A decorative graphic of multiple overlapping wavy lines in shades of orange and yellow, flowing from the left side of the page towards the right, creating a sense of movement and depth.

Telehealth Solutions Enhance Health Outcomes and Reduce Healthcare Costs

Telehealth Applications in Life Sciences

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Drive to enhance outcomes and decrease costs

There is pressure for the life sciences industry to demonstrate treatments enhance health outcomes and decrease healthcare costs. Life science companies need tools to track patient outcomes and gather data that demonstrates the impact of a treatment.

Healthcare costs are rising in the US, and healthcare expenditures as a percent of our gross domestic product are expected to grow faster than national income over the foreseeable future¹. These increasing costs are a significant challenge for the US economy now and in the future, and addressing this challenge is a major policy priority.

Telehealth solutions have demonstrated the ability to enhance health outcomes and reduce costs. Telehealth solutions can be customized to gather patient vital signs and interview data based on the patient's health condition.

There is broad agreement that rising healthcare costs must be controlled. All sectors of the healthcare industry—healthcare providers, health systems, hospitals, payers, and life science companies are looking to decrease healthcare costs.

This white paper provides an overview of what telehealth is, factors driving the healthcare industry to focus on increasing outcomes and reducing costs, how telehealth solutions can enhance health outcomes and reduce costs, benefits life science companies can expect from telehealth solutions, as well as results from two key studies of telehealth solutions.

Telehealth: defining a growing industry

The Center for Connected Health Policy defines telehealth as the use of digital technologies to deliver

medical care, health education, and public health services, by connecting multiple users in separate locations. Telehealth services consist of diagnosis, treatment, assessment, monitoring, communications, and education. It includes a broad range of telecommunications, health information, videoconferencing, and digital image technologies.

Telehealth services are delivered in three main ways...

- **Video conferencing** — real-time patient-provider consultations, provider-to-provider discussions, and language translation services.
- **Remote patient monitoring** — electronic devices transmit patient health information to health care providers.
- **Store & forward technologies** — electronically transmit pre-recorded videos and digital images, such as X-rays and photos, between primary care providers and specialists.

Telehealth is more than monitoring devices and software. Telehealth is a platform to engage patients in health education through activities, such as classes, patient portals, and online discussion forums. These services can be live, pre-recorded, and on-demand to computers or digital devices².

In 2012, there was an estimated 227,000 patients in the US being remotely monitored by healthcare providers. The majority of patients being remotely monitored were those recently discharged from the hospital. Healthcare providers seek to reduce hospital re-admissions and monitor disease progression. Telehealth solutions provide an effective tool to accomplish these needs³.

A recent study by InMedica (the medical technology research division of IMS Research) estimates the US market for telehealth services will be approximately 1.3 million by 2017³. The growth in demand is driven by expansion to remotely monitor patients that have been diagnosed with a condition, but have not been hospitalized.

Healthcare spending is sky-rocketing

Life sciences companies are not insulated from the impact of rising healthcare costs, and there is increasing pressure for life sciences companies to provide data that demonstrates the impact a treatment has on increasing health outcomes and reducing healthcare costs.

Healthcare expenses driven by treating chronic conditions

Another significant healthcare expense is the cost of treating chronic conditions. Greater than 75% of our healthcare expenditures are related to chronic diseases⁴. The incidence of US adults with chronic conditions such as diabetes, hypertension, asthma, and heart disease is increasing, and almost 1 in 2 adults have a chronic illness⁵. The costs of treating chronic conditions are staggering and are expected to reach \$4.2 trillion by 2023⁶.

Low rates of patient adherence to treatment

Closely tied with increasing cost of treating chronic conditions is a lack of patient adherence. Chronic conditions have high rates of patient noncompliance, and it is commonly reported that patient compliance to therapy averages 50% to 65%. According to a report by Capgemini Consulting, titled "Patient Adherence: The Next Frontier in Patient Care," only 69% of patients fill their first prescription. Only 43% of patients that start a prescription therapy are continuing that therapy 6 months later⁷. This has a profound impact on future healthcare costs as these patients typically have additional healthcare issues in the future related to earlier episodes of non-compliance to treatment.

Improving outcomes and mitigating rising healthcare costs

The only way to change the increasing trajectory of healthcare spending is to change the concept of healthcare delivery. Historically, the industry's focus has been on treating a disease or condition. To significantly

133 million

Americans—nearly 1 in 2 adults—live with at least 1 chronic condition

75%

Of healthcare costs are due to chronic conditions

\$4.2T

Estimated spending to treat chronic conditions by 2023

decrease healthcare expenditures the healthcare system must focus on using the most effective treatments available, as well as shift from treating diseases to curing and preventing them.

Affordable Care Act

In an effort to decrease healthcare expenditures, provider reimbursement models are changing to focus on health outcomes, rather than treating events. The Affordable Care Act (ACA) includes value-based purchasing provisions that took effect in early 2013. With these provisions hospitals serving Medicare patients with most common conditions are paid on the quality of the care provided, rather than the quantity of services provided. The concept of value-based purchasing is likely to be extended to other healthcare providers in the next few years.

Additionally, the ACA encourages healthcare providers to deliver better and more coordinated care in order to prevent disease and reduce unnecessary hospital admissions. Accountable Care Organizations (ACOs) are forming and those that deliver the best care and decrease costs are able to keep some of the savings. The number of physicians joining and forming ACOs is growing quickly and this is expected to increase significantly over the next few years.

Telehealth solutions support ACA provisions by providing educational tools and opportunities for patients. Additionally, telehealth solutions monitor patients on a regular basis, and provide opportunities for healthcare providers to intervene with a patient at an earlier stage when a condition may be more easily treated.

Value-based reimbursement

As reimbursement for healthcare providers and payers is becoming more “value-based,” it is likely healthcare providers and payers will evaluate treatments and medical devices based on the value provided. Providers and payers will demand data that demonstrates how well a product improves the health of patients.

PricewaterhouseCoopers recently conducted a survey with US-based health insurers, and they found that 80% of the US health insurers that responded to the survey were already requiring evidence of cost savings or a clear clinical benefit to include new products on their formularies⁸.

Telehealth solutions support value-based reimbursement strategies by tracking individual patient outcomes that can be aggregated to demonstrate the impact a treatment has on health outcomes.

Telehealth helps improve outcomes and reduce costs

Outcomes research seeks to understand the end results of particular healthcare practices and interventions. End results include effects that people experience and care about, such as change in the ability to function. For

individuals with chronic conditions—where cure is not always possible—end results include quality of life and mortality. By linking the care people get to the outcomes they experience, outcomes research has become the key to developing better ways to monitor and improve the quality of care⁹.

Telehealth solutions are an effective tool to deliver enhanced health outcomes and efficiently measure the impact of a treatment or program.

How telehealth solutions work

Telehealth solutions offer devices and software that consistently and accurately monitor patient vital signs in a patient’s home. As a part of daily monitoring, patients complete a set of questions customized to their health condition. Healthcare providers receive the vital sign data and interview responses. If the vital sign data are outside of the set “normal” limits for each patient the telehealth system alerts the healthcare provider.

These alerts allow for early interventions and treatment adjustments before a more significant health event occurs such as emergency room visits and hospitalizations. Additional benefits of consistent monitoring are a comprehensive view of how well a patient’s condition is being managed over time, and objective measures of how effective a treatment is over time.

Additional telehealth benefits

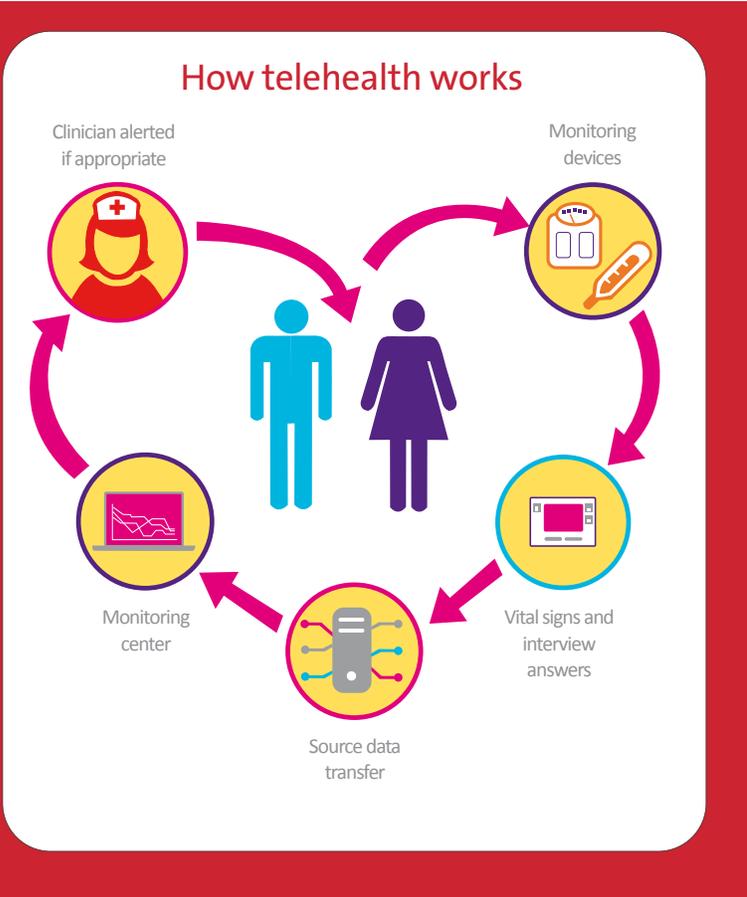
Telehealth solutions not only support enhanced health outcomes and decreased costs. When used as a part of a comprehensive patient education and support program, telehealth tools can increase patient adherence to treatment. There are many factors that impact patient adherence, and programs that successfully improve adherence and compliance include feedback mechanisms such as data demonstrating that a treatment is working, on-going support to continue a treatment, easy access to answer day-to-day questions, as well as on-going education so patients can better manage their condition.

According to a recent PricewaterhouseCoopers survey with US-based health insurers...

80% already require evidence of cost savings or a clear clinical benefit to include new products on their formularies.

16% have entered into outcomes-based contracts with pharmaceutical, biotech, and medical device companies.

Another **33%** expect to enter into outcomes-based contracts within three years.



Tunstall’s patient adherence programs

Tunstall Americas delivers patient adherence programs to support disease-state and treatment education; as well as on-going encouragement. Our patient adherence programs include...

- **Patient outreach and recruitment**
- **Educational materials**
- **Live 24/7/365 operator assistance**
- **Remote nursing support** for patient consultations
- **Patient follow up** to support continued treatment, assess compliance, and address concerns
- **Customized reporting** to healthcare providers

Our data show adherence rates increase by 10% to 15% after a patient support program is implemented and maintained for approximately one year.

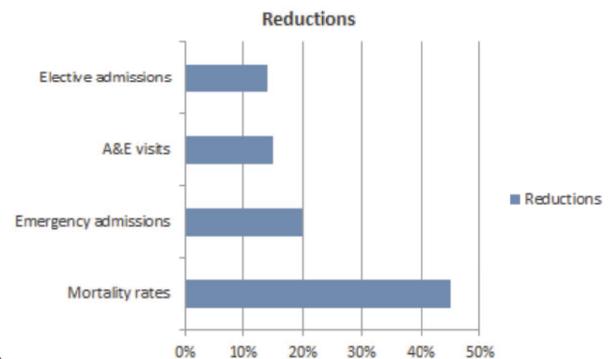
Case study: Whole System Demonstrator trials in the United Kingdom

The Department of Health in the United Kingdom conducted the Whole System Demonstrator program to

Life science companies can leverage telehealthcare solutions to...

- **Measure treatment effectiveness** — Demonstrate a product’s outcomes and effectiveness. Share this information with providers as they evaluate a treatment and determine if it should be included on formulary.
- **Support patient adherence** — Provide disease-state and treatment education programs along with vital sign monitoring and patient interviews to support patient compliance to therapy, and help patients overcome treatment hurdles.
- **Optimize clinical trials** — Accelerate data generation and decrease demands on trial sites for day-to-day monitoring. Telehealth solutions also provide early detection of issues including non-compliance.

Results from Telehealth Portion of the Whole System Demonstrator Trial



quantify the clinical value and financial savings of telehealth programs that empower patients to manage chronic conditions.

The telehealth portion of the study included 3,030 patients with one of three chronic conditions (diabetes, heart failure, and COPD). The results show that telehealth can substantially reduce mortality, reduce the need for hospital admissions, lower the number of bed days spent in the hospital, and reduce A&E (known in the US as emergency room) visits¹⁰.

Case study: Care coordination/home telehealth to support the care of veteran patients with chronic conditions

The US Veterans Health Administration introduced a national program to coordinate the care of veterans with chronic conditions at home and avoid unnecessary admission to long-term institutional care. The program included the systematic implementation of health informatics, home telehealth, and disease management technologies for six conditions including diabetes mellitus, congestive heart failure, hypertension, posttraumatic

Reduced Utilization by Condition Monitored (single and multiple diagnoses)

Condition	Number of Patients	% Decrease in Utilization
Diabetes	8,954	20.4
Hypertension	7,447	30.3
Chronic heart failure	4,089	25.9
Chronic obstructive pulmonary disease	1,963	20.7
Posttraumatic stress disorder	129	45.1
Depression	337	56.4
Other mental health condition	653	40.9
Single condition	10,885	24.8
Multiple conditions	6,140	26.0

Reduced utilization was due to the program's foundation in patient self-management, disease management, and the use of virtual visits.

stress disorder, chronic obstructive pulmonary disease, and depression.

Patients involved in the study benefited from a 25% reduction in the number of bed days of care, a 19% reduction in hospital admissions, and a mean satisfaction score of 86% after enrolling in the program. According to the study authors, the basis for reduced utilization of healthcare resources for the patients involved in the study was due to the program's foundation in patient self-management, disease management, and the use of virtual visits¹¹.

Closing thoughts

Success in the future requires bold thinking to invest in new tools that increase health outcomes and decrease costs. There are a number of studies that show telehealth solutions increase patient outcomes and reduced healthcare expenses. Telehealth solutions also provide life science companies with real-world data on the impact and value of their products. The time is now to investigate and plan for innovative telehealth solutions.

Tunstall's telehealth solutions

For more than 30 years, Tunstall Americas has been helping clients succeed by delivering a comprehensive range of solutions to improve care and outcomes for patients and customers.

We are the world's leading provider of telehealthcare solutions. We have more than 50 years of

telehealthcare innovation through the Tunstall Healthcare Group, which operates in more than 40 countries and supports more than 2.5 million people worldwide. We partner with our clients to deliver the highest quality care and services, while increasing operational efficiency. Most importantly, we help our clients achieve results locally.

We are committed to improving the lives of patients and caregivers. Our passion drives us to develop innovative solutions to support the transformation of healthcare delivery. We strive to support our healthcare partners with new solutions that enable better, more integrated care, as

well as foster communication and a sense of community with their patients and customers.

Our solutions span the spectrum of health and are customized to provide telecare/PERS, telehealth, and engagement platforms to ensure patient safety, provide vital sign monitoring, increase patient adherence, and provide wellness support.

For more information on our services, please contact Lou Shapiro, Senior VP, Business Development at louis.shapiro@tunstall.com or visit www.tunstall.com.

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