Bridging healthcare, lifestyle and technology to advance telehealth

The population is aging. The prevalence of chronic disease and functional limitations is on the rise. And pressures to deliver the highest quality care in the most cost-effective ways continue. Each is a factor in a healthcare organizations’ growing need for telehealth solutions such as remote patient monitoring. With broad competencies across healthcare, lifestyle and technology, Philips is uniquely qualified to meet this need.

Combining simple technology, broad disease management know-how and expert resources, Philips Remote Patient Monitoring Solutions support faster, more informed clinical decision-making and active involvement of patients in their own care. It’s a model demonstrated to provide high-value to clinicians, their patients and healthcare organizations alike.

Clinicians are able to manage care more effectively, make well-informed care decisions for each patient and know who is at risk—all based on “anytime-anywhere” access to vital signs data and patient responses to health status and risk assessment surveys.

Chronic care patients are able to play an active role in their own health by taking their vital signs daily and participating in meaningful electronic information exchanges with clinicians. This personal involvement, combined with education and timely clinical intervention, helps patients regain and maintain optimum health.

Healthcare organizations are able to support their clinicians with proven effective disease management tools, including a full library of health and risk assessment surveys and clinical protocols that can help improve outcomes. They have the data to determine the right levels of care across broad patient populations and better manage resources for increased efficiencies, while continuously evaluating and improving their care processes.

Philips Remote Patient Monitoring

Easy for patients, efficient for clinicians

PHILIPS
Philips Remote Patient Monitoring Solutions support a healthcare organization’s ability to:

• **Improve patient care**
  – Identify high-risk patients and intervene earlier¹
  – Improve survival rates²
  – Customize care protocols and survey questions to better manage any chronic care population

• **Lower costs**
  – Reduce unnecessary hospitalizations³
  – Shorten length of stay when admission is necessary³

• **Involve patients as active participants**
  – Enable regular and engaging patient-provider connections
  – Increase compliance with lifestyle changes, such as diet, exercise and medication
  – Increase patient satisfaction and contribute to improved quality of life³

**How it works**

Patients take their own vital sign measurements daily as prescribed by their providers. They also respond to personalized, clinician-directed surveys, which can be customized to manage any disease. Vital signs – including weight, blood pressure, pulse, glucose levels, ECG rhythm and others – are taken using small, wireless devices placed in the home. Results are automatically transmitted to Philips secure web-based server via the TeleStation, the in-home communication device that also prompts patients to answer clinician-directed health and risk assessment survey questions.

These objective measurements and subjective patient responses can then be viewed in the Philips Clinical Review Application, which keeps clinicians informed of immediate patient needs, enables configuration of survey content and delivery, and supports highly effective chronic care management based on disease-specific care protocols and risk assessment tools.

**Philips Telemonitoring Services**

**VITAL SIGNS MEASUREMENTS AND SURVEY RESPONSES**

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<thead>
<tr>
<th>Phone Call</th>
<th>Provider intervention as necessary</th>
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<tbody>
<tr>
<td>Internal Modem</td>
<td>Data Server</td>
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<td>TeleStation</td>
<td>Patient's Home</td>
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**AUTOMATIC DATA COLLECTION AND TRANSMISSION**

**DATA PRESENTATION AND CLINICAL REVIEW SOFTWARE**

<table>
<thead>
<tr>
<th>Phone Call</th>
<th>Physician</th>
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<td>Care Manager</td>
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At-home patient devices

**TeleStation**
At the center of Philips Remote Patient Monitoring, the TeleStation has two critical roles in the care of patients:
- Transmits vital signs data from Philips and non-Philips measurement devices
- Enables interactive communication between care providers and patients via clinician-directed surveys, available in both English and Spanish.

Vital sign measurements collected from the wireless devices are sent to the TeleStation and automatically transmitted through an ordinary phone line to a secure server. In addition, measurements from other supported devices can be manually entered into the TeleStation for transmission.

Clinicians can remotely control the information that is delivered to each patient’s TeleStation. Flexible scheduling of surveys allows clinicians to send one-time reminders or to reinforce specific diagnosis-related topics – such as signs and symptoms of disease, medication and side effects, diet and lifestyle, compliance with care plan – as well as assess patients’ risk for hospitalization or other emergent situations.

Patients are prompted to take their vital sign measurements and to respond to surveys by the TeleStation’s audible beep and blinking light.

**Weight measurement**
Patients step on the low-to-the-floor, large footprint scale and hear and see their weight measurement displayed. There are no buttons to push and the reading is automatically sent to the TeleStation. The scale is easy to move and will function on either carpet or hard surface. The scale has a maximum of 440 pounds, and for patients who need extra support, a scale with steady handle bars is available.

**Blood pressure and pulse measurement**
Patients slide the cuff up the arm and push a button. An audible beep communicates that the measurement is complete. Results are displayed on the large LCD panel and the reading is automatically sent to the TeleStation. Large cuff sizes are available.

**Blood oxygen measurement**
Patients slip on a comfortable finger-clip sensor and press a single button. The pulse oximeter measures blood oxygen saturation level (SpO₂) as well as pulse in beats per minute. The reading is displayed on the LCD panel and automatically sent to the TeleStation.

**Glucose level**
The TeleStation is compatible with the LifeScan OneTouch® Basic and OneTouch® Ultra glucose meters. A cable connector supplied by Philips allows transmission of all stored readings from the glucose meter to the TeleStation, which automatically sends them to Philips secure server.

**Manual measurements**
These and several additional measurements can also be collected using non-Philips devices. Data can be manually entered and transmitted using the TeleStation, e.g. for temperature, peak expiratory flow, FEV1, PT/INR, HbA1c, respiratory rate, and ZOE® fluid monitor readings.

Philips wireless monitoring devices are convenient and easy to use.
Clinical Review Application

Monitoring and managing patients has never been easier. Philips web-based Clinical Review Application is designed to streamline clinical workflow and engage patients with personalized care experiences everyday. Graphical trending charts allow for easy review of flagged patients. Care teams can quickly assess patients’ status and review risk-level responses to focus their attention on patients most in need of clinical follow-up. Embedded disease management tools, including guidelines-based protocols and risk assessments, support better-informed care decisions and a more effective approach to managing patients.

Choose from Philips extensive library of health surveys or create your own directly in the application. Surveys and reminders can be customized for any patient population or condition. Flexible scheduling options allow delivery of surveys on a one-time or recurring basis. Philips AutoChek surveys are triggered when pre-determined thresholds are exceeded, such as a sudden increase in weight. These ‘smart’ follow-up questions are automatically sent to the TeleStation, minimizing unnecessary phone calls and allowing for more timely interventions.

The Clinical Review Application is equipped to generate multiple reports in various format options, including patient-specific profiles, medication and event reports.

Decision support for efficient remote monitoring.

Philips library of surveys covers over ten chronic diseases such as heart failure, hypertension, chronic obstructive pulmonary disease, diabetes and other conditions. Also, Patient Stratification Surveys that can help you identify patients at risk of hospitalization.

Endnotes
1 Meyer TE, Shreve P, et al. Two and Half Year Experience Using “Telemedicine Solutions” for Heart Failure Patients, University of Massachusetts Memorial Health Center Division of Cardiology, Heart Failure Wellness Center.


3 Specialized Primary and Networked Care in Heart Failure (SPAN-CHF II) study presented at the American Heart Association annual scientific session Nov 15, 2005. Study conducted by Tufts-New England Medical Center Boston MA, Dr. Marvin Konstam, senior investigator.

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