Pinsoneault, L. (2019). Research evidence use in the child welfare system. *Child Welfare, 94*(2), 141-165.

[49] Lugo-Gil, J., Jean-Baptiste, D., & Jaramillo, L. F. (2019). *Use of evidence to drive decision-making in government.* Washington DC: Mathematica Policy Research.

[50] DuMont, K., & James-Brown, C. (2015). Making research work in child welfare: Overcoming challenges. *Child Welfare*, *94*(2), 17–31.

[51] Johnson, M. A., Stone, S., Lou, C., Vu, C.M., Ling, J., Mizrahi, P., & Austin, M. J. (2008). Family assessment in child welfare services: Instrument comparisons. *Journal of Evidence-based Social Work*, *5*(1–2), 57–90. https://doi.org/10.1300/J394v05n01_04

[52] DuMont, K. (2013). *Realizing the potential of research in child welfare*. New York: William T. Grant Foundation.

[53] van de Goor, I., Hämäläinen, R. M., Syed, A., Juel Lau, C., Sandu, P., Spitters, H., Eklund Karlsson, L., Dulf, D., Valente, A., Castellani, T., Aro, A. R., & REPOPA Consortium. (2017). Determinants of evidence use in public health policy making: Results from a study across six EU countries. *Health Policy, 121*(3), 273-281. https://doi.org/10.1016/j.healthpol.2017.01.003

[54] Sur, R.L. & Dahm, P. (2011). History of evidence-based medicine. *Indian Journal of Urology, 27*(4), 487–489. https://doi.org/10.4103/0970-1591.91438

[55] Sackett, D.L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't. *BMJ, 312*(7023), 71–72. https://doi.org/10.1136/bmj.312.7023.71

[56] Innvaer, S., Vist, G., Trommald, M., & Oxman, A. (2002). Health policy-makers' perceptions of their use of evidence: a systematic review. *Journal of Health Services Research and Policy, 7*(4), 239–244h. https://doi.org/10.1258/135581902320432778

[57] Orton, L., Lloyd-Williams, F., Taylor-Robinson, D., O'Flaherty, M., & Capewell, S. (2011). The use of research evidence in public health decision making processes: systematic review. *PloS One, 6*(7), e21704–e21704. https://doi.org/10.1371/journal.pone.0021704

[58] Oliver, K., Innvaer, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Services Research, 14*(1), 2–2. https://doi.org/10.1186/1472-6963-14-2

[59] William T. Grant Foundation. (2021). *Research grants on improving the use of research evidence: 2022 application guidelines*. Retrieved from https://wtgrantfoundation.org/library/uploads/2021/11/2022-Application-Guide-Research-Grants-on-URE.pdf.

[60] American College Health Association. (n.d.). *Ecological model.* Retrieved from https://www.acha.org/HealthyCampus/HealthyCampus/Ecological_Model.aspx

[61] World Health Organization. (n.d.). *Social determinants of health.* Retrieved from https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

[62] Roach, J.M. (2016). *ROOTT's theoretical framework of the Web of Causation between structural and social determinants of health and wellness – 2016*. Restoring Our Own Through Transformation (ROOTT). Retrieved from https://www.roottrj.org/web-causation.

[63] Beck, A.F., Edwards, E. M., Horbar, J. D., Howell, E. A., McCormick, M. C., & Pursley, D. M. (2020). The color of health: how racism, segregation, and inequality affect the health and well-being of preterm infants and their families. *Pediatric Research, 87*(2), 227–234. https://doi.org/10.1038/s41390-019-0513-6

[64] Mehra, R., Boyd, L. M., Magriples, U., Kershaw, T. S., Ickovics, J. R., & Keene, D. E. (2020). Black pregnant women "get the most judgment": A qualitative study of the experiences of Black women at the intersection of race, gender, and pregnancy. *Women's Health Issues, 30*(6), 484–492. https://doi.org/10.1016/j.whi.2020.08.001

[65] Wallace, M.E., Mendola, P., Liu, D., & Grantz, K. L. (2015). Joint effects of structural racism and income inequality on small-for-gestational-age birth. *American Journal of Public Health (1971), 105*(8), 1681–1688. https://doi.org/10.2105/AJPH.2015.302613

[66] Wallace, M.E., Crear-Perry, J., Richardson, L., Tarver, M., & Theall, K. (2017). Separate and unequal: Structural racism and infant mortality in the US. *Health & Place, 45*, 140–144. https://doi.org/10.1016/j.healthplace.2017.03.012

[67] National Academies of Sciences, Engineering, and Medicine. (2020). Chapter 4: Systemic influences on outcomes in pregnancy and childbirth. In Scrimshaw, S.C. & Backes, E.P. (Eds.) *Birth settings in America: Improving outcomes, quality, access, and choice*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25636

[68] Philipsborn, R.P., Sorscher, E. A., Sexson, W., & Evans, H. H. (2020). Born on U.S. Soil: Access to Healthcare for Neonates of Non-Citizens. *Maternal and Child Health Journal, 25*(1), 9–14. https://doi.org/10.1007/s10995-020-03020-3

[69] Jain, T., LaHote, J., Samari, G., & Garbers, S. (2021). Publicly-funded services providing sexual, reproductive, and maternal healthcare to immigrant women in the United States: A systematic review. *Journal of Immigrant and Minority Health, 24*(3), 759–778. https://doi.org/10.1007/s10903-021-01289-2

[70] National Academies of Sciences, Engineering, and Medicine. (2020). Chapter 4: Systemic influences on outcomes in pregnancy and childbirth. In Scrimshaw, S.C. & Backes, E.P. (Eds.) *Birth settings in America: Improving outcomes, quality, access, and choice*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25636

[71] Bellerose, M., Collin, L., & Daw, J. R. (2022). The ACA Medicaid expansion and perinatal insurance, health care use, and health outcomes: A systematic review. *Health Affairs Web Exclusive, 41*(1), 60–68. https://doi.org/10.1377/hlthaff.2021.01150

[72] Vedam, Saraswathi, Stoll, K., MacDorman, M., Declercq, E., Cramer, R., Cheyney, M., Fisher, T., Butt, E., Yang, Y. T., & Powell Kennedy, H. (2018). Mapping integration of midwives across the United States: Impact on access, equity, and outcomes. PloS One, 13(2), e0192523–e0192523. https://doi.org/10.1371/journal.pone.0192523

[73] Vedam, S., Stoll, K., Taiwo, T. K., Rubashkin, N., Cheyney, M., Strauss, N., McLemore, M., Cadena, M., Nethery, E., Rushton, E., Schummers, L., & Declercq, E. (2019). The Giving Voice to Mothers study: Inequity and mistreatment during pregnancy and childbirth in the United States. *Reproductive Health, 16*(1), 77. https://doi.org/10.1186/s12978-019-0729-2

[74] Wallace, M.E., Dyer, L., Felker-Kantor, E., Benno, J., Vilda, D., Harville, E., & Theall, K. (2021). Maternity care deserts and pregnancy-associated mortality in Louisiana. *Women's Health Issues, 31*(2), 122–129. https://doi.org/10.1016/j.whi.2020.09.004

[75] Pearl, M., Ahern, J., Hubbard, A., Laraia, B., Shrimali, B. P., Poon, V., & Kharrazi, M. (2018). Life-course neighbourhood opportunity and racial-ethnic disparities in risk of preterm birth. *Paediatric and Perinatal Epidemiology, 32*(5), 412–419. https://doi.org/10.1111/ppe.12482

[76] Ncube, C.N., Enquobahrie, D. A., Albert, S. M., Herrick, A. L., & Burke, J. G. (2016). Association of neighborhood context with offspring risk of preterm birth and low birthweight: A systematic review and meta-analysis of population-based studies. *Social Science & Medicine (1982), 153*, 156–164.

[77] Nandi, A., Jahagirdar, D., Dimitris, M. C., Labrecque, J. A., Strumpf, E. C., Kaufman, J. S., Vincent, I., Atabay, E., Harper, S., Earle, A., & Heymann, S. J. (2018). The impact of parental and medical leave policies on socioeconomic and health outcomes in OECD countries: A systematic review of the empirical literature. *The Milbank Quarterly, 96*(3), 434–471. https://doi.org/10.1111/1468-0009.12340

[78] Leifheit, K.M., Schwartz, G. L., Pollack, C. E., Edin, K. J., Black, M. M., Jennings, J. M., & Althoff, K. N. (2020). Severe housing insecurity during pregnancy: Association with adverse birth and infant outcomes. *International Journal of Environmental Research and Public Health, 17*(22), 8659. https://doi.org/10.3390/ijerph17228659

[79] Orr, C.J., Ritter, V., Coker, T. R., Perrin, E. M., & Flower, K. B. (2022). Time-Varying Associations between Food Insecurity and Infant and Maternal Health Outcomes. *The Journal of Nutrition, 152*(5), 1291–1297. https://doi.org/10.1093/jn/nxac020

[80] Pooler, J., Perry, D. F., & Ghandour, R. M. (2013). Prevalence and risk factors for postpartum depressive symptoms among women enrolled in WIC. *Maternal and Child Health Journal, 17*(10), 1969–1980. https://doi.org/10.1007/s10995-013-1224-y

[81] National Academies of Sciences, Engineering, and Medicine. (2020). Chapter 4: Systemic influences on outcomes in pregnancy and childbirth. In Scrimshaw, S.C. & Backes, E.P. (Eds.) *Birth settings in America: Improving outcomes, quality, access, and choice*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25636

[82] National Academies of Sciences, Engineering, and Medicine. (2020). Chapter 4: Systemic influences on outcomes in pregnancy and childbirth. In Scrimshaw, S.C. & Backes, E.P. (Eds.) *Birth settings in America: Improving outcomes, quality, access, and choice*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25636

[83] Bingham, D., Jones, D.K., & Howell, E.A. (2019). Quality improvement approach to eliminate disparities in perinatal morbidity and mortality. *Obstetrics and Gynecology Clinics of North America, 46*(2):227-238. https://doi.org/10.1016/j.ogc.2019.01.006

[84] Koech, W.A. & Lilly, C. L. (2019). Association of county perinatal resources and gestational weight gain in West Virginia, United States. *BMC Pregnancy and Childbirth, 19*(1), 497–497. https://doi.org/10.1186/s12884-019-2650-7

[85] Holcomb, D.S., Pengetnze, Y., Steele, A., Karam, A., Spong, C., & Nelson, D. B. (2021). Geographic barriers to prenatal care access and their consequences. *American Journal of Obstetrics & Gynecology MFM, 3*(5), 100442–100442. https://doi.org/10.1016/j.ajogmf.2021.100442

[86] Burris, H.H. & Hacker, M. R. (2017). Birth outcome racial disparities: A result of intersecting social and environmental factors. *Seminars in Perinatology, 41*(6), 360–366. https://doi.org/10.1053/j.semperi.2017.07.002

[87] Woods, N., Gilliland, J., & Seabrook, J. A. (2017). The influence of the built environment on adverse birth outcomes. *Journal of Neonatal-Perinatal Medicine, 10*(3), 233–248. https://doi.org/10.3233/NPM-16112

[88] Ncube, C.N., Enquobahrie, D. A., Albert, S. M., Herrick, A. L., & Burke, J. G. (2016). Association of neighborhood context with offspring risk of preterm birth and low birthweight: A systematic review and meta-analysis of population-based studies. *Social Science & Medicine, 1982*(153), 156–164.

[89] Ncube, C.N., Enquobahrie, D. A., Albert, S. M., Herrick, A. L., & Burke, J. G. (2016). Association of neighborhood context with offspring risk of preterm birth and low birthweight: A systematic review and meta-analysis of population-based studies. *Social Science & Medicine (1982)*153, 156–164.

[90] Faber, T., Kumar, A., Mackenbach, J. P., Millett, C., Basu, S., Sheikh, A., & Been, J. V. (2017). Effect of tobacco control policies on perinatal and child health: a systematic review and meta-analysis. *The Lancet – Public Health, 2*(9), e420–e437. https://doi.org/10.1016/S2468-2667(17)30144-5

[91] Gluck, O., Pinchas-Cohen, T., Hiaev, Z., Rubinstein, H., Bar, J., & Kovo, M. (2020). The impact of childbirth education classes on delivery outcome. *International Journal of Gynecology and Obstetrics, 148*(3), 300–304. https://doi.org/10.1002/ijgo.13016

[92] Zephyrin, L., Seervai, S., C. L., & Katon, J. G. (2021, March 4). Community-Based Models to Improve Maternal Health Outcomes and Promote Health Equity [Web log post]. Retrieved from https://www.commonwealthfund.org/publications/issue-briefs/2021/mar/community-models-improve-maternal-outcomes-equity

[93] Cunningham, S.D., Lewis, J.B., Shebl, F.M., Boyd, L.M., Robinson, M.A., Grilo, S.A., Lewis, S.M., Pruett, A.L., & Ickovics, J.R. (2018). Group prenatal care reduces risk of preterm birth and low birth weight: A matched cohort study. *Journal of Women's Health, 28*(1), 17-22. http://doi.org/10.1089/jwh.2017.6817

[94] Jankovic, J., Parsons, J., Jovanović, N., Berrisford, G., Copello, A., Fazil, Q., & Priebe, S. (2020). Differences in access and utilisation of mental health services in the perinatal period for women from ethnic minorities-a population-based study. *BMC Medicine, 18*(1), 245–245. https://doi.org/10.1186/s12916-020-01711-w

[95] Howell, E.A. & Zeitlin, J. (2017). Improving hospital quality to reduce disparities in severe maternal morbidity and mortality. *Seminars in Perinatology, 41*(5), 266–272. https://doi.org/10.1053/j.semperi.2017.04.002

[96] Spurlock, E.J., Kue, J., Gillespie, S., Ford, J., Ruiz, R. J., & Pickler, R. H. (2022). Integrative review of disparities in mode of birth and related complications among Mexican American women. *Journal of Midwifery & Women's Health, 67*(1), 95–106. https://doi.org/10.1111/jmwh.13288

[97] Harris, S., Janssen, P. A., Saxell, L., Carty, E. A., MacRae, G. S., & Petersen, K. L. (2012). Effect of a collaborative interdisciplinary maternity care program on perinatal outcomes. *Canadian Medical Association Journal, 184*(17), 1885–1892. https://doi.org/10.1503/cmaj.111753

[98] National Academies of Sciences, Engineering, and Medicine. (2020). Chapter 2: Maternal and newborn care in the United States. In Scrimshaw, S.C. & Backes, E.P. (Eds.) *Birth settings in America: Improving outcomes, quality, access, and choice*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25636

[99] Kwame, A. & Petrucka, P. M. (2021). A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nursing, 20*(1), 1–10. https://doi.org/10.1186/s12912-021-00684-2

[100] Blount, A.J., Adams, C. R., Anderson-Berry, A. L., Hanson, C., Schneider, K., & Pendyala, G. (2021). Biopsychosocial factors during the perinatal period: Risks, preventative factors, and implications for healthcare professionals. *International Journal of Environmental Research and Public Health, 18*(15), 8206. https://doi.org/10.3390/ijerph18158206

[101] Kozhimannil, K.B., Vogelsang, C. A., Hardeman, R. R., & Prasad, S. (2016). Disrupting the pathways of social determinants of health: Doula support during pregnancy and childbirth. *Journal of the American Board of Family Medicine, 29*(3), 308–317. https://doi.org/10.3122/jabfm.2016.03.150300

[102] Lee King, P., Henderson, Z. T., & Borders, A. E. B. (2020). Advances in maternal fetal medicine: Perinatal quality collaboratives working together to improve maternal outcomes. *Clinics in Perinatology, 47*(4), 779-797. https://doi.org/10.1016/j.clp.2020.08.009

[103] Gross, M.S., Taylor, H. A., Tomori, C., & Coleman, J. S. (2019). Breastfeeding with HIV: An evidence-based case for new policy. *The Journal of Law, Medicine & Ethics, 47*(1), 152–160. https://doi.org/10.1177/1073110519840495

[104] Aitken, Z., Garrett, C. C., Hewitt, B., Keogh, L., Hocking, J. S., & Kavanagh, A. M. (2015). The maternal health outcomes of paid maternity leave: A systematic review. *Social Science & Medicine (1982), 130* (Apr 2015), 32–41. https://doi.org/10.1016/j.socscimed.2015.02.001

[105] Whitley, M.D., Ro, A., & Palma, A. (2021). Work, race and breastfeeding outcomes for mothers in the United States. *PloS One, 16*(5), e0251125–e0251125. https://doi.org/10.1371/journal.pone.0251125

[106] Van Niel, M.S, Bhatia, R.; Riano, N.S., de Faria, L., Catapano-Friedman, L., Ravven, S., Weissman, B., Nzodom, C., Alexander, A., Budde, K., & Mangurian, C.. (2020). The impact of paid maternity leave on the mental and physical health of mothers and children: A review of the literature and policy implications. *Harvard Review of Psychiatry, 28*(2), 113-126. https://doi.org/10.1097/HRP.0000000000000246

[107] Raz, M. & Sankaran, V. (2019). Opposing family separation policies for the welfare of children. *American Journal of Public Health (1971), 109*(11), 1529–1530. https://doi.org/10.2105/AJPH.2019.305327

[108] Maclean, J., Witman, A., Durrance, C. P., Atkins, D. N., & Meinhofer, A. (2022). Prenatal substance use policies and infant maltreatment reports. *Health Affairs Web Exclusive, 41*(5), 703–712. https://doi.org/10.1377/hlthaff.2021.01755

[109] Bowman, M. E. (2019). Attachment theory, supervision, and turnover in child welfare. *Child Welfare*, *97*(1), 1–20. https://www.jstor.org/stable/48623574

[110] Sufrin, C., Kolbi-Molinas, A., & Roth, R. (2015). Reproductive justice, health disparities and incarcerated women in the United States. *Perspectives on Sexual and Reproductive Health, 47*(4), 213–219. https://doi.org/10.1363/47e3115

[111] Shlafer, R., Saunders, J. B., Boraas, C. M., Kozhimannil, K. B., Mazumder, N., & Freese, R. (2021). Maternal and neonatal outcomes among incarcerated women who gave birth in custody. *Birth (Berkeley, Calif.), 48*(1), 122–131. https://doi.org/10.1111/birt.12524

[112] Shlafer, R., Saunders, J. B., Boraas, C. M., Kozhimannil, K. B., Mazumder, N., & Freese, R. (2021). Maternal and neonatal outcomes among incarcerated women who gave birth in custody. *Birth (Berkeley, Calif.), 48*(1), 122–131. https://doi.org/10.1111/birt.12524

[113] Sufrin, C., Kolbi-Molinas, A., & Roth, R. (2015). Reproductive justice, health disparities and incarcerated women in the United States. *Perspectives on Sexual and Reproductive Health, 47*(4), 213–219. https://doi.org/10.1363/47e3115

[114] Sufrin, C., Kolbi-Molinas, A., & Roth, R. (2015). Reproductive justice, health disparities and incarcerated women in the United States. *Perspectives on Sexual and Reproductive Health, 47*(4), 213–219. https://doi.org/10.1363/47e3115

[115] Silverman, J.G., Decker, M. R., Reed, E., & Raj, A. (2006). Intimate partner violence victimization prior to and during pregnancy among women residing in 26 U.S. states: Associations with maternal and neonatal health. *American Journal of Obstetrics and Gynecology, 195*(1), 140–148. https://doi.org/10.1016/j.ajog.2005.12.052

[116] Pastor-Moreno, G., Ruiz-Pérez, I., Henares-Montiel, J., Escribà-Agüir, V., Higueras-Callejón, C., & Ricci-Cabello, I. (2020). Intimate partner violence and perinatal health: a systematic review. *BJOG: an International Journal of Obstetrics and Gynaecology, 127*(5), 537–547. https://doi.org/10.1111/1471-0528.16084

[117] Atzl, V.M., Grande, L. A., Davis, E. P., & Narayan, A. J. (2019). Perinatal promotive and protective factors for women with histories of childhood abuse and neglect. *Child Abuse & Neglect, 91*, 63–77. https://doi.org/10.1016/j.chiabu.2019.02.008

[118] Simpson, M. & Catling, C. (2016). Understanding psychological traumatic birth experiences: A literature review. *Women and Birth: Journal of the Australian College of Midwives, 29*(3), 203–207. https://doi.org/10.1016/j.wombi.2015.10.009

[119] Engle, R. L., Mohr, D. C., Holmes, S. K., Seibert, M. N., Afable, M., Leyson, J., & Meterko, M. (2019). Evidence-based practice and patient-centered care: Doing both well. *Health Care Management Review*, *46*(3), 174–184. https://doi.org/10.1097/HMR.0000000000000254

[120] Jones, E., Lattof, S. R., & Coast, E. (2017). Interventions to provide culturally-appropriate maternity care services: factors affecting implementation. *BMC Pregnancy and Childbirth*, *17*(1), 267. https://doi.org/10.1186/s12884-017-1449-7

[121] Amjad, S., MacDonald, I., Chambers, T., Osornio-Vargas, A., Chandra, S., Voaklander, D., & Ospina, M. B. (2019). Social determinants of health and adverse maternal and birth outcomes in adolescent pregnancies: A systematic review and meta-analysis. *Paediatric and Perinatal Epidemiology, 33*(1), 88–99. https://doi.org/10.1111/ppe.12529

[122] Asta, D., Davis, A., Krishnamurti, T., Klocke, L., Abdullah, W., & Krans, E. E. (2021). The influence of social relationships on substance use behaviors among pregnant women with opioid use disorder. *Drug and Alcohol Dependence*, *222*, 108665. https://doi.org/10.1016/j.drugalcdep.2021.108665

[123] Capp, A.I. (2021). "They make you feel less of a human being": Understanding and responding to Milwaukee's racial disparity in infant mortality. *Maternal and Child Health Journal, 26*(4), 736–746. https://doi.org/10.1007/s10995-021-03281-6

[124] Incollingo Rodriguez, A.C., Tomiyama, A. J., Guardino, C. M., & Dunkel Schetter, C. (2019). Association of weight discrimination during pregnancy and postpartum with maternal postpartum health. *Health Psychology, 38*(3), 226–237. https://doi.org/10.1037/hea0000711

[125] Wilson, Roneé, Campos, A., Sandhu, M., Sniffen, S., Jones, R., Tackett, H., Berry, E., & Louis-Jacques, A. (2022). Can the healthy start risk screen predict perinatal depressive symptoms among high-risk women? *Children, 9*(2), 180. https://doi.org/10.3390/children9020180

[126] Wilson, Roneé, Campos, A., Sandhu, M., Sniffen, S., Jones, R., Tackett, H., Berry, E., & Louis-Jacques, A. (2022). Can the healthy start risk screen predict perinatal depressive symptoms among high-risk women? *Children, 9*(2), 180. https://doi.org/10.3390/children9020180

[127] Zhong-Cheng, L., Wilkins, R., & Kramer, M. S. (2006). Effect of neighbourhood income and maternal education on birth outcomes: a population-based study. *Canadian Medical Association Journal (CMAJ), 174*(10), 1415–1420. https://doi.org/10.1503/cmaj.051096

[128] Wilson, R., Campos, A., Sandhu, M., Sniffen, S., Jones, R., Tackett, H., Berry, E., & Louis-Jacques, A. (2022). Can the healthy start risk screen predict perinatal depressive symptoms among high-risk women? *Children, 9*(2), 180. https://doi.org/10.3390/children9020180

[129] Mehra, R., Boyd, L. M., Magriples, U., Kershaw, T. S., Ickovics, J. R., & Keene, D. E. (2020). Black pregnant women "get the most judgment": A qualitative study of the experiences of Black women at the intersection of race, gender, and pregnancy. *Women's Health Issues, 30*(6), 484–492. https://doi.org/10.1016/j.whi.2020.08.001

[130] Sperlich, M., Gabriel, C., & St. Vil, N.M. (2019) Preference, knowledge and utilization of midwives, childbirth education classes and doulas among U.S. black and white women: Implications for pregnancy and childbirth outcomes, *Social Work in Health Care, 58(*10), 988-1001, https://doi.org/10.1080/00981389.2019.1686679

[131] Miller, S., Abalos, E., Chamillard, M., Ciapponi, A., Colaci, D., Comandé, D., Diaz, V., Geller, S., Hanson, C., Langer, A., Manuelli, V., Millar, K., Morhason-Bello, I., Pileggi Castro, C., Nogueira Pileggi, V., Robinson, N., Skaer, M., Souza, J.P., Vogel, J.P., & Althabe, F. (2016). Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide. *The Lancet, 388*(10056), 2176-2192. https://doi.org/10.1016/S0140-6736(16)31472-6

[132] Guglielminotti, J., Landau, R., Wong, C. A., & Li, G. (2018). Patient-, hospital-, and neighborhood-level factors associated with severe maternal morbidity during childbirth: A cross-sectional study in New York State 2013–2014. *Maternal and Child Health Journal, 23*(1), 82–91. https://doi.org/10.1007/s10995-018-2596-9

[133] Gu Guglielminotti, J., Landau, R., Wong, C. A., & Li, G. (2018). Patient-, hospital-, and neighborhood-level factors associated with severe maternal morbidity during childbirth: A cross-sectional study in New York State 2013–2014. *Maternal and Child Health Journal, 23*(1), 82–91. https://doi.org/10.1007/s10995-018-2596-9

[134] Forray, A. & Foster, D. (2015). Substance use in the perinatal period. *Current Psychiatry Reports, 17*(11), 91–91. https://doi.org/10.1007/s11920-015-0626-5

[135] Dowse, E., Chan, S., Ebert, L., Wynne, O., Thomas, S., Jones, D., Fealy, S., Evans, T.-J., & Oldmeadow, C. (2020). Impact of perinatal depression and anxiety on birth outcomes: A retrospective data analysis. *Maternal and Child Health Journal, 24*(6), 718–726. https://doi.org/10.1007/s10995-020-02906-6

[136] Langer, L., Tripney, J., & Gough, D. (2016). *The science of using science: Researching the use of research evidence in decision-making*. London: EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London.

[137] Loncarevic, N., Andersen, P. T., Leppin, A., & Bertram, M. (2021). Policymakers' research capacities, engagement, and use of research in public health policymaking. *International Journal of Environmental Research and Public Health*, *18*(21), 11014. https://doi.org/10.3390/ijerph182111014

[138] Redman, S., Turner, T., Davies, H., Williamson, A., Haynes, A., Brennan, S., Milat, A., O'Connor, D, Blyth, F., Jorm, L., & Green, S. (2015). The SPIRIT Action Framework: A structured approach to selecting and testing strategies to increase the use of research in policy. *Social Science & Medicine, 136–137*(July 2015), 147-155. https://doi.org/10.1016/j.socscimed.2015.05.009

[139] Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

[140] Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: What it is and what it could be. *Theory and Society, 48*, 193-216. https://doi.org/10.1007/s11186-019-09345-5

[141] Palinkas, L. A., Aarons, G. A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed method designs in implementation research. *Administration and Policy in Mental Health, 38,* 44-53. https://doi.org/10.1007/s10488-010-0314-z

[142] Hodder, I. (2000). The interpretation of documents and material culture. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 110–129). Thousand Oaks, CA: Sage Publications.

[143] Yanovitzky, I. & Weber, M. (2020). Analysing use of evidence in public policymaking processes: a theory-grounded content analysis methodology. *Evidence & Policy, 16*(1), 65–82. https://doi.org/10.1332/174426418X15378680726175

[144] Palinkas, L.A., Garcia, A. R., Aarons, G. A., Finno-Velasquez, M., Holloway, I. W., Mackie, T. I., Leslie, L. K., & Chamberlain, P. (2016). Measuring use of research evidence: The structured interview for evidence use. *Research on Social Work Practice, 26*(5), 550–564. https://doi.org/10.1177/1049731514560413

[145] Palinkas, L.A., Saldana, L., Chou, C-P., & Chamberlain, P. (2017). Use of research evidence and implementation of evidence-based practices in youth-serving systems. *Children & Youth Services Review, 83,* 242-247. https://doi.org/10.1016/j.childyouth.2017.11.005

[146] Palinkas, L.A., Garcia, A. R., Aarons, G. A., Finno-Velasquez, M., Holloway, I. W., Mackie, T. I., Leslie, L. K., & Chamberlain, P. (2016). Measuring use of research evidence: The structured interview for evidence use. *Research on Social Work Practice, 26*(5), 550–564. https://doi.org/10.1177/1049731514560413

[147] Squires, J., Estabrooks, C., Gustavsson, P., & Wallin, L. (2011). Individual determinants of research utilization by nurses: A systematic review update. *Implementation Science, 6*(1), 1-20. https://doi.org/10.1186/1748-5908-6-1

[148] Wulczyn, F., Alpert, L., Monahan-Price, K., Huhr, S., Palinkas, L., & Pinsoneault, L. (2019). Research evidence use in the child welfare system. *Child Welfare, 94*(2), 141-165.

[149] Langer, L., Tripney, J., & Gough, D. (2016). *The science of using science: Researching the use of research evidence in decision-making*. London: EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London.