



Future of Health

Case Study: Ochsner's Connected MOM (Maternity Online Monitoring) Program



Research collaboration led by

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*Inclusion in this case study does not imply any endorsement of an organization's or company's products or services by the AMA.

Case study introduction

Ochsner Health, a 46-hospital academic, nonprofit health system serving people across Louisiana, Mississippi, Alabama and the Gulf South, launched a digital medicine obstetric (OB) program, Connected Maternity Online Monitoring (MOM), to improve maternal health outcomes in Louisiana and Mississippi while reducing in-person visits with a patient's OB provider. According to the Centers for Disease Control and Prevention (CDC), Louisiana has a maternal mortality rate of 39 per 100,000 live births, making it a state with one of the highest maternal mortality [rates](#) in the country. Since 2016, Connected MOM has provided expectant mothers with digitally enabled care between office visits under the guidance of an OB care team at Ochsner. This case study highlights how a traditional brick-and-mortar health system has incorporated digital tools to effectively support their patients' pregnancy journeys.

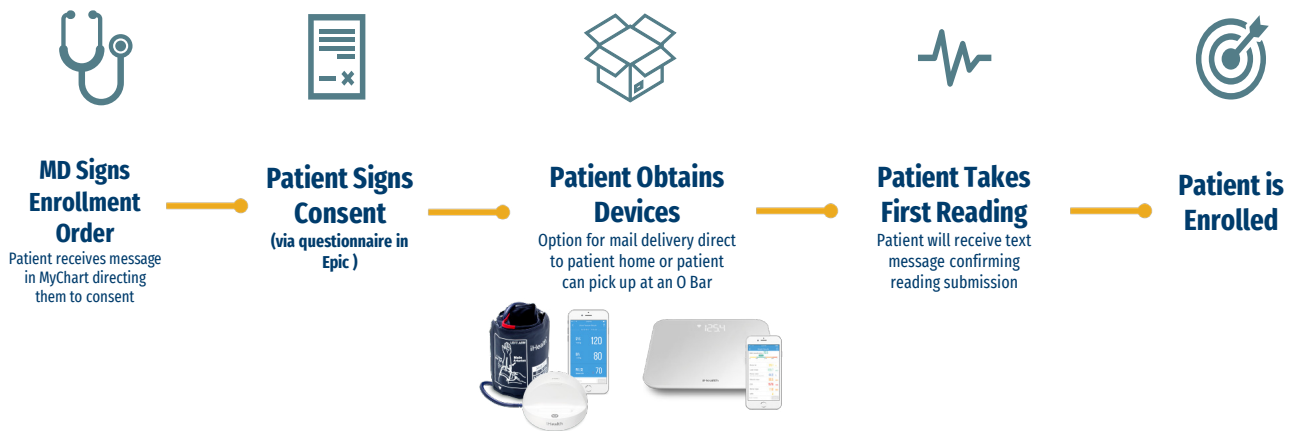
Patients are invited by their prenatal care physician to enroll in Connected MOM based on eligibility criteria, including (1) being 18 years or older with an active pregnancy episode in Ochsner's electronic medical record system (EMR), Epic; (2) speaking English as a primary language; (3) weighing less than 400 pounds; and (4) having a fetus with a gestational age between 10 and 20 weeks. In 2022, Ochsner enrolled approximately 205 pregnant persons per month, with nearly 1,600 patients enrolled at any given time. Through the program, patients are provided a digital scale and blood pressure (BP) cuff to enable them to submit weight and BP readings remotely. Patients are instructed to pair their personal smartphone with the digital scale and BP cuff to seamlessly sync data to their personal smartphone applications, [iHealth MyVitals](#) and [MyOchsner](#). This enables OB physicians and patients to track key health readings and receive alerts when a reading is outside normal thresholds. Once alerted, OB physicians work with patients on a care plan.

This program provides an innovative approach utilizing digital tools to support pregnant patients, complemented by Ochsner's OB care team, available across ~20 clinic sites spanning seven regions in Louisiana and Mississippi. In 2022, over [2,250 patients](#) were enrolled in the Connected MOM program, which was a 32% increase from the previous year.

The Ochsner Connected MOM program model

The following figures illustrate the Connected MOM care model. **Figure 1** highlights a patient’s journey to enroll in Connected MOM. **Figure 2** describes how patients participate in Connected MOM. **Figure 3** shows the Connected MOM weekly planner and checklist provided to patients to aid in the tracking of reading submissions and appointments. **Figure 4** shows an example alert notification received by the OB physician (or the designated care team’s certified nurse-midwife or nurse practitioner) when a patient’s reading is outside Ochsner standards.

FIGURE 1: Overview of Connected MOM patient enrollment



Technical support is available to guide members through the process step-by-step.

FIGURE 2: Overview of patient participation in Connected MOM

How to Participate

You are the key player in making your time in the Connected MOM program a success. Here are three simple ways for you to benefit most from our program:




 <p>Weigh yourself each morning</p> <p>Over the course of your pregnancy, it's expected that your weight will change. To ensure you are on the right track and maintaining a healthy weight for you and your baby, your obstetrician needs up-to-date information. When you step on the scale each morning and send in your weight, you are helping your care team monitor your progress and keep you healthy.</p>	 <p>Take your blood pressure three times each week</p> <p>Blood pressure is a good indicator of prenatal health. By taking your blood pressure at home and sending the readings to us three times a week, your care team will be able to closely monitor any changes and alert you of abnormal readings or necessary steps without requiring you to make an additional appointment.</p>	 <p>Check your MyOchsner account regularly and enable notifications</p> <p>MyOchsner is our online patient portal and how your physician and nurses will communicate with you. During and after your pregnancy, you will continue to receive helpful information for your care through MyOchsner.</p>
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FIGURE 3: Connected MOM weekly planner and checklist

Connected MOM Weekly Planner + Checklist

The Connected MOM weekly planner helps you stay on track of your reading submissions and appointments.

Please note that this is intended to serve as a guide and does not replace any advice your physician or their team provides.

First Trimester
 Second Trimester
 Third Trimester and Postpartum

	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19
Send in your weekly weight readings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Send in your weekly blood pressure readings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attend your regularly scheduled obstetrician visit.	<input type="checkbox"/>			<input type="checkbox"/>				
Check your MyOchsner account for information about your upcoming labor and delivery, helpful tips about packing your hospital bag, delivery day directions and available Ochsner pediatricians in your area.							<input type="checkbox"/>	
Check your MyOchsner account. Your Postpartum Questionnaire is available.								<input type="checkbox"/>

	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40	Week 41	Week 42	Week 43	Week 44	Week 45	Week 46
Send in your weekly weight readings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Send in your weekly blood pressure readings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attend your regularly scheduled obstetrician visit.				<input type="checkbox"/>				<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>								
Check your MyOchsner account for information about your upcoming labor and delivery, helpful tips about packing your hospital bag, delivery day directions and available Ochsner pediatricians in your area.									<input type="checkbox"/>																		
Check your MyOchsner account. Your Postpartum Questionnaire is available.																										<input type="checkbox"/>	

FIGURE 4: Connected MOM OB care team dashboard

In Basket | New Msg | New Patient Msg | Refresh | Edit Pools | Preferences | Search | Manage QuickActions | Attach | Out | Properties

My Messages

Results (1)

Hospital Chart Completion (29)

Canceled Ord (1)

My Incomplete Notes (2)

My Open Charts (9)

My Open Encounters (18)

Overdue Results (17)

Cosign - Clinic Orders (7)

My Unsigned Orders

Patient Entered Data

Patient Entered Data 0 unread, 1 total

Done | Chart | Pt Flowsheet | Reconcile Outside info | Msg to Pt | Telephone Enc | Reconcile

Status	Msg Date	Patient	Subject
Read	01/26/2021 11:56 AM	Banks, Tiffany	Abnormal results from patient entered flowsheet

Message | Patient Info | Meds/Problems | Vitals/Labs | My Last Note | Help

Patient-Entered Data

Tiffany has submitted abnormal Connected M.O.M. - Prenatal Digital Medicine Program data.

Time data was submitted: 1/26/2021 11:56 AM

Time Taken	Systolic Blood Pressure	Diastolic Blood Pressure	Weight (lb)	Pulse (bpm)
12/27/2020 10:00 AM	106	73	158	83
1/2/2021 9:30 AM	111	76	162 !	71
1/7/2021 5:00 AM	122	84	163	85

[View all of Tiffany's readings.](#)

[Manage these messages](#)

Tiffany Banks
 Female, 30 y.o., 1/26/1991
 Phone: 504-957-6345 (W)
 PCP: Susan A. Duhon-Johnston, FNP
 Language: English
 Need Interp: No
 Allergies Last Reviewed: 01/26/21
 Allergies: Adhesive
 Digital Medicine: None

The Future of Health blueprint for optimizing digitally enabled care

How is Ochsner leveraging the blueprint’s foundational pillars to achieve digitally enabled care?

The American Medical Association’s “[Closing the Digital Health Disconnect: A Blueprint for Optimizing Digitally Enabled Care](#)” report provides a blueprint to address the digital health disconnect and achieve optimized digitally enabled care. **Table 1** highlights how Ochsner’s digitally enabled Connected MOM program supports high-quality, hybrid in-person and virtual OB care and leverages the Future of Health foundational pillars.

TABLE 1: The Future of Health foundational pillars

THE FUTURE OF HEALTH FOUNDATIONAL PILLARS	OCHSNER CONNECTED MOM PROGRAM
<p>Build for patients, physicians and clinicians</p>	<p>Connected MOM enables a hybrid in-person and remote model for OB care. Patients and their care teams are connected through Connected MOM tools – a digitally enabled scale and BP cuff. Patients utilize smartphone applications, including MyOchsner, which is a personalized and secure online portal for patients to access medical records and receive information about their health. The care team remotely monitors the patient’s vital signs, specifically weight and BP, and are alerted when readings are outside the normal range. With this hybrid OB care model, patients can opt out of attending up to three in-person visits, if appropriate. This allows the practice to prioritize in-person visit availability for new patients or existing patients with higher-risk conditions.</p> <p>When a patient’s reading is outside the expected range, the patient and the OB care team are notified. Data collected from digital tools is seamlessly transmitted to Epic through the patient’s smartphone applications. This data is visible to the patient in MyOchsner and to the OB care team in Epic. For example, alert notifications will be sent to the OB care team’s messaging pool if the patient’s measurements are outside the preset thresholds established for the program.</p> <p>To promote program adherence, Connected MOM digitally sends patient reminders to take BP readings and includes a “Connected MOM Weekly Planner + Checklist” for tracking. The patient’s OB care team has access to the consolidated and individual program participant reporting. The program has been thoughtfully designed to support both patient and clinician needs.</p>

**THE FUTURE
OF HEALTH
FOUNDATIONAL
PILLARS**

OCHSNER CONNECTED MOM PROGRAM

Design with an equity lens

Connected MOM is a tool to address one of the leading causes of pregnancy-related death in Louisiana, hypertensive disorders of pregnancy, and to leverage remote monitoring in order to make care more accessible. Connected MOM allows for earlier detection of a change in health status through remote monitoring. This enables the care team to intervene as early as possible to potentially reduce maternal morbidity. Connected MOM data indicates that patients with a hypertensive disorder of pregnancy who are enrolled in Connected MOM more BP readings in the postpartum period than those undergoing traditional care.

In addition, the hybrid model addresses other barriers to care, including transportation and required time to visit the doctor (e.g., time off work, childcare). However, reduced access to broadband among rural and low-income areas in Louisiana is a potential barrier for patients to participate in the program.

The importance and promise of the Connected MOM program to support high-risk pregnancies through remote monitoring, especially in under-resourced communities, has influenced the 2021 federal bipartisan bill Connected Maternal Online Monitoring (MOM) Act. Under this bill, Medicaid would provide state programs with physiologic devices and related services to help improve health outcomes for pregnant and postpartum patients.

Recenter care around the patient-physician relationship

Connected MOM enables patients and physicians to optimize their time together in person while leveraging remote monitoring informed by data collected via the following tools:

- **Smartphone applications.** Patients are instructed to download iHealth MyVitals and connect it to their existing MyOchsner account to enable automatic submission and tracking of key health readings all in one place.
- **Wireless BP cuff.** The BP cuff is connected to the smartphone apps for patients to submit up-to-date BP readings three times per week for the OB physician and care team to monitor.
- **Wireless scale.** The scale is connected to the smartphone app for patients to send real-time weights directly to their medical record at Ochsner for the OB care team to view.

In addition, patients are able to contact their care team through their MyOchsner account to ask questions or may elect to stop participating in program.

**THE FUTURE
OF HEALTH
FOUNDATIONAL
PILLARS**

OCHSNER CONNECTED MOM PROGRAM

Improve and adopt payment models that incentivize high-value care

Ochsner offers Connected MOM remote monitoring and associated digital tools at no cost to the patient. Ochsner bills payers for standard pregnancy care using standard OB CPT codes, but there are no direct charges for Connected MOM. Ochsner also leverages Federal Communications Commission (FCC) grant funding to cover the initial cost of the digital device.

Recently, Ochsner, along with Tulane University and the community nonprofit organization RH Impact, was awarded a seven-year, \$16.5 million grant from the National Institutes of Health to establish the Southern Center for Maternal Health Equity to address maternal mortality, health equity, systemic bias and access to care in Louisiana, especially in areas of maternity care deserts. One component of the grant will focus on expanding Connected MOM to communities in rural North Louisiana and improve enrollment rates among Black mothers.

Create technologies and policies that reduce fragmentation

Connected MOM enhances care continuity through the sharing of patient information via the MyOchsner and iHealth MyVitals smartphone applications. This reduces fragmentation of data as patients do not need to manually track information and then bring it to their visit or transcribe it in a message to their OB physician. Rather, Connected MOM allows for a centralized location for both the care team and the patient to access information, track progress, identify trends, etc.

Scale evidence-based models quickly

Ochsner plans to expand the Connected MOM program service offerings and access to this care model throughout its health system. By leveraging the foundation of the current program, Connected MOM 2.0 will enrich the experience through the following:

- Enhance clinical robustness of the remote monitoring services provided for targeted conditions;
- Develop a structured “fourth trimester” module with other relevant digital product opportunities for patient and baby;
- Right-size the digital tools most critical for monitoring, specifically sunsetting the wireless scale for standard monitoring and incorporating a digital glucometer and targeted support for enrollees with type 2 or gestational diabetes; and
- Improve clinician and patient experience through enhanced reporting, user experience, educational content and other resources.

Measuring the value of digitally enabled care

How is Ochsner leveraging the Return on Health framework to assess impact?

AMA’s “Return on Health: Moving Beyond Dollars and Cents in Realizing the Value of Virtual Care” report offers a framework to illustrate the various ways in which virtual care programs may increase the overall “return on health” by generating a positive impact for patients, clinicians, payers and society going forward. **Table 2** includes the five environmental variables that can affect the value generated by any virtual care program and highlights the Connected MOM model. **Table 3** includes the six value streams that define the ways in which virtual care models can generate value and provides examples of how the Connected MOM model drives value in a measurable way.

TABLE 2: Return on Health—Environmental variables

ENVIRONMENTAL VARIABLES	
Type of practice	Health system.
Payment arrangement	Connected MOM’s remote monitoring and associated digital tools are offered at no additional cost to patients. Ochsner bills payers for standard pregnancy care using standard OB CPT codes, but there are no direct charges for Connected MOM.
SDOH of patient population	Pregnant mothers in Louisiana and Mississippi who meet the Ochsner program criteria.
Clinical use case	Remote monitoring of mothers to manage their pregnancy between in-person OB visits.
Virtual case modality	Remote monitoring by the patient’s care team using a wireless digital device, connected to smartphone applications.

TABLE 3: Evidence of program impact across the Return on Health value streams

VALUE STREAM	EVIDENCE OF PROGRAM IMPACT
<p>Clinical outcomes, quality and safety</p>	<p>Lower odds of delivering preterm. Ochsner research shows that Connected MOM participants overall had 20% lower odds of delivering preterm. Additionally, Connected MOM is able to identify a new subset of patients with “masked hypertension”—those who have hypertension at home but a normal BP in the clinic, but are nonetheless at an increased risk for adverse outcomes. Therefore, Connected MOM, by providing early intervention and closer monitoring of patients with “masked hypertension,” has the potential to improve both maternal and neonatal outcomes.</p> <p>Higher likelihood of postpartum BP check. Ochsner research shows that among women with a hypertensive disorder of pregnancy, those enrolled in Connected MOM were twice as likely to complete a postpartum BP check compared with women in traditional care. Patients’ BP normally <u>peaks</u> three to six days postpartum, and monitoring can identify preeclampsia for medical intervention. Ochsner outcomes are supported by other <u>research</u> that highlights the benefits of remote monitoring during pregnancy.</p> <p>Higher percentage of pediatric follow-up. Ochsner research shows that the percentage of new moms who have a pediatric follow-up for their baby following birth nearly doubles among persons in the Connected MOM program when compared with those not enrolled.</p>
<p>Access to care</p>	<p>Enrollment at Ochsner locations. Eligible patients are able to enroll in the Connected MOM program at ~20 clinic sites located across seven regions in Louisiana and Mississippi. The majority of Connected MOM patients are enrolled with in-person care at Ochsner Baptist (47%), Louisiana Women’s Healthcare (17%) and Ochsner Medical Center – Baton Rouge (14%).</p> <p>In 2022, Ochsner’s team of over 120 OB care clinicians (OB-GYNs and certified nurse-midwives) delivered more than 10,860 babies. Approximately 20% of Ochsner’s pregnant patients enroll in Connected MOM, which offers them high-quality and accessible OB care.</p>

VALUE STREAM	EVIDENCE OF PROGRAM IMPACT
<p>Patient, family and caregiver experience</p>	<p>Patient reenrollment. Ochsner data indicates that 10.7% of patients in Connected MOM are re-enrollees, highlighting a high level of satisfaction with the program.</p> <p>Technology support. Ochsner offers both telephonic and in-person support for Connected MOM. The Connected MOM patient support team is a dedicated technical support line for participants in Ochsner’s digital programs. Patients can call at their convenience for assistance setting up their device or for ongoing troubleshooting. Additionally, Ochsner offers its “O Bar” services across most Ochsner regions, which are “genius bar”-type locations where patients enrolling in digital care programs can seek in-person technology support. Connected MOM enrollees can pick up their devices at an O Bar or have them shipped directly to their home. This flexibility and in-person technology help support access and the patient experience, enabling patients with all levels of digital literacy to participate. Ochsner also provides video tutorials to guide patients through the use of the remote tools (BP cuff and scale) and smartphone applications utilized in the program.</p> <p>Connected MOM weekly planner and checklist. Patients are provided with a weekly planner and a program checklist to track and guide them through Connected MOM activities and regularly scheduled OB visits during the program. These activities include sending weekly weight and BP readings, and checking their myOchsner account for information related to labor, delivery and postpartum care.</p> <p>Patient satisfaction. Connected MOM patients often feel more connected to their care team and informed about their health care. A former Connected MOM patient shared her experience and provided insight on how this program helped her:</p> <p><i>“Joining the Connected MOM program gave me a lot of comfort and made the pregnancy a lot less stressful, which was amazing.... I will use Connected MOM again.... It’s so worth it.”</i></p>
<p>Clinician experience</p>	<p>Ease of use. The seamless integration of patient data into Ochsner’s EMR through Connected MOM enables clinicians to easily access and utilize the most up-to-date patient data to inform care and prioritize patients based on their care needs. This enables clinicians to effectively manage time and increase their capacity for supporting new patients. Ochsner shared that recent data shows that for every 1,000 patients enrolled in Connected MOM, the capacity of an OB physician’s clinic increases by ~0.6 full-time equivalent.</p>
<p>Financial and operational impact</p>	<p>As previously mentioned, Connected MOM is offered at no additional cost to patients. Ochsner is beginning to measure the financial and operational impact of the Connected MOM program.</p>
<p>Health equity</p>	<p>Diverse demographic of patients. Connected MOM supports the recruitment of a diverse demographic of Ochsner patients, with over 60% enrolling being between the ages of 26 and 35 from various racial backgrounds, including 62% White, 29% Black and 5% Asian. Approximately 30% of enrollees are from in-state Medicaid programs.</p>

Source: Data and materials provided by Ochsner Health

