

Duke Health

EMRAM 

Case Study

Duke Health

Profile

Duke Health is a large quaternary care health system in central North Carolina with three acute care hospitals and over 200 ambulatory practices. We have more than 1700 attending physicians, 1000 physicians in training, 800 advanced practice providers, 5200 nurses and more than 16,000 employees. Duke University Hospital is our primary academic hospital located in Durham, North Carolina with 951 beds, 19 of which are for psychiatry. Our sister hospitals include Duke Regional Hospital with 353 beds in Durham County (23 Psych and 30 Rehab) and Duke Raleigh Hospital with 175 beds in Wake County. On an annual basis, Duke University Health System provides patient care for greater than 3,600,000 ambulatory visits, more than 180,000 emergency department visits (Level 1 Trauma Center at DUH) and more than 76,000 inpatient admissions. Duke Health extends its service to the population of the eastern and central North Carolina counties surrounding Durham through Duke Primary Care clinics, Duke Home Care & Hospice, as well as community outreach via community and school based clinics, and a partnership with Duke LifePoint community hospitals.

The Duke Health mission includes five pillars of focus: delivering tomorrow's health care today, accelerating discovery and its translation to the patient, creating education that is transforming, building healthy communities, and connecting with the world to improve health globally. Duke Health is dedicated to teaching and advancing the science of medicine through its affiliation with Duke University School of Medicine, Duke University School of Nursing and Duke Clinical Research Institute – one of the largest academic clinical research organizations in the world.

Date Stage 7 was achieved: EMRAM: January 31, 2017; O-EMRAM: June 14, 2016; Revalidation for EMRAM and O-EMRAM November 5, 2019

The Challenge

Duke University Hospital had one of the first electronic medical records in the late 1960s called The Medical Record (TMR). Over the next four decades there were multiple iterations and extensions of electronic tools to support patient care that led to the development of a best of breed conglomeration of Electronic Health Record (EHR) modules across the health system. These proved difficult to fully integrate, and in 2011 Duke took the operational and strategic challenge to move to a single

integrated EHR platform with Epic. The overarching goal of the single EHR platform is to help provide and coordinate care of our patients across the ambulatory and inpatient care environments. Since completing our initial implementations in March 2014, Duke Health embarked on an ongoing process of Care Redesign to update our processes of disease management across the care continuum supporting our transition to value based care models. Care Redesign continues as an active initiative as a means to standardize care with the goal of providing better care to our patients at lower cost and

expanding care for populations of patients.

Achieving HIMSS Stage 7 status in both our ambulatory and acute care facilities supported multiple improvements in the use of our EHR. Our HIMSS Stage 7 revalidation helped us extend our focus on coordination of care focusing on improving the quality, value and population management. With this we have seen improvement in efficiency of the use of our EHR and facilitated improvements in patient safety. Preparing our case studies allowed us to evaluate the impact of EHR interventions with a more quantitative data perspective that has continued to serve us well.

Implementation Overview

The strategic goals for Duke Health's EHR implementation included standardizing clinical workflows and consolidating our IT platforms across the health system. Our EHR branded Maestro Care (Medical Application Environment for System Transformation of Research & Operations) is a single comprehensive integrated clinical information system that also supports our research commitment. During our four phased Big Bang conversion, beginning in July 2012 and ending in March 2014, Duke replaced 135 systems with one Epic EHR as its core platform upon which we build our accountable care, population health, and quality initiatives. Applications we currently have include clinical documentation, CPOE, pharmacy, oncology, emergency medicine, bar code medicine administration, OR /anesthesia, radiology, obstetrics, laboratory, personal health record portal, infection control and case management.

Key participants involved in the process:

Operational leadership from the senior health system leadership, to our three hospital Presidents and our nursing, ancillary and pharmacy leadership, provided a strong commitment to our implementation. We additionally employed over 40 provider and nursing informaticians, as well

as over 300 super users to ensure as smooth a transition as possible.

Resulting Value / ROI

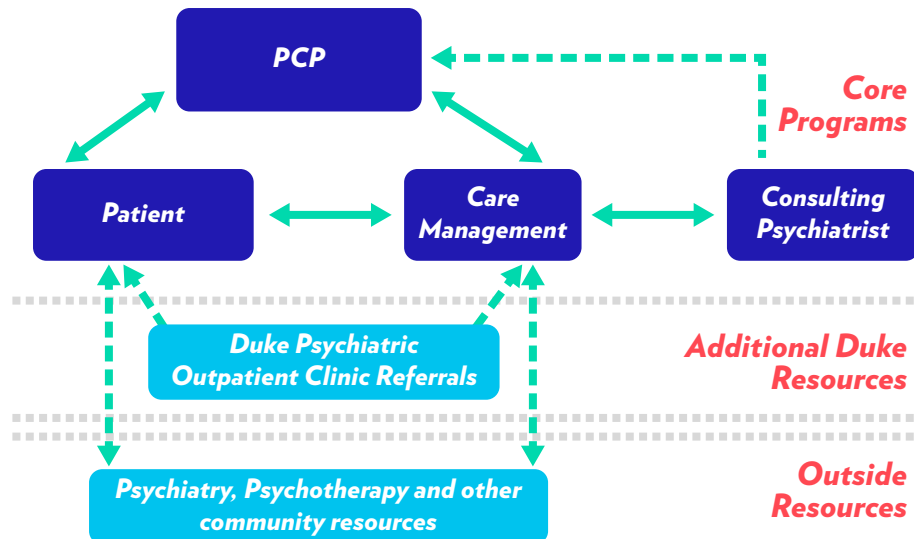
Major depression affects 8-9% of adults with symptoms that can be relatively non-specific. A patient's depression adversely affects patient engagement and clinical outcomes for their other diseases.

For a variety of reasons, depression often goes undetected or sub-optimally treated resulting in health care costs that are two to three times greater for primary care patients who meet the criteria for major depression. The Improving Mood—Promoting Access to Collaborative Treatment (IMPACT model) is a collaborative care model for treating depression in primary care. Previously it has shown significantly improved response and remission rates over treatment as usual.

Duke Primary Care (DPC) implemented systematic yearly screening for depression using the validated PHQ-2, and if positive PHQ -9, survey tools in our EHR. In May 2016, after a 1-year pilot to test logistical implementation at DPC using exclusively telephonic care management, the project was expanded across all DPC locations with support of five population health case manager nurses.

Patients with a PHQ-9 score greater than 10 are offered to be enrolled in the program by a clinical staff member or patient's PCP. Depression management (i.e. medications) is still at the discretion of the provider. The patient is scheduled for an appointment with the case manager who conducts the initial intake appointment. In that 60 minute appointment, the patient is rescreened for the PHQ-9 and additionally screened by the GAD-7, DAST-10, Audit-10, Grief, Mania and Suicide Risk tools. A full medication and depression history is reviewed and the patient is engaged in improved self-care with Behavioral Activation Therapy. The patient is then serially

followed by a case manager every two weeks (30 minutes) until response, remission, or next level of care is recommended. The case manager consults with a Psychiatrist weekly across all of their cases, and patient by patient determinations of next recommendations are made. The model of patient, PCP, Care Manager and as needed Consulting Psychiatrist has increased patient access to psychiatric treatment and improved treatment effectiveness for clinical depression.



Over the last two years, more than 261,187 patients have been seen and 208,018 patients screened for depression. Of those screened, 17,406 patients were screened positive with a PHQ-9 score of 10 or greater, representing 8% of the primary care population. Of these patients, more than 60.5% responded with more than a 50% decrease in their PHQ-9 score.

Lessons Learned

1. **Patient-Centered Team Care:** Primary care and behavioral health providers can collaborate effectively using shared care plans for the benefit of our patients.
2. **Population-Based Care:** Use of patient registry shared by collaborative team to track patients ensures that no one “falls through the cracks.” Practices track and reach out to patients who are not improving and mental health specialists provide caseload-focused consultation, not just ad-hoc advice.
3. **Measurement-Based Treatment to Target:** Each patient’s treatment plan clearly articulates

personal goals and clinical outcomes that are routinely measured. Treatments are actively changed if patients are not improving as expected until the clinical goals are achieved.

4. **Evidence-Based Care:** Patients are offered treatments for which there is credible research evidence to support their efficacy in treating the target condition.
5. **Accountable Care:** Providers are accountable and reimbursed for quality of care and clinical outcomes, not just the volume of care provided.

One sentence that encapsulates the experience as a whole:

Duke strives to embrace a data-driven culture that focuses on patient safety and quality of care first. We use our EHR technology as a means to make the patient’s care processes fully visible to all care team members across the care continuum from ambulatory to inpatient to home locations. Our HIMSS journey has helped to organize and reflect upon our accomplishments to our organization more effectively.



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We are very proud of the way our clinical, technology, research, and operational staff work together at Duke Health to advance health using health information technology. Our enterprise clinical and analytical systems have enabled us to deliver tomorrow's health care today and to accelerate innovation. We are grateful to HIMSS for being our partner in demonstrating the positive impact of our multi-disciplinary HIT approach on our patient population.”

-Eric Poon, CHIO Duke Health

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