

Conduct Priority Research to Advance the Science of Physiologic Childbearing and Its Impact on Maternal and Child Health Outcomes

INTRODUCTION

The *Blueprint for Advancing High-Value Maternity Care Through Physiologic Childbearing* aims to chart an efficient pathway to a maternity care system that reliably enables all women and newborns to experience healthy physiologic processes around the time of birth, to the extent possible given their health needs and informed preferences. The authors are members of a multistakeholder, multidisciplinary National Advisory Council that collaborated to develop this document.

Knowledge about the importance of perinatal physiologic processes for healthy maternal-newborn outcomes has come into sharper focus and garnered growing attention in recent years. Fostering healthy physiologic processes whenever possible is a preventive approach to health and safety for childbearing women and their newborns. Promoting, supporting and protecting these processes contributes to healthy outcomes in women and their fetuses/newborns. These processes facilitate such crucial matters as fetal readiness for birth and safety in labor, labor progress, reduced stress and pain in labor, safe maternal and newborn transitions and adaptations after birth, effective breastfeeding and secure maternal-newborn attachment. Growing

evidence of longer-term effects of care around the time of birth also underscores the importance of fidelity to optimal maternal-newborn care. Leading professional organizations increasingly provide guidance for promoting, supporting and protecting these processes.

The Blueprint identifies six widely accepted improvement strategies to transform maternity care and a series of specific recommendations within each strategy. Each recommendation is presented with immediate action steps to directly or indirectly increase access to healthy perinatal physiologic processes. The recommendations and action steps address many barriers to optimal care in the current maternity care system.

The recommendations and action steps reflect unprecedented opportunities for innovation in the rapidly evolving health care environment. To realize system transformation, innovation must be accompanied by continuous evaluation and publication of results, refinement, and the scaling up and spreading of effective approaches.

This excerpt includes the full content from the Blueprint report for the sixth of the six improvement strategies, *Conduct Priority Research to Advance the Science of Physiologic Childbearing and Its Impact on Maternal and Child Health Outcomes*. View the full report and associated materials at NationalPartnership.org/Blueprint.



CONDUCT PRIORITY RESEARCH TO ADVANCE THE SCIENCE OF PHYSIOLOGIC CHILDBEARING AND ITS IMPACT ON MATERNAL AND CHILD HEALTH OUTCOMES

STRATEGY OVERVIEW

Studies examining important questions related to maternal or fetal/newborn pathology and the effects of interventions on complex maternal and newborn conditions have predominated in maternity care research. These lines of inquiry must continue. However, researchers have given less attention to healthy perinatal physiology and the effect of interventions on those processes. As we learn more about the benefits of healthy perinatal physiologic processes, gaps in knowledge about these processes, their importance and how to foster them by improving practice have become apparent. The

answers to basic questions, such as why labor starts when it does, are poorly understood, and healthy perinatal physiology is understudied relative to the large percentage of women whose labors and births could proceed with supportive care and without many common procedures or interventions.¹ Further, there is little understanding of the longer-term effects of both healthy perinatal physiologic processes and many intrapartum interventions in women or newborns.² Attempts to research outcomes often fail to disentangle the effects of multiple common exposures around the time

of birth (e.g., synthetic oxytocin, epidural analgesia and cesarean birth).³ Implementation research is also needed to identify effective ways of closing known evidence-practice gaps in the optimal care of childbearing women and their newborns. Infrastructure supports for these lines of research will foster productive use of existing resources, identification of new resources and effective collaborative work. Filling in these research gaps would enable a more effective and impactful maternity care system.

Recommendations here aim to accelerate research that fosters healthy perinatal physiologic processes in women and their fetuses/newborns, thereby improving outcomes, experiences and wise spending.



CONDUCT PERINATAL PHYSIOLOGIC RESEARCH

Strengthen system infrastructure and capacity and expand opportunities for research on priority gaps in understanding of healthy perinatal physiologic processes.

ACTION STEPS

- Establish one, and optimally multiple, academic research centers – with major donor, foundation or other funding – to investigate knowledge gaps in the healthy physiology of childbearing. Increase the number of researchers with this focus through effective training and mentoring.
- Coordinate with established centers and individuals currently studying aspects of the developmental origins of health and disease (e.g., epigenetics, microbiome) to integrate perinatal processes, exposures and outcomes into their research programs, conferences, journals, discussion lists, collaborations and other professional activities.
- Offer periodic training workshops for researchers studying perinatal physiology. Topics should include mentoring students/colleagues; building relationships; sharing research; collaborating across professions, institutions and countries; and advancing methodology.⁴
- Carry out research to understand the effects of racism, stress and other factors associated with racial disparities on healthy perinatal physiologic processes and how to attenuate these effects.⁵
- When practical and ethical, replicate perinatal hormonal physiology animal studies that have potentially actionable results in humans.⁶
- Expand the use of approaches that use large datasets to obtain a deeper understanding of cellular processes (e.g., epigenomics, microbiomics, proteomics) to study healthy physiologic perinatal processes and the impact of common maternity care interventions. Ensure that normal ranges for these novel indicators, many of which are yet to be established, are drawn from data of women experiencing healthy perinatal physiologic processes and care that promotes, supports and protects these processes.⁷
- Disseminate new knowledge about perinatal physiology to clinical, policy, advocacy and public audiences who have both concentrated and diffuse interests in these topics.



CONDUCT PERINATAL CLINICAL EPIDEMIOLOGIC RESEARCH

Within perinatal clinical epidemiologic research, study the effects of care practices on healthy perinatal physiologic processes in women and newborns. Select appropriate process and outcome variables.

ACTION STEPS

- Establish and carry out a research agenda to evaluate an upstream preventive model of perinatal safety that prioritizes healthy perinatal physiologic processes and avoids unneeded interventions. For example, compare the effects of intrapartum use of synthetic oxytocin and non-pharmacologic alternatives on immediate breastfeeding; postpartum hemorrhage; and breastfeeding, maternal behaviors, mother-baby attachment and maternal mood in the following days and weeks.⁸ Assess contribution of this model to reduction of serious adverse outcomes in women and newborns.
- Design and carry out comparative effectiveness trials of perinatal interventions in which one arm receives evidence-based care that supports and protects healthy perinatal physiologic processes, an understudied complement to head-to-head and placebo-controlled trials.
- Design and carry out rigorous studies to compare possible benefits and harms of birth in hospital, birth center and home settings, including short-, medium- and – whenever possible – longer-term outcomes of women and offspring.
- Include an evaluation component for all personnel, payment, practice and other innovations in this document that have the potential to advance value-based maternity care. Include in these evaluations the impact on care that fosters healthy perinatal physiologic processes or the ability to provide or obtain it. Publish results, optimally in peer-reviewed journals (see: 1, *Delivery and Payment*; 2, *Performance Measurement*; 3, *Engage Childbearing Women*; 4, *Interprofessional Education*; 5, *Workforce*).
- Ensure that evolving core outcome sets for maternal and newborn care practices and conditions include possible effects of care on healthy perinatal physiologic processes during labor and around the time of birth. Also essential for core sets are hormonally mediated outcomes such as maternal behavior, maternal-newborn attachment, maternal mood and breastfeeding measured at appropriate times after facility discharge.⁹
- To fill knowledge gaps about the medium-term (days and weeks after discharge) and longer-term effects of intrapartum practices and experiences, prioritize research that examines the relationship between perinatal practices and post-discharge maternal and newborn outcomes.¹⁰ Strengthen mechanisms for collection of data for such study.
- Study the feasibility and potential benefits and harms of extending care that fosters physiologic perinatal processes to women and newborns who need specialized care (e.g., waiting for the physiologic onset of labor before carrying out a planned cesarean, offering skin-to-skin contact and breastfeeding after premature birth or cesarean birth and in newborn intensive care units).
- Investigate health outcomes in women using levels of maternal care that are concordant versus discordant with their expected needs to understand possible benefits and harms of receiving less intensive, as intensive and more intensive levels of care relative to their acuity.¹¹
- Educate perinatal trialists about the unintended effect of the privileging of randomized controlled trial design: extremely limited knowledge about possible benefits and harms of intrapartum interventions after hospital discharge. Encourage post-discharge follow-up.¹²
- Measure population-level rates and trends of care practices and outcomes related to the maternal-newborn experience of healthy perinatal physiologic processes. Analyze by race/ethnicity, education, income, disability status, language, insurance status and rural/urban geography to better understand disparities in access to optimal care and outcomes.
- Disseminate new knowledge about perinatal clinical epidemiology to clinical, policy, advocacy and public audiences who have both concentrated and diffuse interests in these topics.



CONDUCT PERINATAL IMPLEMENTATION RESEARCH

Carry out research to understand how to reliably implement evidence-based maternity care practices that minimize over- and underuse.

ACTION STEPS

- Carry out research to identify effective messaging to help childbearing women and providers of maternity services understand and evaluate risk, practice variation, the role and value of physiologic processes in childbearing and high-value forms of care (see: 3, *Engage Childbearing Women*; 4, *Interprofessional Education*).
- Continue to evaluate the effect of architectural, managerial and other environmental and behavioral influences on clinical care to better understand how to reliably implement optimal care and reduce high levels of practice variation across clinical sites.¹³
- Integrate research on implementing high-value care with emerging de-implementation science for discontinuing low-value care.¹⁴ Apply these findings, respectively, to underused and beneficial perinatal practices and common, consequential overused practices (e.g., intermittent auscultation rather than continuous electronic fetal monitoring, ambulation rather than laboring in bed) and evaluate effectiveness.
- Consistently evaluate the effectiveness of quality improvement initiatives. Investigate the most effective ways of educating and supporting maternity care clinicians and other stakeholders to routinely carry out and evaluate effective quality improvement initiatives.
- Disseminate new knowledge about implementation of evidence-based maternity care to clinical, policy, advocacy and public audiences who have both concentrated and diffuse interests in these topics.



ADDRESS STRUCTURAL FACTORS INFLUENCING NEEDED RESEARCH

Develop networks and build upon existing infrastructure resources that can evolve or adapt to enable greater access to physiologic childbearing practices.

ACTION STEPS

- Connect and strengthen international interdisciplinary maternity care expert research networks to increase communication and collaboration across clinical sites, disciplines and nations. These include Maternal Health subcommittee of AcademyHealth's Women and Gender Health Interest Group, Alliance for Quality Maternal Newborn Care Research, Cochrane Pregnancy and Childbirth Group, Epigenetic Impact of Childbirth, European Union Birth Research COST Action and annual Normal Labour & Birth Conference. Harness these networks for research collaboration, mentors/peer support, manuscript and grant reviewing and other professional activities. Robustly explore implications for access to healthy perinatal physiologic processes.
- Work with the evolving patient-centered outcomes research infrastructure of the People-Centered Research Foundation, which continues PCORnet, to establish a Maternity Care Collaborative Research Group. Introduce these issues into the Hospital Medicine Group and the Health System Group and add labor/birth, breastfeeding and related topics as conditions of interest.¹⁵
- Collaborate with large database projects to address research gaps (e.g., effects of interventions on breastfeeding, maternal mood and other desirable outcomes), and add missing priority data elements and other priority research questions where possible. These projects include California Maternal Data Center (and related projects in Oregon and Washington), MANA Statistics Project, Maternal Quality Improvement Program, Pregnancy to Early Life Longitudinal Data System, Listening to Mothers and PregSource of the National Institutes of Health. Develop and publicize an online directory for prospective researchers that summarizes attributes of available datasets that might answer key research questions.¹⁶
- Strengthen the ability of electronic health records to collect standardized, structured data, inclusive of priority data elements that support and facilitate research to advance the science of physiologic childbearing.
- Engage external funders such as government agencies, health insurance companies and health care delivery systems with both resources and a business imperative to invest in the above human biology, clinical epidemiology and implementation level research priorities and their implications for population health.
- Encourage inclusion of expertise in physiologic childbearing on journal editorial boards, grant review study sections and other bodies that influence the formation, funding and publication of research.
- Strategically publicize physiologic childbearing research findings and gaps. Capitalize on the human-interest appeal of maternity care topics to inform stakeholders at every level and in every role by widely disseminating findings to multiple audiences across multiple media and forums (see: 3, *Engage Childbearing Women*; 4, *Interprofessional Education*).

Read the full Blueprint report at NationalPartnership.org/Blueprint.

Endnotes

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