THIRD WAY

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Local Examples: Innovations in Telehealth

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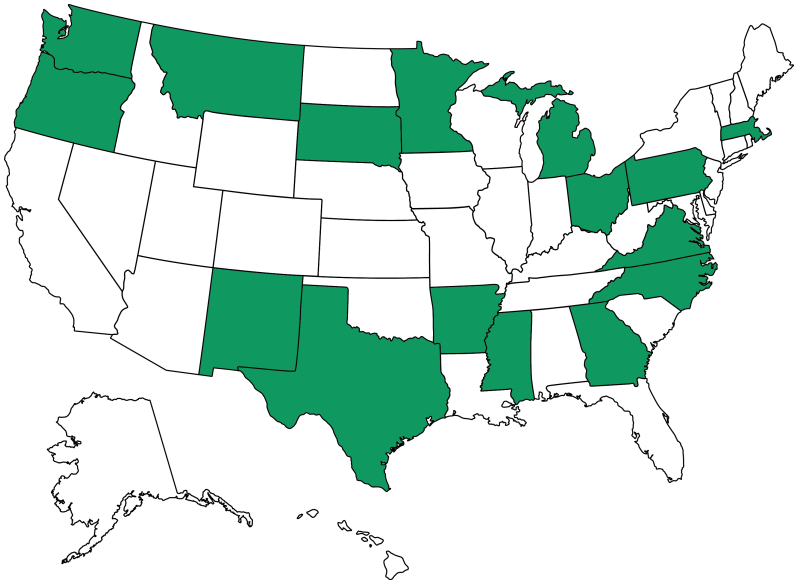
Under stress, and often after regular business hours, patients with a worrisome health problem make a snap decision to go to the ER because they are fearful and have no other choice.



What if patients could get care anytime from the comfort of home? Telehealth allows patients to connect to providers via phone or a webcam to discuss their medical concerns and receive guidance on what they should do including going to an all-night pharmacy to pick up a prescription or checking

to make sure symptoms do not worsen before seeing a doctor in-person for follow-up care.

For example:

LiveHealth Online: Bringing the Doctor to You

Getting to a doctor's office can be challenging—it can be difficult to leave work or home for an appointment and office hours aren't always convenient. Even a visit to an urgent care center requires leaving home or work. LiveHealth Online connects patients with board-certified physicians and providers using telehealth at times when appointments may not be available, from the comfort of home, or even using a mobile device. The service is available 24/7 in 45 states plus D.C., though some state laws restrict physicians from prescribing medicines using telehealth. Typical telehealth encounters through LiveHealth Online are for colds and related viruses, allergies, infections, and wellness questions. Patients can share a summary of the telehealth encounter with their primary care doctor to facilitate care coordination. LiveHealth Online demonstrates the value that private plans are discovering in using telehealth by increasing off-hours access to providers—to avoid potentially costly emergency room and urgent care visits. In fact, Anthem health plans are offering LiveHealth Online services to members as an alternative to emergency room and urgent care, which cost more. Even those without insurance can use LiveHealth Online for just $49 per visit.

Doctor on Demand: Support for Nursing Mothers

Any nursing mom will tell you, breastfeeding is not easy. The Centers for Disease Control and Prevention (CDC) reports that while 79% of moms initiate breastfeeding, just 40% are still exclusively breastfeeding at 3 months. The CDC also finds that professional lactation support can help mothers begin and continue breastfeeding, but lactation consultation services can be difficult to access due in part to a shortage of

providers and partly because the immediate postpartum period is a challenging time for new mothers. What many new moms need is a lactation consultant who will come to them, and now, Doctor on Demand offers just that. Patients use the Doctor on Demand app to view biographies of International Board Certified Lactation Consultants and schedule a video visit for a time convenient for them. Because breastfeeding issues never seem to arise during regular business hours, video visits are available from 7am EST to 2am EST. Lactation services are currently $40 for a 25 minute session and $70 for a 50 minute session. Doctor on Demand also offers video visits with board-certified adult medicine specialists and pediatricians and licensed psychologists and services are available in nearly all states.

Arkansas e-Link, Arkansas

Many things compete for the attention of preteens and teens, and often, asthma control and self-management are not at the top of that list. Parents may live in fear that their child will experience a severe attack and not have immediate access to medications that may control it. In 2012, Arkansas e-Link launched a mobile application to help preteens and teens manage their asthma. The app provides asthma management assistance via text message tips and reminders, as well as daily tracking of peak flow and asthma symptoms. The program has led to significant improvements–with mean scores on an asthma control measure moving from uncontrolled to controlled. Better controlled asthma is likely to lead to reduced admissions or trips to the doctor's office–keeping care in lower cost settings.

More broadly, e-Link's primary aim is to provide interactive video medical consultations for patients, local providers, and remote specialists, but the network is also used for continuing medical education and support services. The program covers multiple medical specialties and patient populations, including asthma care, pediatric cardiology, gynecology, and mental health.

School-based Telehealth Clinics, Georgia

Bringing health care to students while they are in school is not a new idea—school districts across the country have long-employed nurses and other health care providers in schools. Children who become ill while at school may visit a school nurse, who usually determines if the child is well enough to return to the classroom or needs to be dismissed for the day. If a child must go home, a parent's first stop after picking up their child is usually their pediatrician's office or an urgent care center—care from a physician is not usually available at school-based clinics. Telemedicine is changing that. With funding from the Georgia Partnership for Telehealth and the State Office of Rural Health, two elementary schools in Bainbridge received telehealth technology in early 2015. A partnership with Memorial Hospital and Manor connects the school clinic to a primary care provider using videoconference, a "virtual stethoscope," and other tools. The school-based telehealth centers aim to provide primary care and behavioral health services, integrate health promotion within the school community, reach students with health care needs, and link students with community resources when necessary, all while maintaining patient confidentiality.

Using Telemedicine to Reduce Hospitalizations of Nursing Home Residents, Massachusetts

Hospitalizations of nursing home residents often result in complications and patient death, and cost Medicare more than $1 billion per year. The absence of a physician at many nursing homes, particularly during off hours, may contribute to unnecessary hospitalizations of residents. In addition, nursing homes have a disincentive to prevent hospitalizations for Medicaid residents, because when these residents return from the hospital, the facility often receives a higher payment from Medicare, under the skilled nursing benefit, than it does from Medicaid. A recent study analyzed

the introduction of telemedicine at a for-profit Massachusetts nursing home chain. During evening or weekend hours, when a physician is not in house, nursing home staff were able to connect with a telemedicine service using videoconference equipment and a high-resolution camera, which provided useful images for things such as wound care. During the study, the hospitalization rate for nursing homes using the telemedicine service dropped by 4.4 percentage points, though this result was not statistically significant. However, nursing homes that were more engaged and used the service more experienced a statistically-significant 11.3% drop in hospitalizations. If a nursing home typically has 180 hospitalizations per year and is engaged in their use of telemedicine, 15.1 hospitalizations could be prevented each year for approximately $151,000 of savings to Medicare. The total cost of the telemedicine service used was $30,000 per year, yielding a net savings of $120,000.

Partners HealthCare mHealth Program for At-Risk Pregnant Women, Massachusetts

At-risk pregnant women in underserved communities often receive less than the recommended level of prenatal care, which can lead to adverse outcomes for their babies. The Center for Connected Health at Partners HealthCare uses mobile health programs to provide prenatal and post-partum support to help young women receiving care through community health centers have healthier pregnancies. Twenty-five young women, age 22 on average, receiving care at the Lynn Community Health Center, one of the most medically underserved communities in Massachusetts, received between one and four informational and supportive text messages each week. These women received the recommended level of prenatal care 9% more than similar pregnant women receiving care at the clinic who did not participate in the text message program. Due to this program's success, the Center is expanding the text messaging program for pregnancy and prenatal care, chronic disease management, and health and wellness programs.

Electronic Medication Dispensers, Henry Ford Health System, Michigan

Medication management is a particular challenge for seniors, who have more chronic conditions and take more prescription and over-the-counter medication than any other age group. In fact, about one-third of all seniors take eight or more medications. Medication non-adherence contributes to approximately one in ten hospitalizations, so helping seniors manage their medication can yield substantial savings. While simple pillboxes may help some, one study found that seniors using a pillbox missed 30% of their medication doses each month. Henry Ford Health System uses a multidisciplinary approach to improve medication compliance, including telehealth medication dispensers. Used in a patient's home, patients and caregivers preload medications into the dispensing system, which dispenses doses according to a schedule. The system provides an audible and visual reminder when it's time to take medicine and if a dose is missed, the system calls a designated caregiver and places the missed dose in a locked compartment. Using these telehealth medication dispensers has helped Henry Ford patients achieve a 98% medication compliance rate, and use of the dispenser is also associated with reduced physician visits and hospitalizations. Henry Ford focuses use of the dispensers on high-risk populations, such as individuals with chronic conditions who take multiple medications, those who have been hospitalized for medication misuse, those with cognitive impairment, individuals with limited mobility and those who require assistance with taking medication.

Michigan Department of Corrections, Michigan

The Michigan Department of Corrections (MDOC) is responsible for providing health care to approximately 45,000 prisoners in 30 correctional facilities across the state. By linking facilities through a videoconferencing network, MDOC is able to control costs by offering inmates telemedicine

consultations in areas such as psychiatry, nephrology, dietary counseling, and infectious disease. These telemedicine visits yield $125,000 in annual savings due to reduced transportation costs, ensure consistent public safety by reducing the need to transport prisoners, and improve health care and prisoner intake procedures by diagnosing and treating infectious diseases and conducting psychiatric evaluations via videoconference.

University of Mississippi Center for Telehealth, Mississippi

The state's telemedicine program, which is ranked among the seven best in the nation, grew out of efforts to address the state's doctor shortage, which is the worst in the nation. Patients travelled hours to the state's only trauma center and children's hospital, in Jackson, taking their payment dollars with them from the small, rural hospitals in their home communities. Some of these facilities were contemplating closure because they could not achieve adequate staffing, when the University of Mississippi Medical Center's Center for Telehealth launched a pilot program to connect emergency physicians in Jackson with rural hospitals across the state using telehealth technology. The Center for Telehealth now has connections with 165 sites, covers 35 specialties, and provides 8,000 telemedicine visits per month, with services includes diabetes counseling and robotic examination of premature infants. Participating hospitals experienced reduced personnel costs of 25% because they eliminated expensive contracts with temporary physicians, and also saw their admissions increase by 20% because patients weren't being transferred to Jackson and other larger hospitals. And quality has not suffered, with early data showing that patients suffering from cardiac arrest fare as well in rural emergency rooms. s that use telemedicine as they do at larger hospitals in Jackson.

Pediatric Tele-Neurosurgery Consultation Project, Montana

Thanks to the pediatric tele-neurosurgery consultation project at St. Vincent Healthcare in Billings, pediatric patients and their families have a local option for head injury treatment. Head injuries occur relatively frequently in children and adolescents and often require evaluation by a pediatric neurosurgeon. Pediatric patients seen at St. Vincent Healthcare in Billings for a head injury had to travel a minimum of 500 miles to the nearest pediatric neurosurgeon, where they were often observed for less than 24 hours and discharged. These children were typically transported to Children's Hospital of Colorado in Denver at a cost of $15,000 or more per patient. With the pediatric tele-neurosurgery consultation project in place, children with a head injury can be evaluated by the pediatric neurosurgeon via videoconference, and the neurosurgeon can also review any tests, such as a CT scan. If the neurosurgeon and the local trauma surgeon agree that the child has a low risk of complications, the patient and their family can stay in Billings for observation, avoiding a long and expensive trip to Denver. Patients who are transported to Denver can conduct follow-up visits via telemedicine upon their return home.

Project ECHO (Extension for Community Healthcare Outcomes), New Mexico

Begun at the University of New Mexico in 2003 as a way to connect patients living with Hepatitis C in rural New Mexico to specialty care, Project ECHO since has expanded nationally and globally. Today, the program handles numerous conditions including diabetes, asthma, rheumatoid arthritis, behavioral health, and chronic pain. Project ECHO links primary care practices to specialty treatment so that front-line providers have the necessary knowledge and support to manage complex conditions. These linkages help address inadequate or disparities in access to care, rising costs, inefficiencies in delivery systems, and slow diffusion of best practices. One example is Project ECHO's use of funding from the Centers for Disease Control and Prevention to train 66 primary care clinicians, mostly from rural settings, in the care

and treatment of Hepatitis C. Just seven percent of participating clinicians had any prior experience with Hepatitis C, yet 46% of patients they saw at the "teleECHO" clinics received antiviral treatment, more than double the expected treatment rate.

Carolinas HealthCare System, North Carolina

Heart failure patients who have frequent hospitalizations are at risk for poor outcomes, and hospitals treating these patients face reduced reimbursement from public and private payers for readmission of patients with heart failure to the hospital. To address gaps in care between the inpatient and ambulatory setting, Carolinas HealthCare System created the Heart Success Transition Clinic at two locations for patients discharged from the hospital with a primary diagnosis of heart failure. While the clinic was successful in reducing the readmission rate, staff found that 25% of patients discharged from one location did not participate, generally because they lived too far away. To address this nonparticipation, Carolinas HealthCare System piloted a virtual model of the Heart Success Transition Clinic at a third location, using telemedicine to facilitate weekly visits by patients with a multidisciplinary team of advanced clinical practitioners, a social worker, a pharmacist, a dietician, and a registered nurse. The virtual clinic utilized videoconferencing and a peripheral stethoscope. During a six-month pilot, 60 new patients were enrolled in the virtual clinic, and the all-cause readmission rate at the sponsoring facility dropped from 17.86% to 9.82%, though not all of this change is directly attributable to the virtual clinic.

Humana Cares: Remote Patient Care Management, Ohio

Congestive heart failure is the leading cause of hospitalization for adults over age 65, and half of older adults hospitalized for heart failure are readmitted within six months. Medicare spending on hospitalizations and readmissions due to heart failure is increasing, causing

Medicare and other payers to focus on improving care for patients with heart failure in an effort to keep them out of the hospital. Building on a year-long program involving 2,000 patients in 33 states, Humana Cares, a division of Humana, launched a nine-month telehealth pilot to provide in-home monitoring to 450 Humana Medicare Advantage members in Ohio diagnosed with heart failure. Using Bluetooth-equipped scales and blood pressure monitors, patients received daily biometric screening, with information sent to a Humana Cares nurse. The nurse reviews the data and identifies any abnormalities, such as a rapid weight gain that may signal fluid retention, which can be dangerous for patients with heart failure. The nurse contacts the patient via videoconference to help the patient understand why these changes may have occurred, learn how to prevent them in the future, and address any immediate issues to help keep the patient at home and out of the hospital.

Health Buddy, Oregon (and other states)

Care for individuals with chronic illness consumes nearly four-fifths of the nation's health care spending and finding ways to better coordinate their care is the focus of much research. Medicare, in particular, is focused on improving care for these individuals while reducing the cost of care. A recent Medicare demonstration program utilized the Health Buddy Program, which aims to improve care coordination by combining a telehealth tool that facilitates patient and provider communication with care management techniques used by the patient's health care providers. Medicare identified patients of two clinics with evidence of congestive heart failure, chronic obstructive pulmonary disease, or diabetes. Care managers at the clinics invited the patients to participate in the program and those who agreed were provided with a Health Buddy device in their home. This handheld telehealth device has four buttons, a large, high-resolution color screen, and links to the clinic care managers via telephone. The device prompts patients to answer questions each day about their symptoms, vital signs,

knowledge and behavior. Responses were risk-stratified for review by care managers, who could intervene with patients to ensure they received appropriate services. An independent study found that health care spending was reduced by 8-13% ($312-$542) per person per quarter among Health Buddy Program participants, with the greatest impact on patients with congestive heart failure. The program cost about $120 per month, so with those costs taken into account, Health Buddy still saved 4-10% per person per quarter.

Pediatric Teledermatology, Children's Hospital of Pittsburgh of UPMC, Pennsylvania

A national shortage of pediatric dermatologists means reduced access and increased wait times in many areas of the country, including at urban, academic medical centers, such as Children's Hospital of Pittsburgh of UPMC. Children and their families often faced waits or lengthy travel for dermatology consultations. With only two board-certified pediatric dermatologists within 125 miles of the city, Children's Hospital needed a creative solution to improve access and reduce wait times. They found it in a teledermatology pilot program, funded by a grant from Highmark Blue Cross Blue Shield. Pilot program staff placed digital cameras in locked safes in the emergency department and on every inpatient floor and ICU so they were readily available. A consultation was initiated by uploading at least 3 digital images directly into the patient's electronic medical record. Using this store and forward technology, the pediatric dermatology attending physician remotely and securely accessed the electronic record and provided recommendations for the patient's care. During the nearly-two years of the pilot program, 492 pediatric teledermatology consultations occurred. All emergency room consultations were completed in less than one hour, and all others were completed in less than 12 hours.

eCare, Avera Health, South Dakota

With efforts dating back to the late 1990s and early 2000s, Avera Health uses telemedicine to address challenges associated with rural health care delivery and improve rural patient care. In an effort to ensure that patients receive high quality care, no matter where they seek it, Avera developed its eCare model using interactive video and computer technology to extend specialty care across 8 states and 545,000 square miles, an area roughly the size of France and Germany combined. eCare provides eICU, eEmergency, ePharmacy, and eConsult services. Participating hospitals pay a subscription fee to use Avera's technology, and they get results. eEmergency offers rural providers immediate access to board-certified emergency medicine physicians and emergency nurses who assist in the diagnosis of stroke, heart attack, and other conditions. eEmergency services have saved an estimated $6.8 million in avoided patient transfers. eICU CARE provides 24/7 monitoring of critically ill patients in intensive care units across the eCare service area, providing intensivist oversight to more than 60% of the region's critical care patients, compared to a national rate of just 13%. The service has also reduced ICU days by a total of 28,500, resulting in an estimated savings of more than $44 million. Future plans include a shift towards direct-to-consumer care and an increasing focus on long-term care facilities as well as employer health.

Christus St. Michael Health System Teleneurology, Texas

When Sandra Bowden, a nursing director at Christus St. Michael Health System, began to feel a tingling sensation around her ear and face, then down her arm, and saw the left side of her face drooping, she was pretty sure what was happening. Sandra is a member of the hospital's stroke team, and a colleague quickly escorted her to the emergency department. She was immediately sent for a CT scan, and upon returning, Sandra spoke with her neurologist, Dr. Todd Samuels, via videoconference. Dr. Samuels is a board-certified neurologist with Specialists On Call, a provider of emergency telemedicine consultations. After conducting a neurologic

exam, with the help of the attending nurse, Dr. Samuels determined Sandra was suffering a stroke and recommended the clot-busting drug tissue plasminogen activator (tPA). After reviewing the benefits and risks of this course of treatment with Sandra and her husband, Dr. Samuels oversaw administration of the drug and continued to check in on Sandra periodically. After recovering in the hospital for a few days, and participating in physical therapy, Sandra now lives a normal life with no complications from her stroke. By using telemedicine, Christus St. Michael Health System achieved Primary Stroke Center certification by The Joint Commission and is able to help patients like Sandra recover quickly from stroke. (Today, Christus St. Michael Health System offers teleneurology through a partnership with Neurocall).

University of Virginia, Virginia

Transitioning between care settings can be confusing and challenging for patients and their caregivers. Patients leaving the hospital may not understand their discharge instructions, may be confused about new and ongoing prescriptions, may not have scheduled follow-up appointments with their primary care provider or specialists, and, depending on the severity of their illness, may not be prepared or able to coordinate their own care. The University of Virginia (UVA) Health System, in partnership with Broad Axe Care Coordination, a Charlottesville-based health care technology firm, is focused on comprehensive post-discharge care coordination for patients with acute myocardial infarction, heart failure, pneumonia, and chronic obstructive pulmonary disease. The program uses remote monitoring telehealth technology, such as a blood pressure monitoring cuff and oxygen saturation equipment that syncs wirelessly with Broad Axe. The equipment is set up in a patient's home within 48 hours of discharge and monitored by a nurse, who intervenes via phone to resolve any issues noticed through changing vital signs or to ensure the patient fills prescriptions and keeps physician appointments. The program ends 60 days after discharge and has been credited with UVA's very low, 10.4% readmission rate for enrollees,

which is 50% lower than the hospital's historical readmission rate of 23.1%.

Teleneurology, Bon Secours Maryview Medical Center, Virginia

Despite a patient population with a high incidence of cerebrovascular disease, ambulances handling likely stroke patients bypassed Bon Secours Maryview Medical Center because it was not a certified primary stroke center by The Joint Commission. The certification requires 24/7 emergency neurology coverage, and the call burden was too great on the one local neurologist to bear. After exploring additional local options and the use of locum tenens, both of which were outside the hospital's budget, Maryview decided to use teleneurology to solve its coverage challenges. The hospital earned its primary stroke center certification and within the first 12 months experienced a nearly 40% growth in admissions, an additional $486,000 in contribution profit, a half-day decrease in stroke patient stay, and more than triple the number of cases in which clot-busting drugs were administered.

Health System-Based Urgent Care, Franciscan Virtual Urgent Care, Washington

Singer Kim Archer was on the verge of cancelling a New Year's Eve performance in Tacoma. Earlier in the day, she'd had an asthma attack, realized she was out of medicine, and knew she wouldn't be able to perform. An internet search turned up Franciscan Virtual Urgent Care, the telemedicine arm of CHI Franciscan Health, an integrated health care provider based in Tacoma. Within 20 minutes, she was on the phone with a physician who, Archer says, took time to "really get to know my situation," and 20 minutes and just $35 later, a prescription was called in to the pharmacy. Archer was onstage by 9pm that evening.

Direct-to-consumer virtual care like CHI Franciscan's is happening across the country, but it isn't often offered by a

bricks-and-mortar health system. CHI Franciscan virtual urgent care is actually a partnership with Carena, a telemedicine company in Seattle whose providers handle calls to Franciscan Virtual Urgent Care 24/7. The service has dramatically lowered the number of times patients page Franciscan Health's on-call providers, with nighttime pages dropping by half. Franciscan Health estimates that the service has saved patients $600,000 since its launch in September 2013 compared to the cost of care at an emergency department, urgent care provider, or primary care clinic.

Lack of insurance coverage has traditionally been a barrier to widespread telehealth adoption, but Franciscan Health recently announced a breakthrough in that regard. Molina Healthcare, the state's largest Medicaid health plan with more than 500,000 members, will cover the cost of Franciscan Virtual Urgent Care visits for all Medicaid plan members who have a Franciscan Primary Care Provider.

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