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BLUEPRINT FOR ADVANCING

High-Value Maternity Care Through Physiologic Childbearing

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For more than 45 years, the National Partnership for Women & Families has fought for every major policy advance that has helped this nation's women and families. Our mission is to improve the lives of women and families.

We work to foster a society in which everyone has access to quality, affordable health care, workplaces are fair and family friendly, discrimination is a thing of the past, women's reproductive health and rights are secure and every person has the opportunity to achieve economic security and live with dignity.

Founded in 1971 as the Women's Legal Defense Fund, the National Partnership for Women & Families is a nonprofit, nonpartisan 501(c)3 organization located in Washington, D.C.

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Find the full Blueprint report and related documents online at: NationalPartnership.org/Blueprint

Executive Summary

The *Blueprint for Advancing High-Value Maternity Care Through Physiologic Childbearing* (hereafter Blueprint) 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.

A focus on benefits of healthy perinatal physiologic processes aligns with the health system shift to providing higher-value care, addressing the unintended consequences of fee-for-service payments and improving health outcomes and experiences with wiser spending.

Increased use of this approach has the potential to preventively address troubling trends in maternal and newborn outcomes and persistent racial and other disparities in care and outcomes by mobilizing innate capacities for healthy childbearing processes and limiting use of consequential interventions that can be safely avoided. This approach is a way to provide more appropriate care to the majority of healthier, lower-risk women and newborns that often receives more specialized care, though such care may not be needed and may cause unintended harm.

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 Blueprint's six improvement strategies and the focus of the associated priority recommendations are:

1 Improve maternity care through innovative care delivery and payment systems and quality improvement initiatives.

a. Implement episode payment programs
b. Implement maternity care homes
c. Expand high-performing elements of care
d. Incorporate quality improvement initiatives

2 Advance performance measurement for high-value maternity care.

a. Fill measure gaps
b. Measure for quality improvement
c. Measure for accountability
d. Leverage specific measures

3 Meaningfully engage all childbearing women and families.

a. Develop enabling system enhancements
b. Expand communication and education
c. Incorporate birth preferences care planning and shared decision-making

4 Transition to interprofessional education that supports team-based care for maternity care professionals.

a. Educate using an interprofessional model
b. Educate on safety and quality

5 Foster an optimal maternity care workforce composition and distribution.

a. Better deploy and retain obstetricians
b. Expand family physician maternity care participation
c. Grow the midwifery workforce
d. Implement effective laborist care models
e. Expand maternity care in rural and underserved areas

6 Conduct priority research to advance the science of physiologic childbearing and its impact on maternal and child health outcomes.

a. Conduct perinatal physiologic research
b. Conduct perinatal clinical epidemiologic research
c. Conduct perinatal implementation research
d. Address structural factors influencing needed research

The growing emphasis on the reliable provision of high-value maternity care creates unprecedented opportunities to ensure that most women and their fetuses/newborns have a healthy, uncomplicated labor, birth and transition in the days and weeks after birth. The present environment also offers opportunities to improve the care, experience and outcomes of women with health challenges by fostering healthy perinatal physiologic processes whenever safely possible.

It is important to build on the growing consensus and meaningful professional leadership that have occurred in recent years. Systemic, transformational change is essential for achieving a maternity care system in the United States that restores respect for the biological capacities and contributions of women and their fetuses/newborns and maximizes benefits of these capacities. This Blueprint was developed to move expeditiously toward this more balanced, coherent, preventive and complete maternity care system by offering specific improvement strategies, recommendations and action steps that are directly tied to the current health policy and practice environment.

Maternity care stakeholders – including policymakers, clinicians, administrators, health plans, employers, researchers, birth workers, advocates and women and families themselves – are deeply interested in improving quality and safety. We encourage all stakeholders to identify and implement the priority recommendations and action steps that they can advance – on their own and in collaboration with others. With this clear set of priorities, we can collectively transform care, improve outcomes and experiences, reduce disparities and rein in outlier costs. We face an exciting opportunity to achieve a full, high-performing maternity care system for all women, newborns and families.

Introduction

GROWING IMPETUS FOR PHYSIOLOGIC CHILDBEARING

This Blueprint 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.* Knowledge about the importance of these processes for healthy maternal-newborn outcomes has come into sharper focus and garnered growing attention in recent years.

Through mammalian evolution, innate capacities of parturient women and their fetuses/newborns have developed for healthy labor, birth and postpartum and newborn transitions and adaptations. Synthesis of an extensive literature on hormonally driven perinatal processes found that fostering healthy physiologic processes whenever possible is a preventive approach to health and safety for childbearing women and their newborns.[1] Effective inter-orchestration of bodily systems of both the woman and fetus/newborn at this time is highly beneficial:

> *Consistent and coherent evidence finds that physiologic childbearing facilitates beneficial (salutogenic) outcomes in women and babies by promoting fetal readiness for birth and safety during labor, enhancing labor effectiveness, providing physiologic help with labor stress and pain, promoting maternal and newborn transitions and maternal adaptations, and optimizing breastfeeding and maternal-infant attachment, among many processes.*[2]

The synthesis finds physiologic processes are most effective when they are:

Promoted

Promoted through enabling policies, provider skills and knowledge, ongoing research, quality improvement initiatives, delivery and payment systems and other attributes of the broader health care environment;

Supported

Supported by direct provider and caregiver practices (for example, providing labor support, offering drug-free measures for labor comfort and progress and keeping mothers and babies together after birth); and

Protected

Protected from the disturbance of unneeded care practices and environments that women and newborns do not experience as calm, safe and private.[3]

Moreover, growing knowledge about consequential, longer-term effects of perinatal exposures and practices underscores the importance of optimal, evidence-based care at this time. Systematic reviews find that breastfeeding, a beneficial example, is protective of asthma, obesity, type 1 and 2 diabetes and leukemia in children, and of breast and ovarian cancer, obesity and type 2 diabetes in women.[4] By contrast, cesarean birth is widely understood to be overused, and systematic reviews find that cesarean-born babies appear to be more likely than vaginally born babies to develop chronic conditions such as asthma, allergies and obesity.[5] Knowledge of mechanisms that underlie these effects is growing.[6] Systematic reviews also find that repeated cesareans expose women and babies in future pregnancies to increased risk of life-threatening placental and bleeding disorders.[7]

Many recent professional statements and resources seek to curb overuse of practices that can disrupt healthy endogenous physiologic processes and to more reliably provide care that facilitates these processes. Examples include:

- Recommendations from the American College of Obstetricians and Gynecologists (ACOG) to avoid many common labor and birth interventions that may be unneeded and less safe and to use practices "that facilitate a physiologic labor process and minimize intervention" (e.g., having continuous labor support, being upright and mobile during labor and using drug-free pain relief methods), and ACOG's reVITALize project that defined "physiologic childbirth."[8]
- Recommendations from ACOG, the American Academy of Family Physicians (AAFP), the American College of Nurse-Midwives (ACNM) and the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) that similarly encourage delayed cord clamping, early-skin-to-skin contact and early and exclusive breastfeeding after birth.[9]
- Recommendations from ACOG and the Society for Maternal-Fetal Medicine to safely decrease the rate of unnecessary primary cesareans by using labor support, patiently respecting women's own pace of labor and other evidence-based practices, and recommendations from ACOG, AAFP and ACNM to counsel and offer planned vaginal birth after cesarean to the many women who are candidates.[10]

** We use the term "women" in this report, but recognize that people of many gender identities – transgender, non-binary and cisgender alike – have babies and receive maternity care.*

- Recommendations from the Alliance on Innovation in Maternal Health (AIM) for fostering intended vaginal birth and safely preventing primary cesarean births[11] and a companion toolkit from the California Maternal Quality Care Collaborative.[12]
- Choosing Wisely recommendations of the American Academy of Nursing (AAN) to avoid non-medically indicated labor induction and labor augmentation,[13] use intermittent auscultation as the first-line method of fetal monitoring in labor[14] and keep mothers and babies together skin-to-skin after birth and room in thereafter,[15] as well as aligned position statements from ACNM and AWHONN.[16]
- AWHONN's Go the Full 40 toolkit and campaign supporting spontaneous onset of labor whenever there is no clear indication for scheduled birth.[17]
- A consensus statement from three national midwifery organizations (ACNM, Midwives Alliance of North America, National Association of Certified Professional Midwives) broadly supporting healthy physiologic childbirth[18] and a similar statement promoting normal physiologic birth in hospital maternity units from AAN.[19]
- A toolkit from ACNM to foster care processes that support physiologic childbirth.[20]
- A Lancet article from U.S., Canadian and European obstetric leaders taking the position that "women should be offered care that supports the safe physiological process of labour with the lowest level of intervention possible" and pointing to system-level deficits that impede this goal.[21]
- Updated World Health Organization recommendations for intrapartum care recognizing that "childbirth is a physiological process that can be accomplished without complications for the majority of women and babies" and that "most women want a physiological labour and birth."[22]

The essential conclusion from this evolving body of complementary and mutually confirming evidence and clinical guidance is that all women and babies in all settings with all types of care providers are likely to be best served by care that promotes, supports and protects physiologic processes unless best evidence and clinical judgment find that intervention is clearly warranted. Whenever possible, the optimal goals for care are likely to be promoted through labor that starts and progresses on its own, resulting in a vaginal birth, and is followed by the establishment of breastfeeding, strong maternal-newborn attachment and a contented new mother. When women and babies require specialized care, they will also likely benefit from care that facilitates physiologic processes whenever possible – for example, early skin-to-skin contact and breastfeeding after cesarean birth and within newborn intensive care units.

Prioritizing care to ensure that childbearing women and their fetuses/newborns can readily make an informed choice and obtain the benefits of physiologic processes whenever feasible is fully compatible with the Triple Aim of better care, better health and wiser spending.[23] It is essential that the health care system commit to reliably providing evidence-based care. This includes avoiding unneeded care that is wasteful and potentially harmful, and avoiding errors of omission by reliably providing safe, beneficial care.

The health expenditure per capita of the United States far exceeds those of 34 other Organisation of Economic Cooperation and Development nations,[24] and our maternity care is more costly than that of other nations based on available comparison data in most recent[25] and previous reports of the International Federation of Health Plans.[26] Despite this major expenditure, U.S. performance on basic indicators is troubling: for example, 45 nations had lower maternal mortality ratios and 44 had lower neonatal mortality rates in 2015.[27]

Further, persistent disparities in care and outcomes especially impact African American, American Indian, rural and low-income families.[28] Alarming recent increases in severe maternal morbidity and maternal mortality rates and persistent disparities in these indicators underscore the urgency of transforming our maternity care system to better meet the needs of all childbearing women and babies.[29]

Widespread implementation of recommendations for safe upstream preventive care has the potential to preventively address the troubling trends in maternal and newborn outcomes and persistent disparities in care and outcomes by mobilizing innate capacities for healthy childbearing processes and limiting use of consequential interventions that can be safely avoided. Ensuring that underserved women and families benefit from these improvements can contribute to health equity across the childbearing population. This approach is a way to provide more appropriate care to the majority of healthier, lower-risk women and newborns that often receives more specialized care, though such care may not be needed and may cause unintended harm. Routinely providing access to such care, engaging in shared decision-making (SDM) and supporting women's informed care choices would lead to a fuller, more complete and higher-performing maternity care system.

By facilitating these innate capacities, providers of maternal-newborn services also humanize childbirth, show respect to women and fetuses/newborns as agents of these processes, enable involved parties to experience the remarkable competence of childbearing women and their fetuses/newborns, set the stage for a positive postpartum/newborn period and foster what many women experience as uniquely fulfilling and empowering.

PRIORITY STRATEGIES FOR IMPROVEMENT AND TRANSFORMATION

Childbirth Connection's enduring direction-setting consensus report, "2020 Vision for a High-Quality, High-Value Maternity Care System,"[30] envisioned a high-performing system:

> *The mission of a maternity care system that delivers the highest quality and value is to achieve optimal health outcomes and experiences for mothers and babies through the consistent provision of woman-centered care grounded in the best available evidence of effectiveness with least risk of harm, and the best use of resources. Such care is provided in ways that are safe, effective, timely, efficient and equitable for all women and their families. The ideal maternity care system protects, promotes, and supports physiologic childbirth, and optimal experiences for childbearing women based on shared decision making and respect for informed choice; provides care that is coordinated, evidence-based, and subject to ongoing performance measurement and quality disclosure; and promotes a work environment that is satisfying and fulfilling for its caregivers.*[31]

Physician, midwifery and nursing leaders increasingly embrace a similar vision of safe, effective, woman- and family-centered care, as seen in the statements and recommendations noted above.

This Blueprint focuses on six interrelated key strategies for maternity care quality improvement and transformation to such an envisioned system. Together, these strategies will help ensure that key personnel are prepared, available and appropriately deployed and women are engaged and activated within a system organized to meet high standards, while addressing priority gaps in knowledge to further increase effectiveness.

The strategies in the present document are adapted and condensed from the 11 strategies in Childbirth Connection's "Blueprint for Action: Steps Toward a High-Quality, High-Value Maternity Care System," which were identified through consultation with several dozen national leaders across the health care system.[32] The six strategies in this Blueprint are also closely aligned with the National Quality Strategy of the U.S. Department of Health and Human Services.[33]

This Blueprint identifies priority ways to use leading improvement strategies now and in the coming years to scale up and spread access to physiologic childbearing, transform maternity care and meet the growing impetus for value-based health care in the United States. In the tripartite system discussed above, these strategies foster an environment that *promotes* physiologic childbearing and helps ensure that it is *supported* and *protected* at the point of care. The improvement strategies are:

1. **Improve maternity care through innovative care delivery and payment systems and quality improvement initiatives.** Traditional fee-for-service payment fosters provision of services that generate payment regardless of need or value, and hinders access to beneficial care for which there is no payment. Well-constructed episode and maternity care home payment programs enable and encourage participants to redesign care and improve performance, including by using high-performing elements of care such as birth centers and doulas.

2. **Advance performance measurement for high-value maternity care.** Performance measurement can drive improvements in maternity care quality when service providers receive feedback about their performance relative to other providers, when it is linked to various mechanisms for accountability and when women use performance data to support their choice of care provider and birth setting.

3. **Meaningfully engage all childbearing women and families.** There are myriad opportunities to improve care at the family, care setting and system levels by engaging women and families. Mechanisms include providing comparative quality information about maternity care providers and birth settings, shared care planning and SDM, care coordination, education and use of woman-reported outcome and experience of care measures.

4. **Transition to interprofessional education that supports team-based care for maternity care professionals.** Education of maternity care clinicians at all levels provides major opportunities to advance value-based care, including by fostering effective team-based care, providing shared up-to-date foundational knowledge of physiologic childbearing and ensuring that clinicians have the essential skills and knowledge to engage in SDM and provide appropriate care to low-risk women and newborns as well as those who need specialized care.

5. **Foster an optimal maternity care workforce composition and distribution.** A shortage of all types of maternity care providers and of maternity services in rural areas presents an opportunity to re-envision the maternity care workforce. Priorities include better retention and deployment of physicians; increased use of midwives, who provide high-value care and are educated in fewer years at lower cost; and composition that better reflects the diversity of childbearing families.

6. **Conduct priority research to advance the science of physiologic childbearing and its impact on maternal and child health outcomes.** Addressing crucial gaps in knowledge at the levels of perinatal physiology, clinical epidemiology and implementation science can support the growing impetus for value-based care and strengthen the effectiveness of policies, programs and services for improving and transforming maternity care.

This exciting time offers unprecedented opportunity for innovation to advance high-value care. This document calls for consistent evaluation; publication of results and refinement of innovative models of maternity care; newer roles such as care navigators and laborists; and other elements that lack and absolutely need a rigorous evidence base to provide clear direction.[34]

These improvement strategies have the potential to foster maternity care gains in many areas. However, the recommendations here specifically identify opportunities in the current health care environment to directly or indirectly increase the proportion of women and fetuses/newborns with access to healthy perinatal physiologic processes – largely by addressing barriers to this aim.

BARRIERS TO INCREASED ACCESS TO PHYSIOLOGIC CHILDBEARING

Many barriers must be addressed to enable women and fetuses/newborns to widely experience healthy perinatal physiologic processes. Cultural, structural and organizational transformation is needed to combat the following barriers.

Barriers to Address Using Multiple Improvement Strategies

- Tools for quality give inadequate attention to healthy perinatal physiologic processes, as appropriate for care of both the majority of healthier, lower-risk women and newborns and those with specialized needs, to the extent feasible and desired. These tools include guidelines, protocols, standard order sets, care bundles, simulations, electronic health records and clinical decision support systems.
- Perinatal safety is understood to be primarily a process of rescue from impending harm, rather than focusing upstream on prevention that fosters healthy perinatal physiologic processes and associated benefits.
- Current maternal-newborn practice involves evidence-practice gaps and unwarranted practice variation, reflecting overuse of unneeded practices, underuse of beneficial practices and limited use of implementation science and quality improvement methods.
- Subordinating the needs of women and fetuses/newborns to those of health systems and professionals is accepted – for example, widespread scheduling and hastening of births to foster hospital throughput and concentrate births during weekday, daytime, non-holiday hours.
- Childbearing and other conditions covered largely by Medicaid and private insurance would benefit from crucial supports that the Centers for Medicare & Medicaid Services and Agency for Healthcare Research and Quality provide for conditions commonly covered by Medicare, including centralized public reporting of hospital and clinician performance, accountability programs with performance measurement at or near point of care, promotion of alternative payment models, parity of certified nurse-midwife and physician reimbursement, adequate reimbursement levels and consideration of appropriate site of service.
- Persistent systemic and interpersonal racism and xenophobia contribute to large and unacceptable disparities in maternity care access, care practices, outcomes and experiences, particularly for women of color, low-income women and other marginalized women and families. These disparities are exacerbated by insufficient racial, cultural and linguistic diversity in the workforce and inadequate resources and training for better meeting the needs of an increasingly diverse population of childbearing women.

Barriers to Address Primarily Through Improvements to Provider Education, the Maternity Care Workforce and/or Women's Engagement

- Many clinicians and women lack adequate awareness of, education about and experience with maternal-newborn benefits of healthy perinatal physiologic processes and ways that widely used perinatal interventions disturb these processes. At present, there are crucial deficits in these foundational topics in education for clinicians at all levels (and related core competencies, certification and examination content) and for childbearing women through classes, websites and other channels.
- Many maternity care clinicians lack skills, knowledge, confidence and/or inclination to reliably offer childbearing women core maternity care practices. Many maternity care settings lack policies, protocols and patterns of practice to do so. These practices include external version at term, vaginal birth after cesarean, vaginal twin and breech birth, continuous labor support, intermittent auscultation, drug-free measures for labor progress and comfort, safe assisted vaginal birth, early mother-baby skin-to-skin contact and continuous breastfeeding support.
- Most maternity care clinicians have not been educated in quality improvement methods and thus are not prepared to design, implement, evaluate and publish results of improvement programs.
- Many maternity care clinicians experience vulnerability with respect to liability and support remedies that have been found to be marginally effective at best and/or politically untenable.
- The dearth of experiences with and images of well-supported birthing women and care providers calmly coping with labor and birth in both usual care and TV and other media content fosters a misunderstanding of childbirth.

- Shared care planning and SDM processes are not reliably implemented in maternity care; many providers and women have limited understanding of SDM. Few decision aids are open access and few are certified. Reimbursement is not available for SDM and licensing of decision aids. SDM can help women understand the benefits of physiologic childbearing and make informed care choices.
- Many women are not supported to become fully informed about shortcomings of the maternity care system (e.g., practice variation, overuse, underuse, extent of adverse outcomes) and to acquire the skills to navigate this system and seek optimal care for themselves and their babies.
- There is a growing shortage of maternity care providers, including general obstetrician-gynecologists (OB-GYNs), family physicians providing full-scope or even outpatient maternity services, and midwives. Geographic maldistribution especially affects families in more remote rural areas, where the closest maternity care provider can be hours away.
- The composition of the maternity care workforce disproportionately involves providers practicing in a high-acuity specialty model rather than a primary maternity care model that better meets the needs of most childbearing women and newborns.
- In education and practice, too few maternity care providers experience a team-based model that fosters mutual understanding of and respect for the complementary skills and knowledge of the various members of the team and the provision of safe, optimal team-based care.

Barriers to Address Primarily Through Improved Systems, Measurement and/or Research

- Although childbearing women and newborns are primarily healthy, almost all babies are born in acute procedure- and technology-intensive hospital settings.
- Loud, busy, impersonal hospital environments, as well as bright or loud medical and personal electronic technologies, can interfere with the calm, quiet, private, low-stress environments that foster healthy physiologic perinatal processes.
- Too few payments for maternal-newborn services are tied to the quality of care and desirable outcomes. In addition, health plans and fee-for-service fee schedules do not reliably reimburse crucial high-value services such as those offered by doulas, birth centers, certified professional midwives and peer breastfeeding counselors.
- Too often, payment levels are inadequate, including for essential maternity services covered by Medicaid, rural maternal and newborn care, and birth center care.
- Integration is inadequate between the broader maternity care system and out-of-hospital birth settings, which routinely foster physiologic childbearing. This jeopardizes seamless relationships for care consultation, sharing, transfer and transport.
- There are major gaps in national standardized and endorsed maternity care quality measures, including measures that foster physiologic childbearing; woman-generated measures of the experience and outcomes of care; and measures of SDM, care coordination, clinical outcomes, and clinician/group/team and health plan levels of care. The collection of some widely used measures poses a burden on the health system with low payoff.
- Women lack the information and tools they need to navigate the health care system and arrange for quality care. The current state of health information technology does not reliably enable efficient communication, education, shared care planning and decision-making, care coordination and the collection of woman-generated experience and outcome data.
- Clinical trials infrequently measure effects of intrapartum interventions beyond hospital discharge; knowledge of the effects of interventions on hormonally mediated matters such as mothering behaviors, mother-infant attachment, breastfeeding and maternal mental health is limited. An understanding of possible longer-term epigenetic and microbiome effects is also limited. Other research gaps that block the spread of physiologic childbearing include effective messages for communicating its value to women and clinicians and ways to accelerate practice and systems improvement.
- Funding, research personnel and data sources are inadequate for filling research gaps related to human biology, clinical epidemiology and implementation science.

HOW THIS REPORT WAS CREATED

The National Partnership for Women & Families began by conducting key informant interviews with more than 20 national leaders who have complementary expertise and vantage points to help identify priority improvement strategies and specific barriers and opportunities for driving high-value maternity care in the rapidly evolving health care environment.

The National Partnership then convened a multistakeholder, multidisciplinary National Advisory Council charged with identifying priority recommendations within a series of leading strategies that can advance high-value maternity care and care transformation. Growing consensus about the importance of enabling childbearing women and newborns to experience healthy perinatal physiologic processes whenever safely possible along with judicious, appropriate use of maternity care interventions provided the focus. The National Partnership invited Council members to form strategy-specific work groups based on their areas of expertise and to draft sections that identified priority recommendations and action steps for achieving them in recognition of current barriers to and opportunities for optimal care. The full Council provided extensive feedback on drafts of all sections and the introduction. The National Partnership incorporated feedback and integrated the draft sections into a single document with a uniform focus, style and format while reconciling topics that bridge multiple strategies. Council members provided detailed feedback on this unified document. The National Partnership used this input to further strengthen and finalize this timely, coherent Blueprint for maternity care stakeholders.

The following table provides a high-level overview of the six improvement strategies and priority recommendations within each. Each strategy-specific section that follows summarizes current opportunities that the improvement strategy affords and priority recommendations and action steps for achieving the recommendations. Some action steps identify specific agencies or other entities that might carry out these tasks. Most action steps do not identify specific agents, instead recognizing that many organizations, agencies and individuals can provide meaningful leadership and collaborate on this work. To keep the Blueprint relatively concise and accessible, we include many references where readers can find substantiation and more information about points made, as well as details that can assist with implementation of the proposed action steps.

In the level of detail, use of language and provision of references, we tried to strike a balance that would be most useful to the various stakeholders working to improve the quality of maternity care. We recognize and respect the broader diversity of languages, cultures, literacy levels and gender identities than are reflected in this document, as well as barriers to access to many references cited. Our aim throughout is to foster a maternity care system that better meets needs of the entire childbearing and newborn population.

TABLE 1.

AT-A-GLANCE: SIX STRATEGIES FOR ADVANCING HIGH-VALUE MATERNITY CARE THROUGH PHYSIOLOGIC CHILDBEARING

1 Improve Maternity Care Through Innovative Care Delivery and Payment Systems and Quality Improvement Initiatives

a. Implement episode payment programs.
Implement, assess, strengthen, scale up and spread maternity care episode payment programs.

b. Implement maternity care homes.
Implement, assess, strengthen, scale up and spread maternity care home programs.

c. Expand high-performing elements of care.
Foster increased access to well-integrated high-performing elements of maternity care that minimize overuse and underuse, and foster physiologic processes.

d. Incorporate quality improvement initiatives.
Implement quality improvement initiatives at national, state, health system, facility and other levels to increase use of practices that foster healthy perinatal physiologic processes. Work as well to use interventions that disturb those processes judiciously.

2 Advance Performance Measurement for High-Value Maternity Care

a. Fill measure gaps.
Develop, test and seek national endorsement for priority standardized performance measures at the clinician or practice, facility and health plan levels. Prioritize availability and use of high-impact measures with potential to foster women's and newborns' experience of healthy perinatal physiologic processes.

b. Measure for quality improvement.
Increase use of performance measurement for maternity care quality improvement within federal, state and private performance measurement programs, with a focus on fostering women's and newborns' experience of healthy perinatal physiologic processes.

c. Measure for accountability.
Increase use of performance measurement for maternity care accountability at clinician or practice, facility and health plan levels, including through public reporting, payment and recognition.

d. Leverage specific measures.
Leverage current and future high-impact maternity care performance measures with greatest potential to foster women's and newborns' experience of healthy perinatal physiologic processes.

3 Meaningfully Engage All Childbearing Women and Families

a. Develop enabling system enhancements.
Transform the maternity care system to reliably support women in actively engaging in their care.

b. Expand communication and education.
Develop and implement social marketing programs to encourage and empower childbearing women to understand, value and seek maternity care from early pregnancy onward that will enhance healthy perinatal physiologic processes.

c. Incorporate birth preferences care planning and shared decision making (SDM).
Create and implement birth preferences care plans, with women and providers engaging in SDM using high-quality decision aids to foster informed decision-making and to build and update their birth care plans during pregnancy. Effectively communicate these preferences to all members of the care team.

4

Transition to Interprofessional Education that Supports Team-based Care for Maternity Care Professionals

a. Educate using an interprofessional model.
At undergraduate, graduate and continuing levels of education of maternity care clinicians, develop, implement, evaluate and publish results, and refine and scale up interprofessional educational curricula and related educational and credentialing elements that ensure shared foundational knowledge and skills for fostering healthy perinatal physiologic processes and the appropriate use of obstetric interventions.

b. Educate on safety and quality.
Develop, implement, evaluate and publish results and refine prevention-focused professional education programs to improve quality and safety by fostering healthy perinatal physiologic processes and reducing the use of interventions and complications as an essential complement to prevailing rescue approaches, and implement these programs widely.

5

Foster an Optimal Maternity Care Workforce Composition and Distribution

a. Better deploy and retain obstetricians.
Encourage obstetricians and other members of the maternity care team to practice at the top of their licenses. Extend the average duration of maternity care practice of general obstetrician-gynecologists. Evaluate and publish results and refine new care models.

b. Expand family physician maternity care participation.
Increase the proportion of family physicians providing comprehensive and advanced maternity care. Evaluate and publish results and refine new care models.

c. Grow the midwifery workforce.
Increase the number of midwives with nationally recognized credentials – certified nurse-midwives (CNMs), certified midwives (CMs) and certified professional midwives (CPMs) – in active maternity care practice. Ensure fair reimbursement, and enable them to practice to the full scope of their training and competence. Evaluate and publish results and refine new care models.

d. Implement effective laborist care models.
Realize the potential of obstetrical and midwifery laborists to address many core challenges in contemporary maternity care and increase women's access to high-value care that promotes, protects and supports healthy physiologic perinatal processes. Evaluate and publish results and refine laborist care models.

e. Expand maternity care in rural and underserved areas.
Reverse the trend of loss of maternity services in rural and underserved areas to improve timely access to safe, high-quality maternity care and avoid unneeded intervention. Evaluate and publish results and refine new care models.

6

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

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

b. 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.

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

d. Address structural factors influencing needed research.
Develop networks and build upon existing infrastructural resources that can evolve or adapt to enable greater access to physiologic childbearing practices.

1 STRATEGY

Improve Maternity Care Through Innovative Delivery and Payment Systems and Quality Improvement Initiatives

The National Quality Strategy prioritizes innovative delivery and payment systems and quality improvement.[35] New maternity care delivery and payment initiatives that pay for better care and results (versus paying for provided services without regard to quality or outcome) are essential to achieving high-value care.[36] Two models provide exceptional potential for innovative, transformative maternity care. Making a single *episode payment* for all services from prenatal through postpartum/newborn care is an especially promising way to align all members of the maternity care team in pursuit of shared priority goals and to accelerate care transformation.[37] Episode payment can incorporate multiple effective strategies, including financial incentives, performance measurement, consumer engagement and health information technology. *Maternity care homes* can infuse prenatal and postpartum care with currently unavailable resources (typically a fixed payment per beneficiary per month) to engage women in their care, meet individual needs across the full episode and reduce disparities.[38] Such payments complement the relatively small proportion of total payments currently flowing to ambulatory maternity services.[39] Both models offer the opportunity to better use high-performing elements of maternity care, whether covered in current fee schedules or offered as enhanced benefits that currently lack reimbursement codes. (Other promising payment reform strategies, such as reference pricing and nonpayment, are lower priorities in the present context because they offer less potential for concurrent care transformation.) As upcoming policies similar to the Medicare Quality Payment Program reach the Medicaid population, high-performing elements of maternity care will help health systems succeed and will be in greater demand. Many approaches to improving quality and safety can also advance high-value maternal and newborn care and foster the success of these new delivery and payment models.[40]

Recommendations here aim to accelerate the use of innovative delivery and payment systems and quality improvement initiatives to encourage care that fosters healthy perinatal physiologic processes in women and their fetuses/newborns, thereby improving outcomes, experiences and wise spending.

1a IMPLEMENT EPISODE PAYMENT PROGRAMS

Implement, assess, strengthen, scale up and spread maternity care episode payment programs.

ACTION STEPS

- Compile, widely disseminate and periodically update results of reports about the organization, financing and performance of commercial and Medicaid maternity care episode payment programs implemented to date. Identify attributes of programs that attain excellent outcomes.
- Commercial plans and Medicaid fee-for-service programs and managed care plans should continue to pilot, evaluate and publish results and refine maternity care episode payment programs.[41]
- Business groups on health should continue to sponsor pilots of maternity care episode payment programs and encourage payers to use payment and care delivery reforms to drive high-value maternity care.[42]
- As appropriate, build into episode programs other payment reforms, such as blended case rate, dedicated care coordination resources, coverage of postpartum long-acting reversible contraception and increased reimbursement for low-volume rural care.[43]
- Encourage the Center for Medicare and Medicaid Innovation (CMMI) within the Centers for Medicare & Medicaid Services to foster the development of maternity care episode payment programs, both agency-designed and from other entities. Models based in standard hospital care and models that feature the benefits of "focused factory" birth center care are both needed.[44] Encourage CMMI to provide incentives for those with Medicaid and other reimbursement to implement these models, evaluate and publish results and refine them.
- Develop maternity care episode payment programs based on the maternity care model in the clinical episode payment white paper of the Health Care Payment Learning and Action Network (LAN);[45] and benefit from the rich offerings in the LAN's Maternity Multi-Stakeholder Action Collaborative resource bank,[46] as well as lessons from pioneering episode payment programs.
- Structure maternity episodes to include the great majority of both women and newborns across an episode from pregnancy through the postpartum/newborn period, rather than limiting the episode to a shorter segment of care or restricting it to only women or newborns or to a low-risk population. Extend to multiple payers in the state or region whenever feasible.
- Use quality improvement initiatives, performance measurement, engagement of women and interprofessional education to educate payers and all members of the episode care team that physiologic childbearing is a core strategy for value-based practice, prevention, safety, improving outcomes and experiences and using resources wisely *(see: 2, Performance Measurement; 3, Engage Childbearing Women)*.
- Foster fairness to providers by using risk adjustment, stop-loss levels and exclusion of selected high and uncertain cost outlier conditions.
- Integrate high-performing elements of maternity care, such as midwifery care, birth centers and doulas, to advance high-value care and excel in episode program performance, where appropriate.
- Incorporate consumer engagement strategies, largely overlooked in maternity episode programs to date, across episodes to advance high-value maternity care. The many possible strategies include fostering informed choice of care provider and birth setting and shared care planning and shared decision-making (SDM) *(see: 3, Engage Childbearing Women)*.
- In all maternity care episode programs, use high-impact performance measures with incremental, safely achievable thresholds that adjust over time as systems learn and improve. Among current national standardized measures, Cesarean Birth (NQF 0471), Exclusive Breast Milk Feeding (NQF 0480) and Vaginal Birth After Cesarean Delivery Rate, Uncomplicated (IQI-22) are especially likely to foster healthy perinatal physiologic processes and appropriate use of interventions on a large scale *(see: 2, Performance Measurement)*.[47]
- Integrate episode programs with woman- and family-centered interoperable health information technology that is available to clinicians and women and families. Use this technology to facilitate shared care planning and implementation, care coordination, sharing of the full health record, access to curated educational and decision support resources, communication and convenience functions, and delivery and collection of woman-reported outcome and experience measures. Prioritize mobile-first design for greatest access *(see: 3, Engage Childbearing Women)*.
- Routinely measure and report the effects of episode payment programs on experience of healthy perinatal physiologic processes, reduced over- and underuse of care practices and other outcomes *(see: 6, Research)*.

IMPLEMENT MATERNITY CARE HOMES

Implement, assess, strengthen, scale up and spread maternity care home programs.

ACTION STEPS

- Compile, widely disseminate and periodically update results of reports about the organization, financing and performance of maternity care home programs implemented to date (e.g., those in North Carolina, Texas and Wisconsin and CMMI's Strong Start program).[48] Identify attributes of programs that reduce disparities and attain excellent outcomes.
- The payers and the purchasers of maternity care homes should continue to support provider entities in establishing, financing, piloting, assessing and strengthening maternity care home programs, and in sharing experiences.
- Encourage CMMI to foster the development of maternity care home models, provide incentives to those receiving Medicaid reimbursement to adopt these models and assess and strengthen them.
- Dedicate resources for care coordination to support women in developing shared care plans (including SDM), navigating their maternity care and achieving care goals as feasible. Reduce disparities by optimizing care *(see: 3, Engage Childbearing Women)*.
- Dedicate resources for care coordination to help women gain access to needed social and community services (e.g., food, housing, mental health, tobacco cessation and other substance misuse). Reduce disparities by complementing clinical services with social and community services.
- Enable clinical practices, community health centers, birth centers and other entities to serve as maternity care homes. Use high-performing elements of maternity care, such as midwifery care, birth centers and doulas, in maternity care home programs and reimburse them sustainably.
- In all maternity care home programs, use high-impact performance measures with safely achievable incremental thresholds that adjust over time as systems learn and improve. Among current national standardized measures, Cesarean Birth (NQF 0471), Exclusive Breast Milk Feeding (NQF 0480) and Vaginal Birth After Cesarean Delivery Rate, Uncomplicated (IQI-22) are especially likely to foster healthy perinatal physiologic processes and appropriate use of interventions on a large scale *(see: 2, Performance Measurement)*.[49]
- Encourage the National Committee for Quality Assurance to work with stakeholders to develop standards and establish a recognition program for Maternity Care Homes within its broader Patient-Centered Specialty Practice program.[50]
- Integrate maternity care homes with woman- and family-centered interoperable health information technology that is available to clinicians and women and families. Use this technology to facilitate shared care planning and implementation, care coordination, sharing of the full health record, access to curated educational and decision support resources, communication and convenience functions, and delivery and collection of woman-reported outcome and experience measures. Prioritize mobile-first design for greatest access *(see: 3, Engage Childbearing Women)*.
- Routinely measure and report the effects of maternity care home programs on experience of healthy physiologic perinatal processes, reduced over- and underuse of care practices and other outcomes *(see: 6, Research)*.

1c EXPAND HIGH-PERFORMING ELEMENTS OF MATERNITY CARE

Foster increased access to well-integrated, high-performing elements of maternity care that minimize overuse and underuse and foster physiologic processes *(see: Workforce)*.[51]

ACTION STEPS

- Develop and widely disseminate issue briefs, infographics and other communication tools to inform administrators, policymakers and others about high-performing elements of maternity care. Include both reimbursed services such as midwifery and birth center care and enhanced benefits that are not reliably reimbursed such as doula support.
- Work with policymakers to resolve a leading barrier to growth in the number of certified nurse-midwives, certified midwives and certified professional midwives – inadequate compensation for preceptors and educators – through return on investment and workforce shortage analyses and allocation of resources parallel to Medicare Graduate Medical Education funds for residency education *(see: 5, Workforce)*.[52]
- To increase women's access to providers and settings that routinely foster healthy perinatal physiologic processes and address workforce shortages and maldistribution, adapt state-level model legislation to extend practice authority to certified professional midwives and certified midwives in all remaining states and ensure that practice acts enable midwives to practice to the full scope of their education and expertise *(see: 5, Workforce)*.[53]
- To increase women's access to settings that routinely foster healthy perinatal physiologic processes, develop and adapt model legislation to extend legal recognition of birth centers to all remaining states. Ensure that statutes foster integration of freestanding birth centers – with effective consultation, referral, transfer and transport – with systems of care, including hospitals. Avoid restrictions that pose needless barriers to access.
- Develop and enact federal legislation to create, pilot, evaluate and publish results and refine birth centers that are integrated into the broader maternity care system to provide access to maternity care in rural areas *(see: 5, Workforce)*.[54]
- Develop and make widely available model contracts to facilitate access to birth centers, midwives and doulas within alternative maternity care payment programs and within Medicaid and commercial health plans. Address growing support for collaboration and care transfer and transport models. Address perceived concerns about vicarious liability.[55]
- Ensure thorough integration of the maternity care system, including interprofessional collaboration and appropriate policies and processes for consultation, shared care, transfer and transport from out-of-hospital to hospital settings *(see: 4, Interprofessional Education)*.[56]
- Ensure that high-performing care elements with proven effectiveness promote health equity by implementing them and providing access in safety net settings and with disadvantaged populations, including among Medicaid fee-for-service and managed care organization beneficiaries.
- Educate all stakeholders about sustainable reimbursement levels for midwives, birth centers, doulas, community health workers and other time-intensive care models. Address sustainable reimbursement in model legislation, contracts, policy and program development. Add model billing codes to the centralized Medicare fee schedule for birth centers and other high-value services that do not currently have codes, and do likewise with Medicaid fee schedules.
- Routinely measure and report the effects of broader implementation of high-performing elements of maternity care on experience of healthy perinatal physiologic processes, over- and underuse of care practices, maternal and newborn outcomes, health equity, resource use and other outcomes *(see: 6, Research)*.

1d INCORPORATE QUALITY IMPROVEMENT INITIATIVES

Implement quality improvement initiatives at national, state, health system, facility and other levels to increase the use of practices that foster healthy perinatal physiologic processes. Use interventions that disturb those processes judiciously.[57]

ACTION STEPS

- Reinforce optimal care practice at all levels of the system, including through clinical professional guidance, all levels of professional education, consumer education and suitable performance measures *(see: 2, Performance Measurement; 3, Engage Childbearing Women; 4, Interprofessional Education)*.
- Develop and implement standardized care pathways for clinicians to foster high-reliability, evidence-based practice at point of care, and periodically update the pathways. Complement current focus on pathologic processes with pathways that support healthy perinatal physiologic processes and protect those processes through appropriate use of perinatal interventions[58] *(see: 4, Interprofessional Education)*.
- Complement perinatal track-and-trigger systems that warn of deteriorating clinical status by developing and implementing upstream evidence-based educate-and-prompt systems that help care team members foster healthy perinatal physiologic processes, reduce the use of interventions and prevent complications. Examples include reminders about ambulation, hydration, intermittent auscultation, non-pharmacologic options for progress and comfort, and other care options to consider before initiating more consequential interventions.[59]
- Complement problem-focused perinatal simulation programs with those that help care team members foster healthy perinatal physiologic processes and prevent downstream problems. The many suitable topics include external version, vaginal twin birth, vaginal breech birth, many labor comfort measures and skin-to-skin contact after vaginal and cesarean birth.[60]
- Expand perinatal safety courses and toolkits to include content on preventing harm by helping women and fetuses/newborns experience healthy perinatal physiologic processes, thereby reducing the use of interventions and complications. Present prevention topics before rescue topics.[61]
- Introduce content into perinatal quality collaboratives on the preventive safety strategy of helping women and fetuses/newborns experience healthy perinatal physiologic processes and on the effects of common interventions on these processes. Engage the National Network of Perinatal Quality Collaboratives in implementing this strategy.[62]
- Expand initiatives to avoid unnecessary cesarean birth and promote intended vaginal birth. When feasible, implement the Alliance for Innovation on Maternal Health bundle on Safe Reduction of Primary Cesarean Births – Supporting Intended Vaginal Births using the companion toolkit.[63]
- Purposefully consider implementation populations, settings and approaches to ensure that access to quality improvement initiatives narrows rather than widens disparities.[64]
- Educate maternity care clinicians about the association between rigorous quality improvement programs and steep declines in liability claims, payouts and premiums.[65] Also educate them about the potential for SDM to protect against liability.[66]
- Routinely measure and publish the results of quality improvement strategies using an upstream preventive model of perinatal harm reduction by increasing access to healthy perinatal physiologic processes and reducing over- and underuse of interventions. Use evaluations to refine improvement strategies *(see: 6, Research)*.

2 STRATEGY

Advance Performance Measurement for High-Value Maternity Care

The National Quality Strategy prioritizes performance measurement for driving value-based health care.[67] Perinatal quality measures are increasingly integrated into public and private segments of the health care system at clinician/group, facility, health plan and other service levels. Performance measurement provides crucial data that help the maternity care team, women, purchasers and payers of maternity care services, administrators, policymakers, public health leaders and advocates make informed decisions. Performance data can support increased access to care that fosters healthy perinatal physiologic processes and improves outcomes. Timely feedback on measured performance, in concert with public reporting, has been effective in self-evaluation and behavior change of service providers, leading to *quality improvement*.[68] Quality measures stratified by demographic variables can help identify maternity care disparities and trigger efforts to promote equity. Performance measures are also used for various types of *accountability*, including recognition, financial reward or penalty and selection (e.g., in networks and by consumers making care arrangements). Challenges include the limited availability of nationally endorsed standardized measures for priority maternity measure concepts, inefficient collection of performance data and inaccessible reporting of such data to various stakeholders. There is limited access to user-friendly consumer interfaces with meaningful, comprehensible comparative performance results. Complements to the Medicaid Child and Adult Core Sets are needed, as collection and reporting of measures in these sets are voluntary and results are reported at the state level, limiting opportunities for quality improvement and accountability at point of care.

Recommendations here aim to accelerate the use of performance measurement to encourage care that fosters healthy perinatal physiologic processes in women and their fetuses/newborns, thereby improving outcomes, experiences and wise spending.

2a

FILL MEASURE GAPS

Develop, test and seek national endorsement for priority standardized performance measures at the clinician or practice, facility and health plan levels. Prioritize availability and use of high-impact measures with the potential to foster women's and newborns' experience of healthy perinatal physiologic processes.

ACTION STEPS

- Encourage Congress to enact the Quality Care for Moms and Babies Act (QCMBA), with provisions for filling measure gaps, including support for adapting generic Consumer Assessment of Healthcare Providers and Systems (CAHPS) facility, clinician and health plan surveys for the specific circumstances of childbearing women and newborns.
- In developing the domains and items for CAHPS maternity surveys, include perceived access to choice of care that supports healthy physiologic processes (e.g., access to informed choice of both non-pharmacologic and pharmacologic help with labor pain).
- Encourage the Centers for Medicare & Medicaid Services (CMS) and Agency for Healthcare Research and Quality to support new measure development to enable a more robust, balanced set of standardized maternity care measures that recognizes that most childbearing women and newborns will benefit from care practices that protect and support health and minimize overuse and underuse. Encourage CMS to designate this as a priority area to rectify the shortage of Medicaid condition measures in its Measures Inventory, given population-level and two-patient impact.[69]
- Applying experience from the United Kingdom's Normal Birth measure,[70] measure developers should specify, test, refine and submit for National Quality Forum (NQF) endorsement and relevant entities should implement a composite facility measure of Physiologic Childbirth, based on the consensus reVITALize Obstetric Data Definitions project endorsed by leading clinical professional societies.[71]
- Measure developers should specify, test, refine and submit for NQF endorsement, and relevant entities should implement measures at appropriate levels to track impactful practices that foster healthy perinatal physiologic processes in women and fetuses/newborns. Possible practices include vaginal birth after cesarean, hospital admission in active labor, access to drug-free measures for labor comfort and progress and early skin-to-skin contact after birth.
- Measure developers should specify, test, refine, submit for NQF endorsement, and relevant entities should implement measures for shared decision-making (SDM), care coordination, woman-reported experience and outcomes of maternity care.
- Test, refine and submit to NQF for endorsement maternity nursing measures from the Association of Women's Health, Obstetric and Neonatal Nurses, which are specified and in the measure pipeline. Possible measures include freedom of movement in labor, labor support, spontaneous pushing, breastfeeding and early skin-to-skin contact.
- To the extent possible, develop and implement facility-level measures for both hospitals and birth centers to enable comparison and foster improvement and accountability across all facilities and clinician measures for all nationally recognized credentials to similarly foster improvement and accountability.
- For efficient automated electronic collection of "paper" measures for supporting healthy perinatal physiologic processes, specify, test and seek endorsement for e-measure formats.
- Create digital systems that efficiently and accurately collect and report e-measures and collect woman-reported measures of experience and outcomes of maternity care. Collaborate with electronic medical record vendors to develop standardized ways to document physiologic processes of care.

2b

MEASURE FOR QUALITY IMPROVEMENT

Increase use of performance measurement for maternity care quality improvement within federal, state and private performance measurement programs, with a focus on fostering women's and newborns' experience of healthy perinatal physiologic processes.

ACTION STEPS

- Encourage Congress to enact the QCMBA with provisions for establishing and maintaining a Medicaid and Children's Health Insurance Program core set of Maternal and Infant Health quality measures and for supporting the establishment and expansion of maternity care quality collaboratives.
- The Medicaid Maternal and Infant Health core set should include existing measures such as Cesarean Birth (NQF 0471) and Exclusive Breast Milk Feeding (NQF 0480) and any new high-impact measures that foster healthy perinatal physiologic processes. Encourage states to voluntarily collect and report these, and to pursue improvement.[72]
- Before enacting QCMBA and establishing the Medicaid Maternal and Infant Health core set, encourage the Measure Applications Partnership (MAP) Medicaid Child and Adult Workgroups and CMS to add to the Medicaid Core Sets any existing (e.g., Exclusive Breast Milk Feeding) or new measures that promote access to healthy perinatal physiologic processes.
- As new measures that foster healthy perinatal physiologic processes in childbearing women and newborns gain endorsement, encourage The Joint Commission to add those likely to have greatest impact to its Perinatal Care core set.
- Extend programs similar to California's Maternal Data Center and Ohio's birth registry to other states to enable rapid-cycle performance measurement and feedback for quality improvement, including through quality collaboratives.

MEASURE FOR ACCOUNTABILITY

Increase use of performance measurement for maternity care accountability at clinician or practice, facility and health plan levels, including through public reporting, payment and recognition.

ACTION STEPS

- Encourage CMS to determine and pursue the optimal way to include maternity-related measures for the Medicaid population in its measure programs for clinician and facility reporting and payment, including the upcoming Quality Rating System for Medicaid managed care organizations. Encourage CMS to put high-impact measures for childbearing women and newborns covered by Medicaid on the Measures Under Consideration list for the MAP *(see: 1, Delivery and Payment)*.[73]
- Where available, public agencies, employers, health plans, childbirth educators, advocacy organizations and others should publicize to women and the general public reporting systems that offer comparative quality information for maternity care decision-making (e.g., using social media, employer and health plan intranets, public service announcements and text messages). These stakeholders should aim to make using comparative data a standard aspect of the maternity experience *(see: 3, Engage Childbearing Women)*.
- Provide care navigators to help women find and interpret comparative quality information relevant to their maternity care decision-making. Evaluate and publish results of such services, including return on investment, and refine programs. Health plans, Medicaid programs and employers are possible providers of this service *(see: 3, Engage Childbearing Women)*.[74]
- All performance reporting interfaces should meet best health literacy standards, incorporate lessons from public reporting research and help users readily visualize both high- and under-performing entities.[75]
- Until women and others have access to more comprehensive tools for comparative quality results (such as calhospitalcompare.org provides for hospital-level maternity performance in California), employers, health plans, advocates and others should publicize available maternity data sources (e.g., cesareanrates.com, Consumer Reports, Improving Healthcare for the Common Good/whynotthebest.org, The Leapfrog Group, vbacfinder.com and various state-level portals).
- Encourage the private sector quality community (e.g., Consumer Reports, Improving Healthcare for the Common Good/whynotthebest.org, The Leapfrog Group) and public agencies to recognize hospitals with better performance on Cesarean Birth (NQF 0471), Exclusive Breast Milk Feeding (NQF 0480) and/or newly developed measures through reporting, rating and/or awards/distinction programs.[76]
- Stratify high-impact quality of maternity care measures to enable measurement of racial/ethnic, linguistic and other health care disparities within accountability programs and to improve health equity.[77]

LEVERAGE SPECIFIC MEASURES

Leverage current and future high-impact maternity care performance measures with the greatest potential to foster women's and newborns' experience of healthy perinatal physiologic processes.

ACTION STEPS

- Participate in the Healthy People 2030 development process to consider lowering the 2020 Cesarean Birth (NQF 0471) indicator target and adding Exclusive Breast Milk Feeding (NQF 0480) as an indicator with a target to the Maternal, Infant, and Child Health topic area, taking into consideration contraindications, inability to breastfeed and informed choice of alternate feeding. This would build on the positive effect of the Healthy People 2020 Cesarean Birth benchmark and provide updated benchmarks for quality improvement initiatives.[78]
- Within or as a complement to Hospital Compare, encourage relevant agencies to provide public access for women, purchasers and others to rates of facility-level Cesarean Section (NQF 0471), the balancing measure Unexpected Complications in Term Newborns (NQF 0716), Exclusive Breast Milk Feeding (NQF 0480) and other high-value maternity care measures through user-friendly websites displaying comparative quality information.[79]
- Respond to the increased focus on cesarean reduction and facility performance on Cesarean Section (NQF 0471) by helping women and clinicians build skills, knowledge and confidence that foster physiologic labor processes leading to vaginal birth. Promote tools for fostering intended vaginal birth, including the Alliance for Innovation on Women's Health bundle and the California Maternal Quality Care Collaborative Toolkit.[80]
- Respond to increased focus on facility performance on Exclusive Breast Milk Feeding (NQF 0480) by helping women and clinicians build the skills, knowledge and confidence that contribute to breastfeeding success. Promote use of the United States Breastfeeding Committee's toolkit for implementing this measure.[81]
- Encourage The Joint Commission to publicly report Cesarean Birth (NQF 0471) facility rates, as it does for rates of Exclusive Breast Milk Feeding (NQF 0480).[82]
- Encourage CMS to expand relevant federal quality measure programs for Medicaid beneficiaries and to include Cesarean Birth (NQF 0471), the balancing measure Unexpected Complications in Term Newborns (NQF 0716) and Exclusive Breast Milk Feeding (NQF 0480).[83]
- Adapt Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated (IQI 22) for broad uptake (for example, limiting to hospitals with 24/7 surgical coverage), and implement this measure in suitable contexts.
- Measure developers should foster broad concerted action by adapting and submitting for endorsement Cesarean Birth and Exclusive Breast Milk Feeding measures for clinician and health plan levels, as well as the currently specified facility level.
- Develop, implement and evaluate the use of woman-reported outcome measures, for example, clinician- and group-level Gains in Patient Activation (PAM) Scores (NQF 2483) of change from early to late pregnancy to encourage health systems to help build pregnant women's skills, knowledge and confidence for managing their care before giving birth, becoming a new parent and assuming increased responsibility for health and health care. (Intended for all clinical settings, PAM has just begun to be used with childbearing women.)[84]

3 STRATEGY

Meaningfully Engage All Childbearing Women and Families

The National Quality Strategy prioritizes consumer and family engagement as a way to advance value-based care.[85] Most childbearing women are essentially healthy and highly motivated to achieve optimal outcomes. They have nine months to prepare for giving birth and becoming a parent, and have ongoing responsibility for managing health care across generations. Consumer engagement can foster high-value maternity care for individual women and families and, if widespread, at the system level. Consumer and family engagement can be integrated into all aspects of maternity care, including planning, implementing and evaluating policies, programs and services. Access to publicly reported comparative performance data can help women choose wisely among available options for birth facility and – as data are available – maternity care provider and group. At the point of care, key elements of consumer engagement include shared care planning – with goal setting, shared decision-making (SDM) and access by all members of the care team (including women and families) to the evolving care plan throughout the full episode of care. Meaningful SDM requires access to evidence-based care options, quality information about them and support for informed choice. High-quality decision aids support exemplary SDM processes and complement time-constrained prenatal visits. Enhanced services such as care coordination, high-quality childbirth education and doula support foster engagement of women and families and can improve health equity. Care navigators similarly have the potential to foster consumer engagement, for example by finding and interpreting comparative quality information and working through decision aids. Women's feedback through woman-reported outcome and experience of care measures can improve care.

Overall, childbearing women are well connected digitally (though socioeconomic and geographic disparities persist).[86] Ready access to electronic health records, patient portals and other health information technology can facilitate shared care planning and decision-making by delivering and collecting woman-generated measures of care outcomes and experiences, convenience features and other consumer engagement functions. Digital resources can connect women with key people, information and support across the full episode, from pregnancy through the postpartum period and beyond. In remote settings, well-designed health information technology can help women and their clinicians coordinate care, gain access to curated high-value educational resources and receive quality care.

Recommendations here aim to accelerate the engagement of women to encourage care that fosters healthy perinatal physiologic processes, thereby improving outcomes, experiences and wise spending.

3a DEVELOP ENABLING SYSTEM ENHANCEMENTS

Transform the maternity care system to reliably support women in actively engaging in their care.

ACTION STEPS

- Increase women's access to and reimbursement for care that most readily facilitates healthy perinatal physiologic processes, for example, midwives, out-of-hospital birth settings and doulas *(see: 1, Delivery and Payment; 5, Workforce)*.
- Make care navigators available to help pregnant women identify and interpret user-friendly online tools with comparative performance measurement results about possible birth facilities and, when available, possible maternity care providers and groups. Evaluate the care navigators' impact – including on quality, outcomes and return on investment; publish results and refine programs *(see: 1, Delivery and Payment; 2, Performance Measurement)*.[87]
- To individualize care and reduce disparities, make care navigators available to help women with shared care planning, SDM, education and connection to needed health care and community services. Evaluate the care navigators' impact – including on quality, outcomes and return on investment; publish results and refine programs *(see: 1, Delivery and Payment)*.[88]
- Develop, test, refine and submit for National Quality Forum (NQF) endorsement measures that support physiologic processes, and protect these processes by curbing unneeded interventions around the time of birth *(see: 2, Performance Measurement)*.
- Develop, test, refine and submit for NQF endorsement woman-generated performance measures of outcomes of care and experience of care, including measures of engagement in care, SDM and care coordination *(see: 2, Performance Measurement)*.
- In relevant performance measurement programs, pilot and evaluate woman-reported measures of outcomes of care, for example, Gains in Patient Activation (PAM) Scores (NQF 2483), collected from pregnant women during the first and third trimesters with change scores to measure growth in skills, knowledge and confidence in managing health care. Use at clinician, clinician group and clinician team levels *(see: 2, Performance Measurement)*.[89]
- Encourage the Centers for Medicare and Medicaid Services to determine and pursue the optimal way to provide maternity-related performance data, including from Medicaid beneficiaries, within or as a complement to Hospital Compare and Physician Compare. Provide a meaningful, evidence-based, user-friendly interface to help women make an informed choice of place of birth and maternity care provider. Until a centralized national system is available, expand, improve and publicize other sources of this information, including state-level websites and online ratings tools *(see: 2, Performance Measurement)*.[90]
- Use woman- and family-centered health information technology to foster physiologic processes and care by creating and providing access to shared care plans, delivering individualized decision aids and educational resources matched to gestational age, providing women and other members of care team with access to women's and newborns' health records, enabling bidirectional communication with providers and delivering and collecting woman-reported outcome and experience of care measures. Evaluate use of these technologies, publish results and refine these systems.[91]
- To support labor progress and vaginal birth while delaying admission until active labor,[92] establish and evaluate the impact of labor lounges with guidance, tools and environments to help women and their support companions with comfort, confidence, relaxation and teamwork in early labor.[93]
- Through regulations and/or policies of insurance companies, require plan provider directories to identify all obstetric, family medicine and midwifery panel members who currently provide maternity care, and create processes for keeping directories up to date, recognizing that many obstetrician-gynecologists and family physicians do not provide maternity care and midwives often lack visibility in directories.

3b EXPAND COMMUNICATION AND EDUCATION

Develop and implement social marketing programs to encourage and empower childbearing women to understand, value and seek maternity care from early pregnancy onward that will enhance healthy perinatal physiologic processes.

ACTION STEPS

- Continue to carry out national *Listening to Mothers* surveys to understand and track over time the experiences and perspectives of childbearing women at the national level and for key subgroups that are not available from other data sources, including views about quality and women's role in their maternity care.[94]
- Conduct preliminary background formative research, then design, test, refine and publish results about effective messaging about priority topics. These include the importance of becoming engaged in maternity care and making informed choices, experiencing physiologic processes around the time of birth, avoiding interventions when possible, understanding practice variation, using high-value forms of care (e.g., midwives, birth centers, doulas, lactation support) and knowing the rights of childbearing women *(see: 6, Research)*.
- Adapt key messages derived from messaging research for different levels of women's activation that support targeted communication according to current skills, knowledge and confidence to foster growth in women's ability to manage their maternity care *(see: 2, Performance Measurement)*.[95]
- To effectively reach a large portion of childbearing women, create and promulgate an evidence-based toolkit for all stakeholders that fosters health literacy through educational resources and tools for childbearing women. This toolkit should include lessons learned from social marketing (above) research and point to other basic resources, including those in this Engage Childbearing Women section, as available. The toolkit should be adapted and translated into other languages and formats whenever possible.[96]
- Develop, make freely available and publicize a high production value online video for childbearing women about healthy physiologic birth.
- Develop, make freely available and publicize a healthy physiologic birth module for childbirth educators, doulas and clinicians.
- Increase access to evidence-based childbirth education that begins early in pregnancy and prepares women to communicate effectively with care providers. This childbirth education should help women understand the value of and tips for experiencing healthy perinatal physiologic processes; the evidence and indications for common perinatal interventions; and evidence-based options for decisions they are likely to face before, during and after childbirth. Evaluate the effects of such education.
- Help implement Alliance for Innovation on Maternal Health (AIM) and other quality improvement programs supporting vaginal birth and safe reduction of cesarean birth by developing and incorporating companion tools and resources to help women understand and experience healthy labor practices that foster physiologic birth *(see: 1, Delivery and Payment)*.[97]

3c INCORPORATE BIRTH PREFERENCES CARE PLANNING AND SHARED DECISION-MAKING

Create and implement birth preferences care plans, with women and providers engaging in SDM using high-quality decision aids to foster informed decision-making and to build and update birth care plans during pregnancy. Effectively communicate these preferences to all members of the care team.

ACTION STEPS

- Foster routine creation and use of evidence-based maternity care plans, including for labor and birth, incorporating SDM; integrate plans into electronic systems linking women, prenatal care providers and the birth care site and team. Evaluate and publish results and refine these tools and resources.[98]
- To foster SDM, develop a national certification process for decision aids, establish care navigator roles, develop reimbursement codes for counseling and for use of fee-based tools, and train clinicians and care navigators in SDM.[99]
- Develop, certify and integrate into maternity care practice high-quality decision aids and other resources to educate women on priority topics. These include the importance of choice of maternity care provider and birth setting to enhance their likelihood of experiencing healthy physiologic processes and avoid unneeded interventions, including changing care arrangements when indicated and possible. When possible, reach women before or in early pregnancy, for example through fertility and menstrual tracker apps, health plan websites, employer intranets, primary care providers, early childbirth education classes/tools and educational websites.
- Develop, certify and integrate into maternity care practice decision aids to help women understand other crucial care decisions, for example options for monitoring fetal status during labor, continuous labor support, measures for labor comfort and progress, care practices around the time of birth and infant feeding. Integrate into patient portals and engage care navigators in a decision coach role as needed.[100]
- Until SDM is routinely incorporated into maternity care practice, develop and make freely available (e.g., via websites, childbirth educators and doulas) evidence-based direct-to-women decision aids. Encourage women to speak with maternity care providers about maternity care practices, including about policies at the intended place of birth and how to document their preferred care in the health record.[101]
- As incentives for and the move toward value-based care and the use of value-based payments grow in maternity care, seek opportunities to incorporate SDM (supported by the use of high-quality decision aids, as available) into innovative delivery and payment systems and into cesarean reduction and other quality improvement programs *(see: 1, Delivery and Payment)*.[102]
- Evaluate the impact of shared care planning, including SDM, and the various ways to implement these on outcomes of care, the degree of concordance between women's preferences and the care they receive, resource use and women's and maternity care providers' experiences. Publish results and work to continuously improve these, tools, processes and programs *(see: 6, Research)*.

4 STRATEGY

Transition to Interprofessional Education That Supports Team-Based Care for Maternity Care Professionals

The National Quality Strategy prioritizes preparing health care professionals and supporting career-long learning.[103] Developing, evaluating, refining and scaling up interprofessional, team-based care education models with shared teaching and learning is a promising approach to improving maternity care quality, outcomes, experiences and value. This approach already has broad support. Interprofessional education can prepare maternity care professionals to work effectively as a team to promote, support and protect physiologic childbearing. Maternity care professionals would benefit from a standardized interprofessional education model that includes a shared, foundational, full and up-to-date understanding of healthy maternal-newborn physiologic processes, how to foster these from pregnancy through the early postpartum period and the effects of common maternity care interventions on those processes. This knowledge should be integral to the undergraduate, graduate and continuing education of obstetricians, family physicians, midwives and nurses. Shared interprofessional teaching and learning fosters effective collaboration by helping members of the various disciplines understand and respect their complementary strengths and roles and prepare to work within high-functioning clinical teams to provide comprehensive, coordinated, high-value maternity care. A high-functioning, team-based care model encourages all team members to perform to the full extent and at the top of their education, certification, licensure and experience. Professional respect for expertise and scope of practice of all team members contributes to quality care, professional satisfaction and efficient use of resources. Continuous professional development of all team members can enable them to grow in skills and knowledge and engage in shared decision-making (SDM) and practice according to best current evidence.[104]

Recommendations here support interprofessional education of maternity care providers to appropriately support healthy physiologic processes, thereby improving outcomes, experiences and wise spending.

For recommendations on discipline-specific ways to build and strengthen the maternity care workforce, please see the following related section 5. Foster an Optimal Maternity Care Workforce Composition and Distribution.

4a EDUCATE USING AN INTERPROFESSIONAL MODEL

At undergraduate, graduate and continuing levels of education of maternity care clinicians, develop, implement, evaluate and publish results, refine and scale up interprofessional educational curricula and related educational and credentialing elements that ensure shared foundational knowledge and skills for fostering healthy perinatal physiologic processes and the appropriate use of obstetric interventions.

ACTION STEPS

- The American Academy of Family Physicians, American College of Nurse-Midwives, American College of Obstetricians and Gynecologists and Association of Women's Health, Obstetric and Neonatal Nurses should collaborate to develop common interprofessional curricula that satisfy or appropriately extend the programmatic, accreditation and scope of practice requirements of each discipline. They should sequence content about healthy perinatal physiologic processes before content about complications and the use of interventions.[105]
- Both new and established medical, midwifery and nursing schools should pilot, evaluate and publish results and refine their curricula.[106] They should make evaluated curricula available to other schools, including through educational resources of the Association of American Medical Colleges and massive open online courses.
- Ensure that all levels of education provide opportunities for obstetricians, family physicians, midwives and nurses to observe, participate in and debrief about physiologic labor and birth and the initial postpartum period. These educational opportunities might involve midwifery services, birth centers, laborists who have honed the relevant skills and knowledge, the use of telehealth and – if other options are unavailable – the use of videos.
- Expand basic education of nurses to include the knowledge and skills needed to care for healthy, low-risk birthing women and newborns, as opposed to beginning to gain these through on-the-job training. Include this content in licensure exams for registered nurses. Before this transition, foster these competencies in high-quality, standardized on-the-job training programs.
- Ensure that all levels of education provide opportunities for the various types of maternity care clinicians to observe, participate in and debrief about team-based care that models appropriate division of labor and expertise, excellent communication, appropriate consultation and referral and mutual respect.[107]
- Support all members of maternity care teams in gaining the skills and confidence to overcome barriers to effective team-based care.[108]
- Ensure that all levels of education provide opportunities for doctors, midwives and nurses to interact with other members of the maternity care team, including doulas, childbirth educators, lactation personnel, social workers and mental health counselors to further foster understanding about respective roles, responsibilities, skills and expertise and high-functioning teams.
- Systematically incorporate knowledge and skills for fostering physiologic childbearing processes and knowledge of the impact of common maternity interventions on those processes into all aspects of education and credentialing, including core competencies, certification exams and maintenance of certification.
- To strengthen interprofessional education and team-based maternity care practice, use health information technology to enhance communication, coordination, collaboration and other aspects of high-value practice.
- In educational programs at all levels, emphasize that providing respectful care of childbearing women and fetuses/newborns includes respecting their innate capacities, supporting them as agents in their health and helping them experience and benefit from their bodies' healthy perinatal physiologic processes.

EDUCATE ON SAFETY AND QUALITY

Develop, implement, evaluate and publish results and refine prevention-focused professional education programs to improve quality and safety by fostering healthy perinatal physiologic processes and reducing the use of interventions and complications as an essential complement to prevailing rescue approaches.

ACTION STEPS

- Ensure that the education of obstetricians, family physicians, midwives and nurses provides skills to design, implement and evaluate quality improvement programs *(see: 1, Delivery and Payment)*.
- Ensure that quality and safety improvement initiatives encompass both fostering healthy physiologic perinatal processes and providing timely and appropriate interventions.[109]
- Develop, implement and evaluate structured training and simulation programs to ensure that all maternity providers have the fundamental skills and knowledge to facilitate safe vaginal birth, including external version, vaginal twin birth, vaginal breech birth, vaginal birth after cesarean, labor support, manual rotation of the occiput posterior fetus and use of vacuum and forceps *(see: 1, Delivery and Payment)*.[110]
- Develop and implement structured education programs to provide maternity clinicians with other foundational skills and knowledge for physiologic childbearing. These include intermittent auscultation, drug-free measures for labor progress and labor comfort, delayed cord clamping, early skin-to-skin contact of mother and baby (after vaginal and cesarean birth) and longitudinal breastfeeding support from pregnancy through the postpartum period *(see: 1, Delivery and Payment)*.[111]
- To increase accountability, incorporate the above skills and knowledge into Maintenance of Certification (obstetrics, family medicine), Midwifery Certificate Maintenance or Recertification and Continued Nursing Education programs.
- Expand the various perinatal safety courses to include essential skills and knowledge for fostering healthy perinatal physiologic processes, minimizing interventions, reducing complications and reducing the need for rescue. Present preventive approaches before rescue approaches *(see: 1, Delivery and Payment)*.[112]
- Incorporate into all levels of education the principles of the Sicily Statement on Evidence-Based Practice to help maternity care professionals understand them, acquire skills and provide evidence-based care. Inculcate a critical attitude to one's own practice and a lifelong habit of interpreting and applying best evidence to practice.[113]
- Incorporate into all levels of education skills and knowledge for effective SDM.[114]
- Encourage quality improvement uptake by informing maternity care clinicians about the association between rigorous maternity care improvement programs and steep declines in liability claims, payouts and premiums, as well as the potential for SDM to limit liability.[115]

5 STRATEGY

Foster an Optimal Maternity Care Workforce Composition and Distribution

The National Quality Strategy prioritizes workforce development.[116] Workforce improvement strategies must consider current trends in the supply of the three main types of maternity care providers – obstetricians, family physicians and midwives. Women and the health system face shortages of general obstetrician-gynecologists (OB-GYNs) due to[117]

- Aging workforce and current wave of retirements;
- Growing OB-GYN sub-specialization, with a declining proportion of general OB-GYNs attending births;
- Growing value of work-life balance among health professionals, leading to fewer overall average hours available per week and a preference for weekday, daytime, non-holiday hours;
- Low average age of stopping obstetrics portion of practice – in 2009, for women, the average age was 44 years and for men it was 52 years (and a professional satisfaction level that is among the lowest in medicine[118]);
- Migration of workforce to more urban, lower poverty areas (with 49 percent of U.S. counties in 2010 having no practicing OB-GYN); and
- Growing population of women of reproductive age outpacing the increase in OB-GYN residency positions.

Other non-obstetric maternity care providers offer essential and complementary care models and geographic distribution, but are fewer in number. Family physicians provide maternity care within a holistic, life-long model that aims to care for the entire family. Full-scope family physician maternity care inclusive of attending births has been steadily declining and is disproportionately available in rural, northwestern and intermountain areas of the country.[119] Most midwives are skilled in supporting physiologic childbearing. Certified nurse-midwives (CNMs) are licensed in all states and are steadily increasing in number.[120] Certified midwives (CMs) pass the same national certification exam as CNMs and are recognized in six states. The number of certified professional midwives, who exclusively practice in birth center and home birth

Recommendations here aim to accelerate optimal maternity care workforce composition and distribution to encourage care that fosters healthy perinatal physiologic processes in women and their fetuses/newborns, thereby improving outcomes, experiences and wise spending.

5

STRATEGY

Foster an Optimal Maternity Care Workforce Composition and Distribution

settings, is growing; more than 30 states now provide a path to licensure for this newest national maternity credential. The number of hospital-based laborists (physician or midwife) is growing.[121] We did not find concerns about the size of the maternity nursing workforce, in part because maternity-specific training of nursing graduates generally occurs on the job. However, all maternity care clinicians are geographically maldistributed. Due largely to hospital maternity closures in rural areas, availability of maternity care in rural counties has reached crisis proportions, with 40 percent of counties having no OB-GYN or CNM in 2011.[122]

Most childbearing women are healthy, at low to moderate risk for complications and well-served by maternity care providers with education, skills, experience and practice in promoting, supporting and protecting healthy physiologic processes. Opportunities to advance high-value maternal newborn care include using collaborative practice and team-based care to make best use of available personnel; extending the duration of OB-GYN obstetrics practice; increasing the number of family physicians with maternity practice; and scaling up midwifery providers, who are well-positioned to provide high-value care and can be educated more quickly and at lower cost than physicians. The midwifery model consistently limits over- and underuse and can contribute to success as pressure grows in maternity care to deliver on cost and quality. While laborist performance has been uneven, this care model has the potential to hone and retain essential skills (e.g., vaginal breech and twin birth), address work-life balance (for the laborist and others), improve the traditionally lower professional satisfaction of obstetricians and offer skillful, high-quality care to birthing women. Finally, we must reverse the trend of diminishing access to maternity services in rural areas, which is unsafe for women and babies and incents otherwise unneeded care such as scheduled birth.

5a BETTER DEPLOY AND RETAIN OBSTETRICIANS

Encourage obstetricians and other members of the maternity care team to practice at the top of their licenses. Extend average duration of maternity care practice of general OB-GYNs. Evaluate and publish results and refine new care models.

ACTION STEPS

- Advocate for federal funding to increase the number of obstetric residency slots in selected states where shortages exist or where significant population growth is anticipated.[123]
- Implement and evaluate sustainable collaborative practice models with team members practicing at the top of their license to optimally use the expertise of all team members, and prioritize obstetrician provision of care that others do not provide. Amend restrictive practice acts and restrictive institutional credentialing to maximize benefit of available family physicians and midwives.[124]
- To increase duration of obstetrics practice, develop workplace policies and programs to address obstetricians' need for work-life balance and other factors related to career satisfaction, such as offering flexible work schedules, part-time work and reduced practice management responsibility while avoiding the use of interventions to increase weekday labor and birth. Evaluate and publish results of the impact of these changes.[125]
- Publicize among OB-GYNs the relationship between robust quality improvement programs and steep declines in liability claims, payouts and premiums.[126]
- Evaluate and publish results of the impact of laborist programs on the professional satisfaction and duration of maternity care practice among both laborists and non-laborist obstetricians in the community.[127]
- Evaluate and publish results of the impact of participation in episode payment, maternity care home and quality improvement programs on the professional satisfaction of obstetricians and on the duration of their maternity care practice.[128]
- Develop programs to foster re-entry of eligible obstetricians who have stopped providing maternity care, such as dedicated fellowship programs.[129]

5b EXPAND FAMILY PHYSICIAN MATERNITY CARE PARTICIPATION

Increase the proportion of family physicians providing comprehensive and advanced maternity care. Evaluate and publish results and refine new care models.[130]

ACTION STEPS

- Implement national three-tier family medicine maternity care training and competency assessment standards. First, ensure that all residents have *basic* training for providing ambulatory maternal and newborn care and pre- and interconception care. Second, expand the number of and spaces in residency programs offering *comprehensive* (adding vaginal birth to scope of practice) and *advanced* (adding cesarean birth) maternity care training.[131] Include content on healthy perinatal physiologic processes, ways to foster them and impact of common labor intervention on them in all tiers.
- Increase the number of family medicine residency programs with attributes associated with post-graduation maternity care practice, for example, physician continuity from prenatal through postpartum care, participation in greater than a threshold number of births during residency and support for autonomous practice during residency training.[132]
- Expand the number of family medicine fellowships offering maternity care and rural care training, including content on healthy perinatal physiologic processes and how to foster them. Formalize fellowships through accreditation and certificates of added qualification.[133] Support residency graduates who intend to provide this care, as this group experiences a notable drop-off in actual maternity care practice, and support re-entry of eligible family physicians who have stopped providing maternity care.[134]
- Expand the family medicine Advanced Life Support in Obstetrics safety course and instructor training to include upstream prevention of complications and reduced use of invasive interventions by promoting, supporting and protecting healthy perinatal physiologic processes. Create and offer one-day add-on courses for those who have taken the current course.[135]
- Expand in-person American Academy of Family Physician (AAFP) Family-Centered Maternity Care course and Family-Centered Maternity Self-Study Package. Include content on healthy perinatal physiologic processes; ways to promote, support and protect these processes; and effects of common interventions on them.[136]

GROW THE MIDWIFERY WORKFORCE

Increase the number of midwives with nationally recognized credentials – CNMs, CMs and CPMs – in active maternity care practice. Ensure fair reimbursement and enable them to practice to the full scope of their training and competence. Evaluate and publish results and refine new care models.[137]

ACTION STEPS

- Transform the Graduate Nurse Education (GNE) demonstration into a GNE program or create another mechanism to routinely reimburse CNMs and other advanced practice nurse preceptors for basic, graduate and advanced practice nurse-midwifery education.[138]
- Identify other ways to increase funding for basic and graduate nursing, nurse-midwifery and certified professional midwifery education, prioritizing support for clinical preceptors.[139] Demonstrate the favorable return on investment to policymakers.[140]
- To better meet current demand, increase CNM and CM educational programs and program spaces for bachelor's prepared candidates without nurse training.[141]
- Extend legal recognition of CPMs and CMs to remaining states, and amend restrictive midwifery practice laws for all nationally recognized credentials (CM, CNM, CPM). Incorporate principles for model legislation that enable practice to the full scope of education and competence and align with Global Standards of the International Confederation of Midwives.[142]
- Ensure that by 2020 all new applicants for CPM licensure have successfully completed a midwifery educational program or pathway accredited by the Midwifery Education Accreditation Council and obtained the CPM credential. Ensure that those who previously obtained certification through a non-accredited pathway also meet guidance in the U.S. Midwifery Education, Regulation and Association Statement on the Licensure of Certified Professional Midwives.[143]
- Enact federal legislation encouraging state Medicaid programs to reimburse CPMs and CMs for services that their states authorize them to provide.[144]
- Encourage all Medicaid programs to reimburse midwives with nationally recognized credentials (CM, CNM, CPM) that are legally recognized to practice in the jurisdiction at 100 percent of the rate of physicians for the same service, following the precedent of nurse-midwifery reimbursement in the Medicare fee schedule.
- Diversify the growing midwifery workforce to more closely resemble the population of childbearing families from the perspective of race/ethnicity, language, geography and socioeconomic background. Approaches include pipeline/recruitment programs, distance education options, mentoring and peer support and inclusive professional organization practices.[145]

IMPLEMENT EFFECTIVE LABORIST CARE MODELS

Realize the potential of obstetrical and midwifery laborists to address many core challenges in contemporary maternity care and increase women's access to high-value care that promotes, protects and supports healthy physiologic perinatal processes. Evaluate and publish results and refine laborist models.

ACTION STEPS

- Compile and widely disseminate results of reports about the organization, financing and performance of laborist models and programs implemented to date. Identify attributes of high-value programs, including those that minimize over- and underuse, retain and build skills for safe vaginal birth (including twin, breech and assisted vaginal birth) and attain excellent outcomes.[146]
- Pilot and evaluate laborist models to continue to identify attributes of high-value programs, and develop new models that build on lessons learned.[147]
- Evaluate the impact of laborist models on professional satisfaction and retention/duration of practice of laborists and non-laborist obstetricians working within team-based care.[148]
- Evaluate the impact of laborist models on women's experience of and satisfaction with care.
- Pilot and evaluate the most effective ways to engage obstetricians, family physicians and midwives in laborist roles and in partnership with laborists.[149]
- Evaluate the role of laborists in family medicine residency programs, including support for basic, comprehensive and advanced maternity care training and contribution to maternity care practice within family medicine.[150]
- Evaluate the impact of laborists and different laborist models on malpractice liability.[151]
- Encourage the Core Competencies Task Force of the Society of OB-GYN Hospitalists to ensure that Core Competencies include knowledge of healthy perinatal physiologic processes, ways to support them (including when complications arise) and effects of common labor interventions on physiologic processes.[152] Encourage the Society to develop mechanisms for members to acquire and demonstrate these skills, knowledge and behaviors.
- Encourage the Society to develop continuing education courses, simulation courses, quality collaboratives and other programs to ensure that laborists have essential skills and knowledge for fostering physiologic childbearing whenever safely possible (e.g., for external version, vaginal twins, vaginal breech, assisted vaginal birth, manual rotation of occiput posterior fetuses) to complement the focus on acute and potentially emergent conditions.
- Identify effective ways to integrate laborists into team-based care to ensure effective communication, care coordination, laborist-nurse collaboration and women's safety and satisfaction across the phases of care.[153]
- As specialists in intrapartum care, laborists should develop and update as needed standardized evidence-based care pathways for safe perinatal practice that minimize over- and underuse and improve outcomes.[154]
- With development of a high degree of expertise in the appropriate care of low-risk laboring women and those at other levels of acuity (e.g., continued and consistent success with safe cesarean reduction), laborists should support residency and other education of maternal health clinicians in providing intrapartum care.

5e EXPAND MATERNITY CARE IN RURAL AND UNDERSERVED AREAS

Reverse the trend of loss of maternity services in rural and underserved areas to improve timely access to safe, high-quality maternity care and avoid unneeded intervention. Evaluate and publish results and refine new care models.

ACTION STEPS

- Encourage Congress to enact the Improving Access to Maternity Care Act to enable placement of qualified National Health Service Corps clinicians in designated maternity care shortage areas, with the incentive of loan forgiveness.
- To retain local maternity services, health systems and other entities should increase the availability of tools and resources for immediate consultation and access to higher levels of care in remote, low-volume maternity units. These include video conferencing and other telehealth access to specialty expertise, electronic databases, clinical pathways, protocol cards and life flight. Evaluate their use and refine practice accordingly.[155]
- Building on interprofessional education, implement and evaluate innovative team-based care. Use flexible combinations of midwives, family physicians, general surgeons and obstetricians in hospitals, micro-hospitals and out-of-hospital settings. Provide adequate payment to sustain rural maternity services and give women timely access to safe, high-quality maternity care *(see: 4, Interprofessional Education)*.[156]
- Increase the number of general surgery residencies providing competence in selected obstetrical procedures for practice in rural areas. These procedures include cesarean birth and repair of third and fourth degree perineal tears.[157]
- Increase the number of family medicine fellowships with enhanced obstetric tracks that provide comprehensive and advanced maternity care competence, including performing cesarean births.
- Increase the number of family physicians with cesarean birth competence through greater access to preceptorships with family physicians, obstetricians or general surgeons with cesarean birth privileges.
- Increase the number of CNMs and CMs, including those with ultrasound, surgical first assist and vacuum-assisted birth competence, to work with obstetricians, family physicians and general surgeons in rural areas.[158]
- Ensure that family physicians and general surgeons who perform cesarean births have systems for timely consultation with obstetricians, general surgeons and family physicians, as appropriate.
- Increase the number of registered nurses with rural maternity nursing expertise.[159]
- To help address the unmet needs of childbearing women and families in rural and underserved areas, implement and evaluate maternity care homes to foster access to needed social and community services, develop and implement shared care plans and foster timely access to safe, quality maternal-newborn care *(see: 1, Delivery and Payment)*.
- To address the priority of a more diverse maternity care workforce and clinicians who will practice in their rural and underserved communities of origin, expand distance learning opportunities at all appropriate levels of education of obstetricians, family physicians, midwives and nurses, and expand training opportunities including clinical rotations and residencies in rural communities.[160]

6

STRATEGY

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

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.[161] Further, there is little understanding of the longer-term effects of both healthy perinatal physiologic processes and many intrapartum interventions in women or newborns.[162] 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).[163] 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.

6a 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.[164]
- 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.[165]
- When practical and ethical, replicate perinatal hormonal physiology animal studies that have potentially actionable results in humans.[166]
- 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.[167]
- Disseminate new knowledge about perinatal physiology to clinical, policy, advocacy and public audiences who have both concentrated and diffuse interests in these topics.

6b 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.[168] 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.[169]
- 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.[170] 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.[171]
- Educate perinatal trialists about the unintended effect of the privileging of randomized controlled trial study design: extremely limited knowledge about possible benefits and harms of intrapartum interventions after hospital discharge. Encourage post-discharge follow-up.[172]
- 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.[173]
- Integrate research on implementing high-value care with emerging de-implementation science for discontinuing low-value care.[174] 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.

6d 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.[175]
- 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.[176]
- 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).*

Conclusion

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. Leading professional organizations increasingly provide guidance for promoting, supporting and protecting these processes.

A focus on the benefits of healthy perinatal physiologic processes aligns with the health system shift to providing higher-value care, addressing the unintended consequences of fee-for-service payments and improving health outcomes and experiences with wiser spending.

Increased use of this approach has the potential to preventively address troubling trends in maternal and newborn outcomes and persistent disparities in care and outcomes by mobilizing innate capacities for healthy childbearing processes and limiting use of consequential interventions that can be safely avoided. This approach is a way to provide more appropriate care to the majority of healthier, lower-risk women and newborns that often receives more specialized care, though such care may not be needed and may cause unintended harm.

The growing emphasis on the reliable provision of high-value maternity care creates unprecedented opportunities to ensure that most women and their fetuses/newborns have a healthy, uncomplicated labor, birth and transition in the days and weeks after birth. The present environment also offers opportunities to improve the care, experience and outcomes of women with health challenges by fostering healthy perinatal physiologic processes whenever safely possible.

It is important to build on the growing consensus and meaningful professional leadership that have occurred in recent years. Systemic, transformational change is essential for achieving a maternity care system in the United States that restores respect for the biological capacities and contributions of women and their fetuses/newborns and maximizes benefits of these capacities. This Blueprint was developed to move expeditiously toward this more balanced, coherent, preventive and complete maternity care system by offering specific improvement strategies, recommendations and action steps that are directly tied to the current health policy and practice environment.

Maternity care stakeholders – including policymakers, clinicians, administrators, health plans, employers, researchers, birth workers, advocates and women and families themselves – are deeply interested in improving quality and safety. We encourage all stakeholders to identify and implement the priority recommendations and action steps that they can advance – on their own and in collaboration with others.

With this clear set of priorities, we can collectively transform care, improve outcomes and experiences, reduce disparities and rein in outlier costs. We face an exciting opportunity to achieve a full, high-performing maternity care system for all women, newborns and families.

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