



WHITE PAPER

avoiding the million dollar baby

How to reduce preterm deliveries through high-touch digital care

Nearly 10% of babies in the United States are born premature (before reaching 37 weeks gestation).¹ Preterm delivery is associated with a number of adverse health outcomes and complications for the delivering woman, and for the baby. Outcomes can include breathing problems, vision and hearing issues, and delays in physical and cognitive development.^{2,3}


Additionally, the resources required to care for a premature baby are significant. According to the March of Dimes, a premature baby spends an average of 16.9 days in a specialty care nursery (either a neonatal intermediate care unit or neonatal intensive care unit) at an **average cost of \$95,299**.⁴

Three of the most well-known risk factors for preterm delivery are: 1) a history of preterm delivery, 2) a short or insufficient cervix, and 3) multiple gestation (carrying twins or higher-order multiples).

It's been shown that high-touch prenatal care throughout a high-risk pregnancy can help reduce the risk of delivering preterm. Additionally, a medication called progesterone is demonstrably effective in reducing the risk of delivering prematurely among women with a history of preterm delivery or a short cervix. However, according to research conducted with women at risk for preterm delivery, less than half of eligible women are prescribed progesterone to help mitigate their risk.⁵

Using behavior change principles to address preterm delivery

Empowering someone to change their behavior in order to achieve a desirable health outcome is not always straightforward, especially if the behavior feels daunting and the outcome seems distant. However, behavior change theories have been successful in driving optimal outcomes and decreasing healthcare spend when used in interventions targeting pregnant women.⁶ Ovia Health delivers carefully curated programs that consider personal health conditions and preferences in order to educate, coach, and empower participants.



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Evidence-based theories of behavior change, namely, the Health Belief Model (HBM), Social Cognitive Theory (SCT), and Transtheoretical Model (TTM) serve as the foundation of Ovia Health's Behavior Change Framework. Using this integrated framework, Ovia Health empowers participants to make decisions and engage in behaviors that lead to optimal health outcomes and decrease employer healthcare spend.

Using this framework to inform the development and delivery of Ovia Health's clinical programs ensures the improvement of health outcomes and a reduction in associated healthcare spend. Specifically, these theories are applied to address the issue of preterm delivery. Ovia Health identifies participants who might be at risk, educates them about the consequences of their personal risks, empowers them to engage in preventative treatment, connects them with resources and therapeutics shown to mitigate this risk, and contributes to an overall reduction in Ovia Health participants' preterm birth rate.

Ovia Health's preterm delivery program

Ovia Health's preterm delivery program uses a combination of early risk identification, program enrollment and monitoring, participant education, proactive health expert outreach, critical alerts, and medication adherence reminders. Upon signup with Ovia Health, participants are prompted to complete the Health Assessment: a multi-item survey similar to an assessment taken during the first prenatal visit with an OB/GYN.

Using the information collected through the Health Assessment (personal and familial health history information, personal risk factors, symptoms, demographics, etc.), Ovia Health will auto-enroll a participant into a series of clinical programs applicable to her and her unique pregnancy.

The clinical programs that address preterm delivery are crafted thoughtfully to reflect risk factors and indications for various types of preterm risk (e.g., risk due to short cervix vs. risk due to history of preterm) as these indications warrant different interventions.

Each clinical program comprises articles, tidbits, prompts and critical alerts, and support from the Ovia Health Coaches. All of Ovia Health's content is aligned with clinical best practices and guidelines from the American College of Obstetrics and Gynecology (ACOG) and is reviewed by a medical team of OB/GYNs, Certified Nurse Midwives, Nurse Practitioners, Registered Nurses, and Licensed Clinical Social Workers.

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Tidbits

Tidbits in the preterm delivery program are brief, digestible pieces of content distributed throughout a participant's timeline to emphasize important pieces of information found elsewhere in the program.

Prompts

Prompts are questions delivered to the top of participants' timelines to encourage engagement with the program and serve as notices or reminders about information they have logged in the app. For example, if Ovia Health knows that a participant has been prescribed progesterone, she will be delivered a prompt either daily or weekly — depending on whether she is taking gel progesterone or the injectable version, respectively — to aid with medication adherence.

Prompt delivery can also be triggered and delivered immediately after a participant logs a particular data point on her calendar. These data points can include information about her nutrition, exercise, symptoms, sleep, weight gain, and even her mood.

Of particular note are symptoms related to preterm delivery risk such as vaginal bleeding, low back pain, or consistent headaches in the third trimester. If any of these symptoms or patterns of symptoms are shared with Ovia Health, the participant receives a critical alert — a red message at the top of her timeline — alerting her to the severity of her symptoms, encouraging her to take immediate action, and offer a click to call feature that will connect her directly with her provider. This kind of real-time feedback at the point of data entry helps with participant engagement and Ovia Health's ability to intervene at a moment's notice.

Coaching

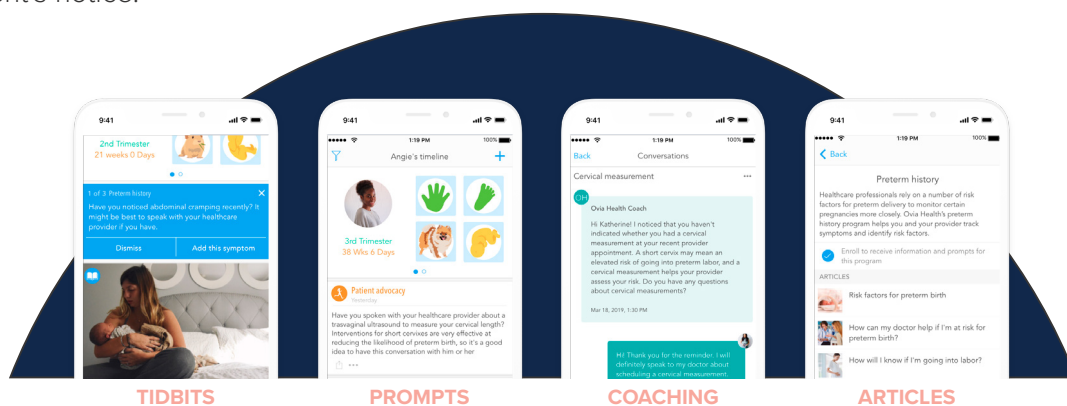
The Ovia Health care team includes OB/GYNs, Certified Nurse Midwives, Nurse Practitioners, Registered Nurses, and Licensed Clinical Social Workers. Experts are available on demand to advise, educate, clarify, and above all, support participants throughout their pregnancy.

Pre-written, automated messages are sent to participants when they log a concerning data point (similar to the way prompts and critical alerts are delivered) or when information has not yet been shared by the participant. For instance, if a participant has already passed the point in pregnancy when a cervical length measurement would typically be performed, she will begin to receive messages about the screening.

From there, a member of our care team will intervene and offer guidance, help and coaching. The same is true now for benefits navigation. Our care advocates can help those looking to understand their leave policy, people looking to learn more about adoption, surrogacy or egg freezing, and those looking to find the best, safest provider or hospital around them for their birth team.

Articles

Articles are shared with a participant in a library format within each program she is enrolled in, and they are also delivered to her timeline during the appropriate week of pregnancy. Articles are not only designed to educate participants about conditions, risks, and treatment, but also to empower them, to normalize traditionally stigmatized or taboo topics, and to activate behavior change.



Research: How Ovia Health knows what works

Ovia Health has a team of researchers devoted to improving the impact of its programs and leveraging the insights of millions of participants to better understand and improve the participant experience. Ovia Health uses state-of-the-art evaluation methodologies to ensure the efficacy of its solutions and continuously improve them. The research performed by this team has led directly to improved interventions such as: easy access health screenings and medication, programs to enhance self-advocacy skills to improve conversations with healthcare providers, and support for medication adherence.

Ovia Health's research about preterm delivery interventions and program evaluation has been published by and presented with the Society for Maternal and Fetal Medicine (SMFM) and the American College of Obstetrics and Gynecology (ACOG), two of the most prominent authorities in the women's health medical landscape. Ovia Health's research team collaborates with top research institutions, including the Harvard School of Public Health, Harvard Medical School, and Massachusetts General Hospital, to name a few.

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Impact: Cost avoidance and outcomes improvement

National cost and clinical outcomes

The meaning of a NICU stay

In addition to causing immense distress for parents, each NICU stay presents astronomical costs.

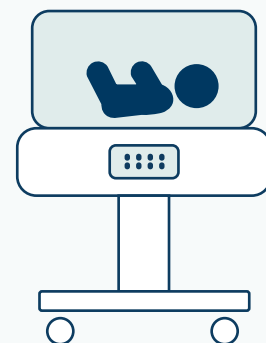
1 in 10

babies in the U.S. are born premature⁷ (<37 weeks gestation)



16.9 days

are spent in the NICU by each newborn⁸



\$95,299

average cost of each stay⁹

For babies born <32 weeks gestation, these psychological and financial costs increase further.

46.2 days

are spent in the NICU¹⁰

50%

cost increase vs. 33-37 weeks gestation¹⁰



\$260,533

average cost of each stay¹⁰

Ovia Health's impact on outcomes & spend

Ovia Health's cost and clinical impact methodology is based on numerous data sources. Comparing the preterm birth rate among various subsets of women (e.g., clients' participants, women without access to our preterm programming) shows significant reductions in the preterm birth rate among women engaged with our preterm interventions. This reduction ranges anywhere from a 10% reduction up to 54%, depending on the samples compared. Anecdotally, one Ovia Health client saw their preterm birth rate drop to less than half that of the national average.

To put this impact into context, for a hypothetical partner with 50,000 participants, we would expect to help avoid nine preterm deliveries and \$762,392 in healthcare spend associated with prematurity. Here's what that looks like:

- **For a partner with 50,000 participants**, we would expect 1,150 annual births, based on an average 3% birth rate seen among Ovia Health's partners
- **Using a very conservative engagement estimate of 25%**, we would expect 228 of these births to engage with the Ovia Health solutions
- Based upon the national preterm birth rate of **10.2%**, we would expect **118 of the 1150 annual births to deliver preterm** without Ovia's intervention.
- Using Ovia's book of business preterm birth reduction rate of 28%, **we would expect to help our partner avoid eight preterm deliveries**

Based on very conservative metrics from Ovia Health's book of business, **we estimate each preterm delivery to cost our partners roughly \$95,000** including the cost of an average 16.9 day NICU stay and incremental labor and delivery cost. These numbers are further corroborated by the March Of Dimes' most recent studies⁴.

Member participation in the Ovia Health preterm program would amount to a cost savings of about \$762,392 for a partner with 50,000 participants. Additionally, our triad of solutions helps reduce healthcare spend related to infertility, preeclampsia, cesarean sections, postpartum depression, and other common reproductive health conditions and procedures. Ovia's solution could help more than 162 parents and save an estimated \$2,084,032 on avoided healthcare spend.

Reducing preterm births requires both early identification of risk and early intervention to impact outcomes. Employers and health plans alike can leverage Ovia Health's machine learning-powered solution to identify risk early and intervene through daily customized guidance delivered via personalized articles, in-app coaching, predictive prompts, and timely tidbits. Because of our high engagement, Ovia Health's solutions are able to drive behavior change and significantly reduce preterm births.

Over 17 million women and families have used Ovia Health as a daily companion for their reproductive health, pregnancy, and parenting journeys.

To learn more about how Ovia Health can help your organization save lives and save healthcare costs, visit oviahealth.com.

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