

Digital Medicine Hypertension Program

Ochsner Health

Primary Contact Information: Lyndsey Indest

- IS Epic Director, Population and Digital Health Programs
- lyndsey.indest@ochsner.org

Business Project Executive: Dan Shields

- CEO, Digital Medicine
- dan.shields@ochsner.org

Clinical Project Lead: Valentina Williams, PharmD

- Director, Care Delivery Digital Medicine
- valentina.williams@ochsner.org

Business Project Lead: Rebecca Arriaga

- AVP, Digital Medicine
- rebecca.arriaga@ochsner.org

IT Project Lead: Allison Collins

- IS Epic Supervisor, Digital Health Programs
- Allison.collins@ochsner.org

Health Equity Clinical Lead: Eboni Price-Haywood, MD, MPH, MMM, FACP

- Physician, Primary Care and Wellness Center, System Medical Director, Healthy State,
 Medical Director, Ochsner Xavier Institute for Health Equity and Research. Professor, Ochsner Clinical School University of Queensland
- eboni.pricehaywood@ochsner.org

Executive Summary

Louisiana consistently ranks near the bottom in national healthcare, placing 46th, with a significant portion of its population facing health disparities compared to other states. In 2022, approximately 40% of Louisiana's population had hypertension. Hypertension is a risk factor for a wide variety of diseases, including heart disease, cerebrovascular disease, kidney disease, and internal bleeding (aneurysm), among others.

Ochsner Health (Ochsner), a prominent nonprofit, academic, multi-specialty, integrated healthcare system in the region, decided to tackle this challenge through innovative digital health solutions. Ochsner developed and scaled a digital solution for cardiometabolic chronic disease management, Digital Medicine, which has served over 50,000 enrollees to date across all treated conditions. The Digital Medicine program, which launched in 2015 as a hypertension-focused solution, offers personalized care for managing high blood pressure remotely using a Bluetooth-enabled blood pressure cuff and a specialized Digital Medicine care team.

By leveraging patient-entered data from the Bluetooth-enabled blood pressure cuff and expert care team support, this solution continues to deliver superior clinical outcomes and provide an outstanding patient experience within an integrated model of care. Since inception, there have been over 34,000 patients who have received hypertension care through Digital Medicine, which is a 300x increase from the pilot enrollment of 104 patients in 2015.

Digital Medicine participants surpass standard blood pressure control standards, achieving an average of 75% control (blood pressure of less than 140/90) after 365 days of enrollment, compared to the National Committee for Quality Assurance (NCQA) average of 54.93% in 2023. This success is consistent across all payor types. A subgroup analysis of Medicaid and Medicare patients highlights Digital Medicine's impact on reducing health equity disparities through a rate reduction of black-white racial disparities in blood pressure control (Medicare patients 7% - 2%; Medicaid patients 16% - 1%).

Define the Clinical Problem and Pre-Implementation Performance

Clinical Problem: 40% of Louisiana's population suffers from hypertension. Hypertension is a risk factor for a wide variety of diseases, including heart disease, cerebrovascular disease, kidney disease, and internal bleeding (aneurysm), among others. Uncontrolled hypertension further exacerbates the risk.

Traditional care for hypertension management is focused on an annual (or bi-annual) in-person "check-up" model. During this annual visit, the patient has their blood pressure taken and the physician adjusts their medication as needed. However, further medication management often waits until a subsequent visit. This delay in data and treatment postpones the patient's time to control and prevents the physician from quickly intervening and course-correcting if the patient condition deteriorates.

Performance prior to implementation of Digital Medicine Hypertension Program: The national average for blood pressure control is 55% for patients following the annual visit approach, and this approach attracts low levels of patient engagement.

- **Numerator:** Number of beneficiaries currently enrolled in Ochsner's Digital Medicine hypertension program whose blood pressure was adequately controlled (<140/<90 mm HG) at one year in the program.
- **Denominator:** Number of beneficiaries currently enrolled in Ochsner's Digital Medicine hypertension program with a diagnosis of hypertension.
- Methodology: For the sake of being more clinically stringent, Digital Medicine calculates
 control using the average of the last three readings the patient submits rather than a
 rolling 30-day average. This helps to identify changes in the most recent clinical
 scenario.
- **Exclusions:** Patients who have any of the following exclusionary criteria are not eligible to participate in Digital Medicine: insulin u500 use, CKD5/ESRD/dialysis, pregnancy, history of heart or kidney transplant, Alzheimer's/dementia, hospice, or any diagnosis beyond the scope of Digital Medicine remote care.
- Goal: A greater % of patients enrolled in the Digital Medicine hypertension program
 with blood pressure control (less than or equal to 140/90) compared to the national
 average (55%)
- The QC National Benchmarks are as follows:
 - Ochsner Digital Medicine hypertension patients show an increase in blood pressure control at each evaluated time point. 75% of patients achieve control after being enrolled for 365 days. The average control rate of all participants in the program is 75% at 730 days of being enrolled, surpassing the 95th percentile.
 - Measure Name: Controlling High Blood Pressure
 - Benchmark Category: PPO and EPO
 - Average Rate: % 54.93
 95th Percentile: 72.99
 - Measure Domain: Effectiveness of Care

Design and Implementation Model Practices and Governance

Key members of the care delivery team:

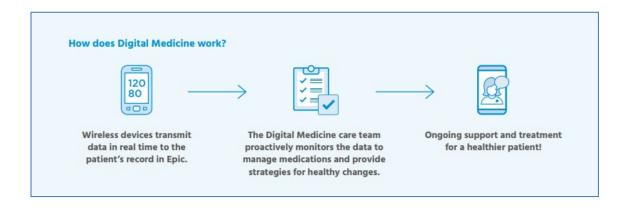
- The Digital Medicine operational team in collaboration with the Connected Health product team requests changes to improve care, workflow, analytics for the Digital Medicine programs.
- The Ochsner IS Digital Medicine team, Connected Health product team and Digital Medicine operational team use Agile methodology to test and implement these new interventions and workflows.
- An IS Epic Specialist and the Digital Medicine customer success managers ensure education and training is provided to our clinical team members. Additionally, the patient

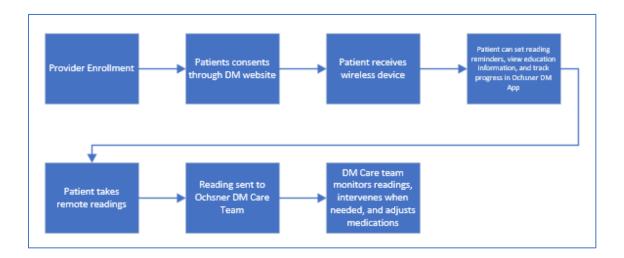
- services coordinator team triages patient queries using the Epic Cheers Customer Relationship Management application.
- The Digital Medicine Governance Committee consists of the Chief Digital Officer, Chief Informatics Officer, VP of Product, CEO of Digital Medicine, Chief Clinical Innovation Officer, and VP of Clinical Improvement.

Governance and important meetings:

- Regular legal and compliance meetings for any approvals
- Monthly leadership Digital Medicine meeting (Product and Operations)
- Quarterly review with Chief Digital Officer (CDO)
- Quarterly strategy meetings with CDO

Clinical Transformation enabled through Information and Technology





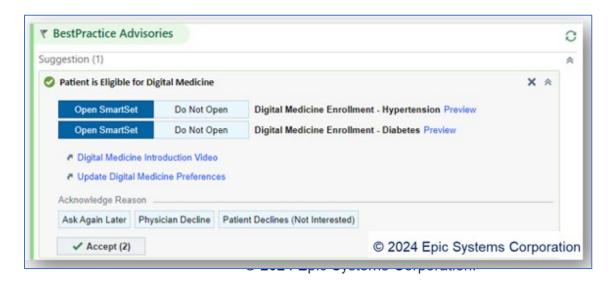
To launch this project and facilitate the transfer of digital home blood pressure readings into the patient's medical record, Ochsner collaborated with the electronic medical record vendor Epic (Epic Systems Corporation, Verona, Wis) to develop a custom iHealth integration that utilized Chronicles programmers, a direct interface to Withings, and a secure interface to Apple HealthKit (Apple Inc, Cupertino, Calif). This interface paved the way for the development of additional digital programs across health systems using Epic.

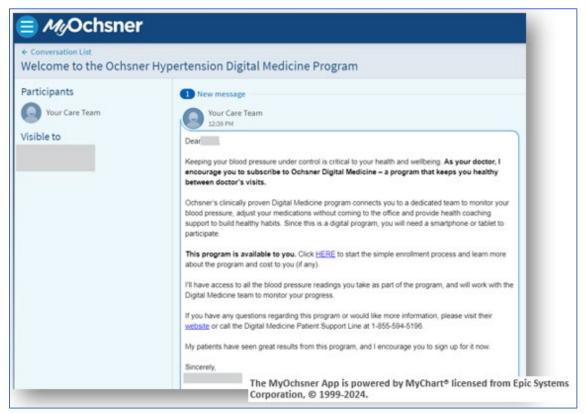
Ochsner first recruited a few primary care physicians and cardiologists to participate in the 2015 pilot. Adult patients with a diagnosis of hypertension who had elevated blood pressure (systolic pressure > 140 mm Hg or diastolic pressure > 90 mm Hg) at each of the three most recent physician visits within the previous 18 months were identified. These patients were notified of the program by their physician during an office encounter or through an offer letter sent on behalf of their physician.

Ochsner excluded patients with certain co-morbid conditions which would preclude them from effective participation in the pilot. These clinical exclusions included heart or kidney transplant, chronic kidney disease stage 5, and end stage renal disease as patients with advanced kidney disease require enhanced monitoring needed to mitigate adverse events and reach blood pressure targets. Additionally, patients with advanced kidney disease require robust care coordination that is not always available via a digital intervention. The clinical exclusions remain in effect today.

Enrollment requires patients to own a smartphone or tablet, obtain a wireless Bluetooth-connected blood pressure cuff, and have an active patient portal account (MyChart). If patients do not have an active MyChart account, they are given the opportunity to sign up for one during the enrollment process. Some patients had an out-of-pocket expense for the cuff, while for others it was covered through their health benefits. The cost of the cuff is currently included in the program cost and is generally covered via certain carrier or self-insured employers' health benefits.

As the program's efficacy became evident, Ochsner continued to evolve by expanding the number of physicians involved, increasing patient eligibility, and enhancing the supporting infrastructure. Ochsner developed an algorithm within Epic to identify eligible patients based on both clinical and insurance criteria, focusing on insurance plans for which Ochsner had "atrisk" agreements. This algorithm surfaces a Best Practice Advisory (BPA) to the patient's primary care provider notifying them of the patient's eligibility for Digital Medicine and enabling the provider to initiate enrollment in the clinic. The BPA includes links to SmartSets (Digital Medicine Enrollment Orders) and an introduction video for the patient to watch in the room prior to checking out. Patients also receive periodic outreach via MyChart and messages on their After Visit Summary to notify them of their Digital Medicine eligibility.





Digital Medicine Program Information

Take control of your High Blood Pressure and Type 2 diabetes with the Ochsner Digital Medicine program

Manage your condition between visits with support and monitoring from home.



How do I get started?

- 1. Scan the QR code to start the enrollment process.
- 2. Receive your digital blood pressure cuff and glucometer.
- 3. Download the Digital Medicine App and take your first reading.

How the Digital Medicine program works:



Take readings with a digital blood pressure cuff and glucometer using your smartphone or tablet.



Get treatment from a licensed clinician who monitors your readings and adjusts your medications.



Create healthy habits with health coaching support.

For questions or more information, visit our website at Ochsner.org/DigitaLlourney or call Digital Medicine Patient Support at 866-273-0548.

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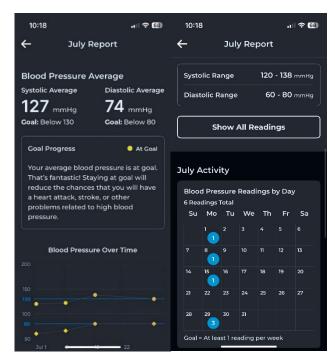
Program details, questionnaires, and electronic consent to participate take place through MyChart. The questionnaires assess factors related to hypertension and chronic disease management, including diet, physical activity, depression, medication adherence, patient activation, health literacy, and social circumstances (e.g., medication affordability and number of people living in home). Additional clinical data is obtained from the Electronic Health Record (EHR). This data along with the blood pressure readings submitted and consultation with the patient is used by the Digital Medicine care team to make a customized plan consisting of health coaching and medication management interventions to achieve disease control.

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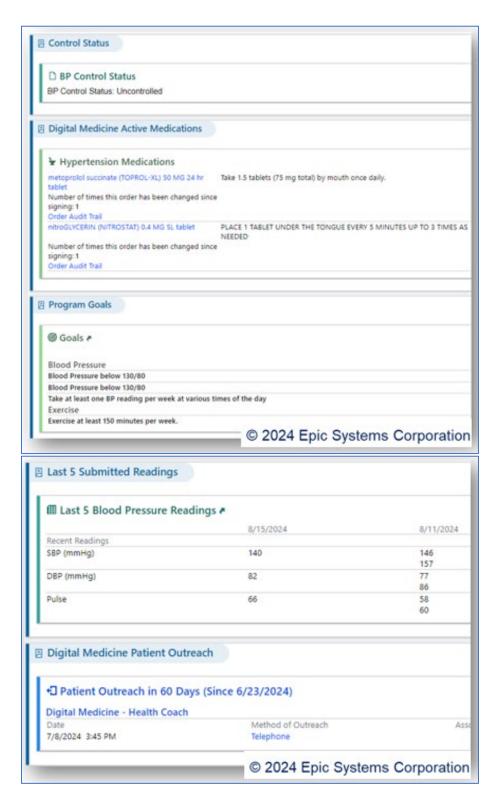
recent readings	(past 60 days):				
Time Taken	Time Submitted	Systolic Blood Pressure	Diastolic Blood Pressure	Patient Comments	Pulse
8/19/2024 7:46 AM	8/19/2024 7:46 AM	125	68		73
8/16/2024 7:30 AM	8/16/2024 7:30 AM	134	73		65
8/14/2024 7:29 AM	8/16/2024 7:29 AM				71
8/14/2024 7:29 AM	8/16/2024 7:29 AM	135	71		
8/14/2024 7:28 AM	8/16/2024 7:29 AM				72
8/14/2024 7:28 AM	8/16/2024 7:29 AM	144	76		
8/12/2024 7:47 AM	8/12/2024 7:47 AM	134	79		79
8/9/2024 7:28 AM	8/9/2024 7:28 AM	125	70		76
8/7/2024 7:29 AM	8/7/2024 7:29 AM	119	68		78
8/5/2024 8:00 AM	8/5/2024 8:00 AM	131	84		91
8/5/2024 7:58 AM	8/5/2024 7:58 AM	145	87		90
8/5/2024 7:21 AM	8/5/2024 7:21 AM				106
8/5/2024 7:21 AM	8/5/2024 7:21 AM	141	81		
8/2/2024 8:50 AM	8/2/2024 8:50 AM				85
8/2/2024 8:50 AM	8/2/2024 8:50 AM	128	68		
8/2/2024 7:54 AM	8/2/2024 7:54 AM	142	79		69
8/2/2024 7:23 AM	8/2/2024 7:23 AM				85
8/2/2024 7:23 AM	8/2/2024 7:23 AM	145	78		
7/31/2024 7:33 AM	7/31/2024 7:34 AM	123	78		83
7/29/2024 7:30 AM	7/29/2024 7:30 AM	117	74		88
7/26/2024 7:45 AM	7/26/2024 7:45 AM	135	77		72
7/24/2024 7:48 AM	7/24/2024 7:48 AM	131	72		68
7/22/2024 7:38 AM	7/22/2024 7:38 AM	126	75		70

During the onboarding process, patients receive both digital and "live" outreach attempts to encourage the patient to complete their enrollment. Automated digital outreach is based on an algorithm, and an onboarding patient report identifies patients who have not yet completed onboarding and could benefit from proactive outreach. Patients can receive assistance in setting up their device via telephone, chat, scheduled appointments, or in-person visits to an O Bar, depending on their convenience. Over 80% of patients independently connected their devices without the need for technical support.

Enrollees also receive a monthly report documenting their progress in the program that included customized tips on how to achieve better blood pressure control. The report is electronically generated using data uploaded by the patient and sent via MyChart or via the Digital Medicine app. The method of delivery depends on which tool the patient is using. The report contains a definition of hypertension, the patient's blood pressure results, their progress in controlling their blood pressure, and seasonal or disease-specific tips to continue managing their hypertension.



Once the patient enrolls, their primary care physician and other specialty providers can review all documentation in the using the Digital Medicine navigator that collates the Digital Medicine care team documentation and patient-entered readings into one place.



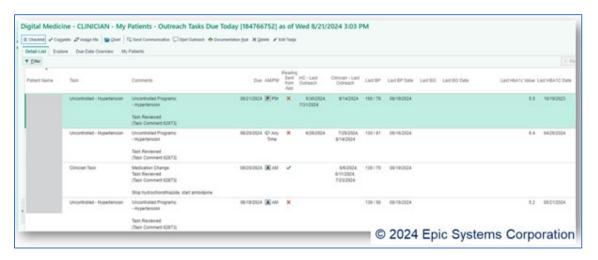
Patients interact with their care team using traditional phone calls and digital tools, ensuring that they can track progress and take readings using their Bluetooth-enabled cuff. Recently, Digital Medicine created an app to provide patients with a centralized place to track progress, receive program notification, engage with educational content, and take readings from anywhere using

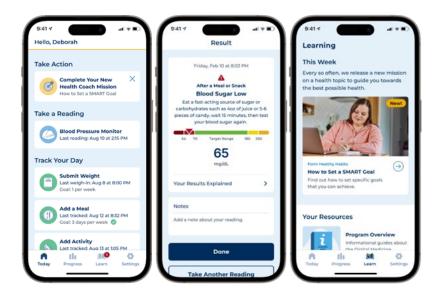
their smartphone and connected devices. This approach not only enhanced convenience but also empowered patients to take control of their health and well-being.

Although readings are not monitored by the Digital Medicine care team in real-time, patients receive alerts when blood pressure readings are abnormal. At the inception of the program, these alerts were sent by SMS and are now sent via the Digital Medicine app. The Digital Medicine care team is notified when the patient is trending off their individualized course so they can intervene, provide follow up education, and prevent future reading escalations.

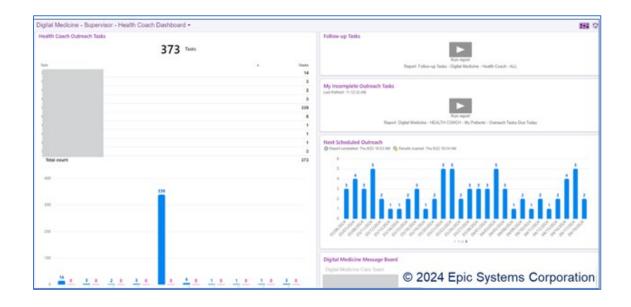
The Digital Medicine care team includes doctoral pharmacists, physician assistants, and health coaches, all with backgrounds in allied health or public health. This team routinely monitors blood pressure trends and adjusts medication to manage chronic disease.

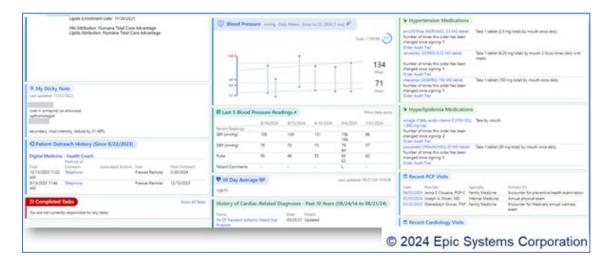
As the program has grown, Digital Medicine has refined its care delivery model to enhance efficiency while maintaining excellent clinical outcomes. Initially, the care team reached out to patients on a standard check-in schedule, regardless of acuity, with additional outreach for acute issues. Over time, this approach was improved by refining the cadence of live check-in calls and developing an algorithm to prompt outreach based on patient acuity. For example, incoming blood pressure data is analyzed using an internally developed algorithm that assesses the validity and trends of the readings. This algorithm automatically generates tasks for clinicians in the EHR when intervention is needed. Additionally, patient interactions are supported with digital coaching resources and reference materials accessible through the Digital Medicine app.





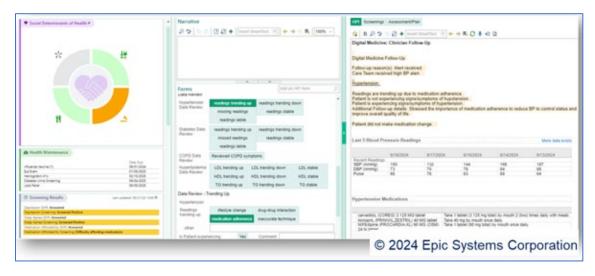
In Epic, dashboards enable leaders to quickly view the total number of outreach tasks due or overdue with a breakdown by individual care team member. When a task is selected from this report, a snapshot of the patient's data appears at the bottom of the page, displaying social determinants of health, 30-day reading averages, medications by disease-state, recent provider visits, outreach history, overdue health maintenance, and patient goals—all without needing to open the patient's chart. Each care team member also has a personal dashboard displaying their tasks and unassigned tasks.





The pharmacist tasks are focused on interventions for patients with uncontrolled diabetes and/or hypertension, blood pressure alerts, hyperlipidemia prevention status, and medication changes. Health coach tasks are focused on lifestyle interventions, blood glucose alerts, routine health maintenance screenings, missing readings, and social determinants of health interventions.

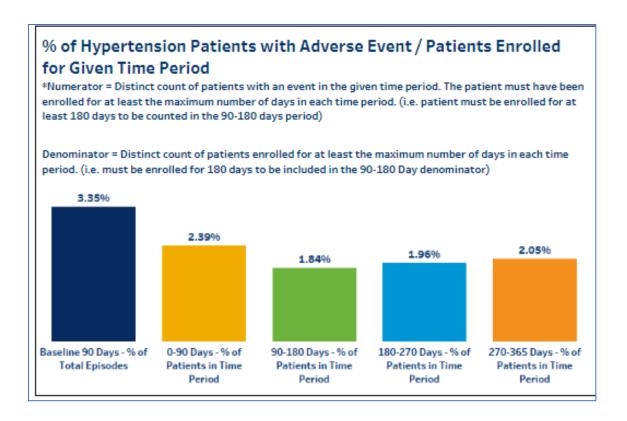
The care team's workspace includes streamlined workflows designed to help them complete tasks efficiently. These workflows feature quick buttons and auto-populated data about the patient, such as blood sugar readings, A1c control status, labs, activity levels, medications per disease state, program goals, and previous interactions with the Digital Medicine program.



All interventions are communicated to the patient via a phone call or MyChart message (depending on the patient's communication preference) and documented in the patient's chart.

The Digital Medicine program implements several quality assurance initiatives to ensure patient safety in focused medication management. The program closely monitors and annually reviews quality assurance outcomes, including adverse events. The rate of hypertension-related adverse events such as hypertensive crisis (I16.1, I16.9, I16.0),

hypotension (I95.1, I95.2, I95.89, I95.9), and potassium abnormalities (E87.5, E87.6) reduced from 3.25% in the 90 days before enrollment to 2.32% in the 90 days post-enrollment.



Improving Adherence to the Standard of Care (Guideline: One Page)

- Blood Pressure Control is the outcome Ochsner measures for Hypertension Digital Medicine.
- **Numerator:** Number of beneficiaries currently enrolled in Ochsner's Digital Medicine hypertension program whose blood pressure was adequately controlled (<140/<90 mm HG) at one year in the program.
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- **Goal:** A greater % of patients enrolled in the Digital Medicine hypertension program with blood pressure control (less than or equal to 140/90) compared to the national average (55%).
- The QC National Benchmarks are as follows:
 - Ochsner Digital Hypertension patients show an increase in blood pressure control at each evaluated time point. 75% of patients achieve control after being enrolled for 365 days. The average control rate of all participants in the program is 75% at 730 days of being enrolled, surpassing the 95th percentile.

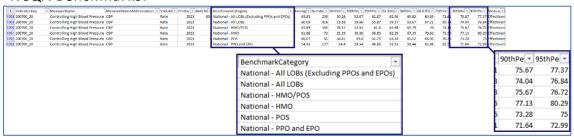
Measure Name: Controlling High Blood Pressure

Benchmark Category: PPO and EPO

Average Rate: % - 54.93
95th Percentile: 72.99

Measure Domain: Effectiveness of Care

NCOA Benchmarks:



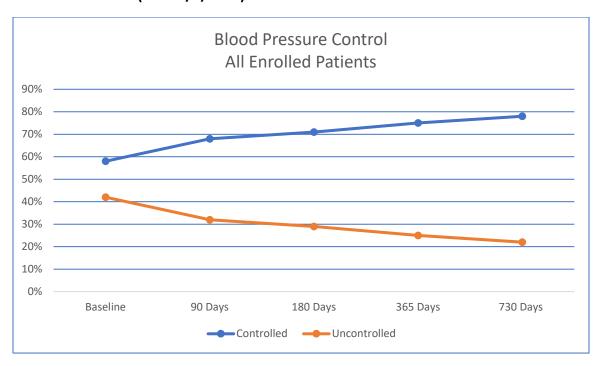
Improving Patient Outcomes (Guideline: One Page)

Program Impact: Digital Medicine patients achieved 75% BP control at 365 days.

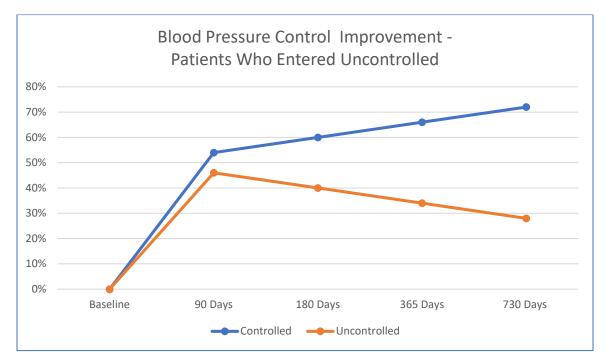
Digital Medicine participants surpass standard blood pressure control standards, achieving an average of 75% control (blood pressure of less than 140/90) after being enrolled for 365 days, compared to the national average of 54.93% in 2023. This success has been observed across all payor types. A subgroup analysis of Medicaid and Medicare patients emphasized the impact Digital Medicine has at driving a decrease in health equity disparity through a rate reduction of black-white racial disparities in blood pressure control (Medicare patients 7% - 2%; Medicaid patients 16% - 1%). Additionally, Digital Medicine patients show a decrease rate of adverse events related to hypertension management.

A third-party actuarial analysis of the Digital Medicine program revealed an overall utilization decrease amongst participants in the program. The study found that participants in the hypertension program experienced a 45% reduction in emergency room visits and a 38% reduction in hospital admissions within the first year of enrollment.

All Active Patients (as of 8/7/2024):



Uncontrolled Patients at Baseline (as of 8/7/2024):



- o Patient Satisfaction: Each year, Digital Medicine conducts a Net Promoter Score (NPS) survey to gauge patient satisfaction. The NPS survey consists of one question, "How likely are you to recommend Digital Medicine to a friend or family member?" which patients are asked to answer based on a score of 1-10 with 1 being the lowest and 10 being the highest. A score of 70 or above is considered best-in-class. Digital Medicine has scored Best-in-Class since beginning to survey patients in 2019, most recently achieving an 82 in 2023. In a free text comment field, one patient wrote, "The digital team really supports their patients with controlling their BP and Diabetes. The consistency of follow up won me over. Most of all, they monitor, and when they see an unreasonable reading, they pick up the phone and call you. I would recommend this for anyone."
- Clinical Experience: The program has enabled Ochsner's primary care clinicians to provide an elevated level of support to patients, which has enhanced clinical satisfaction. When reflecting on how useful the program has been in a primary care setting, Ochsner's chair of primary care notes to the leader of the Digital Medicine programs, "We forgot what help looked like" in 2021.
- Financial and Operational Impact: Based on a third-party actuarial analysis, Digital Medicine participants in the hypertension program had an overall \$204 per member per month (PMPM) savings within the first year of participation. Due to the clinical impacts of the program and the overall savings realized, Ochsner has expanded Digital Medicine to contract with carriers and self-insured employers to incorporate Digital Medicine into the benefit design for their beneficiaries. These arrangements are with groups nationwide, not just in Louisiana.

- Health Equity: Recognizing some of the inherent challenges with the widespread use of technology in healthcare, Digital Medicine strives to optimize the patient experience to maximize equity. Digital Medicine processes strive to lower barriers to entry including enabling a fully digital setup, improving tech support availability, and providing seamless device fulfillment. The program's focus on incorporating an assessment of social needs in the initial screening and ongoing progress reporting helps improve care team understanding of structural barriers to patient health. When available, the Digital Medicine care team will review Social Determinants of Health (SDOH) data and discuss strategies to close the patients' resource gaps.
- Medicare Population Analysis: In a specific Medicare population analysis, a total of 2,585 Digital Medicine participants were 1:1 matched on pre-index BP control, age, sex, hypertensive medications, comorbidities, and baseline service utilization. These patients were enrolled in the hypertension program between January 1, 2019, and October 15, 2023. Compared to the control group, patients in the Digital Medicine program had statistically significant differences in clinical outcomes including:
 - Higher rates of improvements in BP control defined as <140/90 [Digital Medicine vs. Usual Care: Baseline, 60% vs. 61%; 18-months, 77% vs. 71%]
 - Greater decrease in the rate of ED use [Digital Medicine vs. Usual Care: Baseline, 33% vs. 31%; 18-months, 24% vs. 27%]
 - Greater decrease in the rate of PCP encounters at baseline (Digital Medicine vs. Usual Care: 82% vs. 73% and 18-months: 75% vs. 62% but maintained a relatively higher rate of PCP visits.
 - Due to the lower count of hospitalized patients, inference on this outcome was limited.
 - Equality of Care: Within the Digital Medicine intervention group, a significant increase in BP control was demonstrated over time for both ethnicities, (Baseline: black vs. white: 58% vs. 69%; 18-month, 77% vs. 78%) reducing the black-white disparity as measured by changes in absolute relative rates (ARR) of 16% at baseline to 1% at 18 months.
 - Patients of black race had a relatively higher decline in service utilization compared to patients of white race from baseline to 18 months:
 - Emergency Dept use:
 - Decreased by -48.0% (black) vs -44.6% (white) over an 18month period. Statistically significant racial differences in encounters per 1,000 patients were observed as follows:
 - o Baseline: black vs. white: 701 vs 482
 - Six months: black vs. white: 503 vs 400
 - o 12 months: black vs. white: 430 vs 319
 - o 18 months: black vs white 365 vs 214
 - PCP Encounters:
 - Decreased by -30.3% (black) vs -28.8% (white) over an 18month period. Statistically significant racial differences in encounters per 1,000 patients were observed as follows:

o Baseline: black vs white 2198 vs 1899

Six months: black vs white 1897 vs 1,717

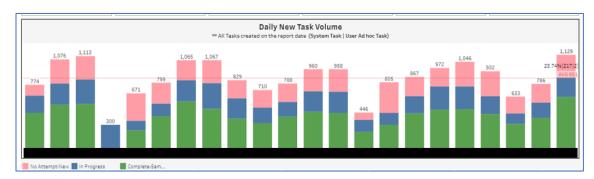
o 12 months: black vs white 1,676 vs 1,404

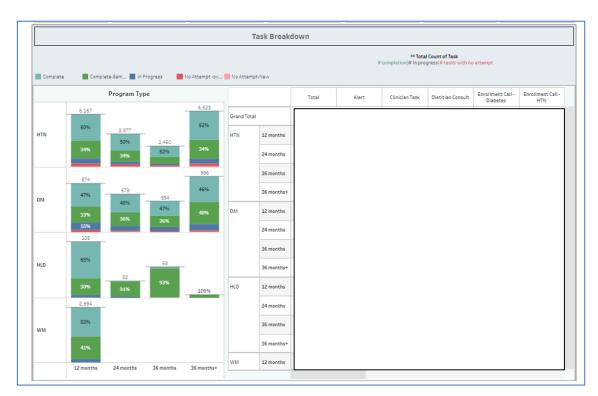
o 18 months: black vs white 1,532 vs 1,372

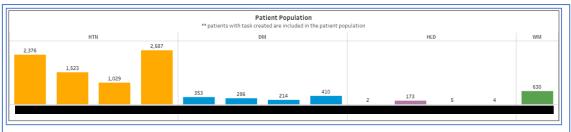
Accountability and Driving Resilient Care Redesign (One Page)

The high priority task workflow allows discrete tracking and documentation of clinical tasks. Tasks are classified as in-progress or overdue in real-time, allowing for dynamic work assignment and tracking of needed clinical touchpoints. The Digital Medicine care team utilizes a custom patient snapshot for maximum pre-call efficiency. This snapshot shows social determinants of health, the last three blood pressure readings, medications separated by reason for taking the medication, average blood pressure for 30 days, recent provider visits, outreach history, overdue health maintenance and the patient's personalized goals all without having to open the patient's chart. Each health coach and clinician has individualized reporting of their active and overdue tasks.

Tableau dashboards are also used to track both clinical and operational trends.

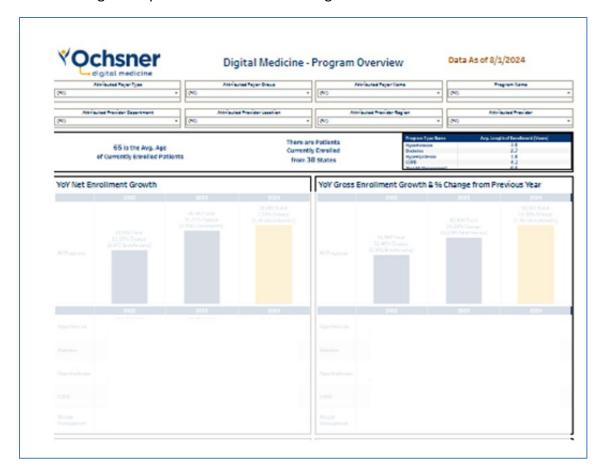






Operational Dashboard Samples (all data can be filtered by program of enrollment, provider, location, and coverage type)

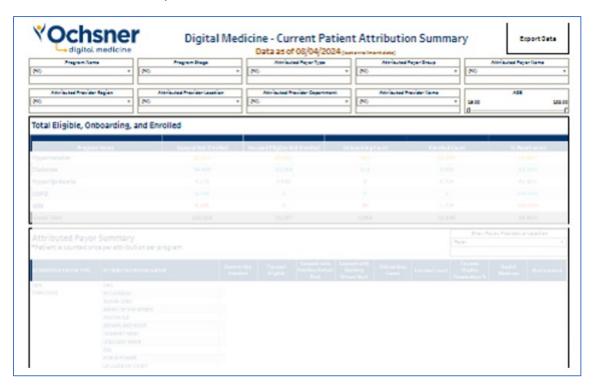
Overall Program Operational Trend Tracking:



Demographic Trends:

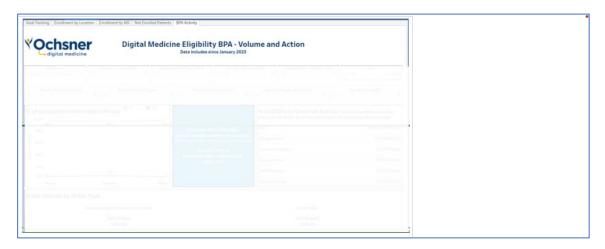


Current Enrollment by Stakeholders:



BPA Activity for Digital Medicine Eligibility - Volume and Action:

This data can be filtered down by location, region, provider, and encounter department specialties to identify trends of no action taken on BPAs.



HIMSS Global Conference Audience Guidance (This will not be published)

Topic Guidance: Check three which apply to this case study

Clinical Informatics and Clinician Engagement Healthy Aging and Technology

Clinically Integrated Supply Chain Improving Quality Outcomes

Consumer/Patient Engagement and Innovation, Entrepreneurship, and Venture

Digital/Connected Health Investment

Consumerization of Health Leadership, Governance, and Strategic Planning

Culture of Care and Care Coordination Population Health Management and Public Health

Data Science/Analytics/Clinical and Business Precision Medicine and Genomics

Intelligence Process Improvement, Workflow, and Change

Disruptive Care Models Management

Grand Societal Challenges Social, and Behavioral Determinants of Health

Health Informatics Education Telehealth

Health Information Exchange User Experience (UX)

Interoperability Usability

Data Integration, and Standards User-Centered Design

Healthcare Applications and Technologies Enabling

Care Delivery