



Fight the Rising Tide of Chronic Disease Care Costs

**Evidence-based technology
empowers clinicians and
patients to transform outcomes**

Telemedicine has long attracted interest for its potential to enable new and better models of care. Remote monitoring of key health metrics is a particularly important capability as rates of chronic disease increase and health plans and doctors seek new ways to stop disease progression.¹ This technology can help patients better manage their health and take action to improve outcomes.

The chronic disease challenge

In 2014, six in 10 Americans had at least one chronic disease, and more than 40% had two or more. This population uses disproportionately more care, and their medical spending is higher.²

The challenge is especially acute among those who have multiple health problems. The 12% of Americans who have five or more chronic conditions account for 41% of medical spending, and they are far more likely to have functional limitations that can compromise their independence and further complicate the delivery of care and health outcomes.²

The new health care landscape

Amid these challenges, value-based care is putting quality and patient outcomes in the spotlight. With America's health worsening, health plans must do more to turn the tide. As health care providers increasingly accept risk, they are also more accountable for chronic disease care.

Rethinking care delivery and settings is part of the solution. Stakeholders frequently emphasize the importance of ensuring patients receive the right care at the right time and in the right setting. More often, the right setting includes a component at home, where many Americans prefer to receive care, and where care is often most cost effective. With the right remote monitoring and telemedicine technology in place, the home setting is well positioned to support a more sustainable health care system.³

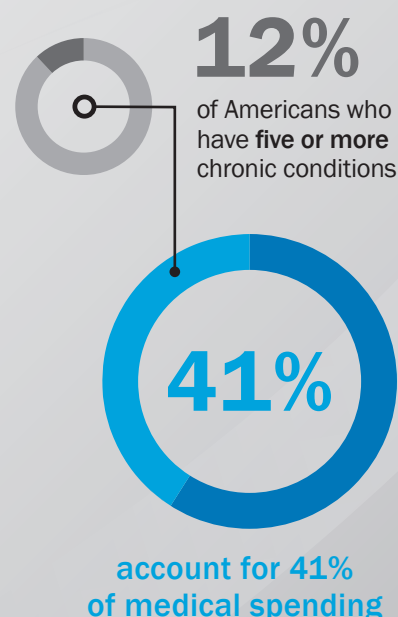
IN 2014²

60%

OF AMERICANS HAD
AT LEAST ONE
CHRONIC DISEASE

42%

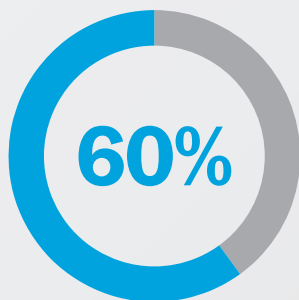
OF AMERICANS HAD
AT LEAST TWO OR MORE



ED/READMISSIONS⁵



WITH TECHNOLOGY & APP



CONTROL GROUP – WITH
NO TECHNOLOGY OR APP

Technology and the promise of remote monitoring

Patients with chronic diseases are good candidates for remote monitoring. Chronic disease care requires frequent assessments, yet these patients may experience barriers to the appointments where assessments traditionally occur. Remote monitoring helps bridge this gap while also providing a more detailed picture of patient health.⁴

Numerous studies support the value of remote monitoring for patients with a variety of chronic conditions. Generally, health improves and less care is needed after these technologies are put in place. Remote monitoring may even keep patients out of the hospital, leading to lower costs, fewer complications and better outcomes.⁴ Mayo Clinic researchers documented a 40-percentage-point reduction in 90-day readmissions or emergency department (ED) care among cardiac rehabilitation patients who used an app to monitor their cardiovascular risk factors. Just 20% of that group was readmitted or visited the ED, compared with 60% of control patients.⁵

When merged with technology such as the FORA 24/7 HealthView Telehealth system on the clinical side, remote monitoring supports the care management that is so important to chronic disease outcomes.⁴ Clinicians who have the ability to access real-time changes in these metrics can modify medications, talk with patients, arrange necessary appointments or take other actions to stop a potential problem.

Evidence for remote monitoring

An Agency for Healthcare Research and Quality review found remote monitoring was consistently associated with benefits for chronic conditions, including:⁴

COPD: Fewer disease exacerbations, improved quality of life, reduced hospital admissions and reduced ED use.

CHF: Reduced mortality, fewer hospitalizations and lower direct costs.

Diabetes: Improved blood glucose and HbA1c levels.

Multiple chronic conditions: Improved clinical, symptomatic and psychosocial outcomes. Reduced hospital and ED utilization.

A model for smarter care

Technology-assisted case management (TACM) is a model that leverages these tools and enables providers and payers to address the challenges of chronic disease care. Researchers say TACM's blend of high-touch clinical case management and high-tech remote monitoring is a "practical and sustainable" disease management system. This mix of technology, actionable data and clinical expertise can transform outcomes. For patients with diabetes, benefits include better metabolic control and bridging of care gaps.⁶

What does remote monitoring look like?

Remote monitoring has several components. Data-capture technology is the patient-facing piece where information such as temperature, weight, blood oxygen, blood pressure or blood glucose is recorded. The most practical technology is easy for patients to use, with a simple, flexible mechanism for transmitting data. For example, the FORA D40g 2-in-1 Blood Glucose plus Blood Pressure monitoring system uses 3G cellular connectivity for data transmission. Bluetooth devices that pair with mobile apps and cable transmission are other capabilities to look for.

Data should be transmitted to a provider or case manager interface. The best solutions are customizable, and they should allow monitoring of multiple parameters such as blood glucose, blood pressure, blood oxygen, temperature and weight.

REMOTE MONITORING AT A GLANCE

Data transmits from the patient's device to a cell tower to the cloud. A clinician immediately receives data in the FORA 24/7 HealthView Telehealth system and intervenes if needed.



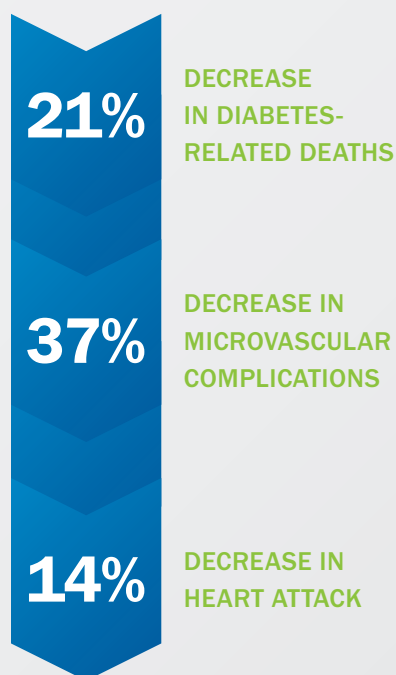
Features to look for

Remote monitoring won't contribute to chronic disease management unless it works for patients and providers.

Key considerations include:

- Effortless patient experience.
- Devices that use Bluetooth that pair with apps for better disease management on the patient end.
- 3G connectivity for wireless data transmission
- Transmission to cloud-based, 24/7 telehealth system.
- HIPAA compliance.
- Real-time data access from anywhere at any time.
- Flexible reporting.

A 1% DECREASE
IN HbA1c OVER SIX
MONTHS CORRELATES
WITH CLINICAL
IMPROVEMENTS:⁷



Solutions in practice

Studies show remote monitoring and telehealth interventions using technology developed by ForaCare contribute to improved patient outcomes:

Technology-assisted case management in diabetes

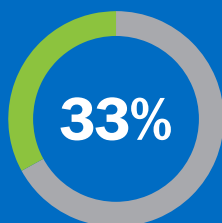
Researchers assessed the efficacy of TACM using the FORA 2-in-1 telehealth system in a rural population of adults with poorly controlled type 2 diabetes. Medication was titrated regularly, based on remote monitoring of blood glucose and blood pressure. Patients enrolled in the TACM group had significantly lower HbA1c levels at six months (-0.99 , $P = 0.024$) and a significantly faster rate of blood glucose improvement than patients enrolled under usual care (-0.16 , $P = 0.038$). Researchers determined the intervention improved patient-provider communication, patient access to care and medication adherence.⁶

Research underscores the importance of such HbA1c reductions. One study found a 1% decrease in HbA1c over six months correlates with a 21% reduction in diabetes-related deaths, a 37% decrease in microvascular complications and a 14% decrease in heart attack, among other benefits.⁷

Combined reductions in risk factors yield further benefits. One large observational study documented a 35% relative risk reduction in fatal/nonfatal coronary heart disease risk with a decrease in HbA1c. When combined with reductions in systolic blood pressure and improved blood lipid profile, risk reduction was far higher at 75%.⁸

The diabetes burden

More than 30 million Americans had diabetes in 2015, **AND UP TO**



OF AMERICANS ARE EXPECTED TO HAVE DIABETES BY 2050, ACCORDING TO PROJECTIONS.^{9,10}

Rising incidence is fueling rising spending. Direct medical costs alone cost the US **\$237 billion in 2017.**¹¹

As diabetes complications and comorbidities arise, spending increases. One study found direct medical costs **increased by 70% to 150%** each when diabetes was accompanied

by coronary heart disease, congestive heart failure, hemiplegia or amputation. Meanwhile, end-stage renal disease increased costs by **300%** for those on dialysis or **500%** for those treated with transplantation. More comorbidities means higher costs.¹²

Clinical experience has also supported use of ForaCare's remote monitoring as part of telehealth programs for a number of other scenarios:

- ◎ **Management of CKD risk:** A program designed to manage chronic kidney disease risk by improving hypertension, diabetes and cholesterol control saw all three metrics improve after 18 months.¹³
- ◎ **Management of hypertension and diabetes:** A program using self-monitoring was associated with improvements in HbA1c and blood pressure and high patient satisfaction.¹⁴
- ◎ **Blood glucose control:** Under remote glucose monitoring, 76.1% of patients' pre-meal measurements and 88.7% of post-meal measurements fell within recommended ranges, and 85% of pregnant patients maintained tight glycemic control.¹⁵

**RESEARCH VALIDATES
REMOTE MONITORING
ACROSS POPULATIONS
OF CHRONICALLY
ILL PATIENTS.**

An evidence-based solution

As health care stakeholders tackle the chronic disease challenge, they need evidence-based solutions that engage patients, reduce the episodic nature of care and support health outcomes. Telehealth with remote monitoring is such a solution. Research validates remote monitoring across populations of chronically ill patients, and use cases involving ForaCare's patient-facing and clinical technology underscore the benefits in concrete terms: Key markers of health improve, and risk of disease progression is likely to be subsequently reduced.

Telehealth triage: A model for remote monitoring

Experience from the Mayo Clinic suggests telehealth triage is a useful model that enables patients to be directed to the most appropriate intervention. Reliance on decision support tools and access to a dedicated support team of health care providers enabled telehealth nurses to assess, categorize and route patients to remote or in-person care if needed, as well as other interventions. The program resulted in more appropriate levels of care, reduced utilization of emergency care, fewer interruptions to practitioners during

clinical hours and less need for repeated points of contact between patients and clinicians. Anecdotal evidence suggests patients like the program.¹⁶

One reasonable application for this type of model would be a morning triage program that integrates remote monitoring. Patient data would be reviewed first thing by a triage nurse, enabling same-day interventions if appropriate and rapidly putting patients on the path to better health.

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ABOUT ForaCare™

ForaCare Inc. is a fully-integrated healthcare technology company, dedicated to improving patient care for chronic conditions including diabetes mellitus, hypertension, CHF and COPD. With offices and customers around the world, ForaCare researches, designs and manufactures FORA branded innovative, easy-to-use, highly accurate devices, mobile applications and software serving both patients and healthcare professionals.

ForaCare seeks to embody the spirit of progress in its effort at developing and improving medical device technology, data-based management software and high quality products with the aim of reducing costs of care and enhancing patient quality of life.