Chapter 33
Chronic Condition Management Using Remote Monitoring and Telehomecare

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ABSTRACT

Individuals afflicted with multiple chronic conditions should be managed in real life settings and real time, while simultaneously reducing use of costly acute care services. New models of care delivery will enable patient participation in life-long care management programs and activities that target "wellness" while minimizing, delaying, or preventing clinical deterioration that requires hospitalization and/or visits to emergency care facilities. Successful care models will likely require new organizational and financial approaches that re-purpose health professional roles, responsibilities, and relationships. Remote monitoring and telehomecare technologies that employ advanced data management and analytic algorithms as well as dashboard displays of clinician- and services-relevant health information will support clinician decision-making at the point and time of care. Optimally, health professional financial incentives will be re-structured to support and sustain outcomes-driven long term chronic care that rewards efficiency and effectiveness. We present a work-in-progress model, RightHealth™, including pilot project outcomes.

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INTRODUCTION

Timely access to healthcare in both urban and rural settings is a worldwide challenge because no nation committed to the health of its population can afford to replicate in every community all the resources required for each community's healthcare needs. Tele-networking of patients, providers, and relevant health information may be the only way to make healthcare services and outcomes-driven decision-making available, responsive, and convenient for consumers, practical for providers, and economically viable for healthcare systems.

By definition, chronic conditions (CC) last a year or more, and limit activities of daily living and/or require on-going medical attention (Hwang, 2001). They include physical medical conditions, mental and cognitive disorders, developmental disabilities, and addiction disorders. The prevalence and burden of fifteen selected CC was summarized by the Centers for Medicare and Medicaid Services (CMS, 2013). Selected conditions (percentage of Medicare beneficiaries) included: Hypertension (58%), High Cholesterol (45%), Ischemic Heart Disease (31%), Arthritis (29%), Diabetes Mellitus (28%), Heart Failure (16%), Chronic Kidney Disease (15%), Depression (14%), Chronic Obstructive Pulmonary Disease (12%), Alzheimer's Disease (11%), Atrial Fibrillation (8%), Cancer (8%), Osteoporosis (7%), Asthma (5%), and Stroke (4%). All are more prevalent in individuals 65 years of age or older, except depression and asthma.

Multiple chronic conditions (MCC):

- Increase with age:

<65(52%) 65-74(63%) 75-84(78%) ≥85(83%)

- Increase hospitalizations in a year:

0-1CC/MCC (4%/63% hospitalized; <1%/16% ≥3 hospitalizations):

- Increase use of post-acute care (at least one visit):

0-1(1%) 2-3(7%) 4-5(19%) ≥6(49%)

- Increase home health visits:

0-1(1%) 2-3(5%) 4-5(9%) ≥6(36%)

- Increase physician office visits (0/≥13):

0-1(34%/4%) 2-3(7%/15%) 4-5(7%/30%) ≥6(8%/46%)

- Increase emergency department visits (0/≥13):

0-1(86%/≤3%) 2-3(75%/4%) 4-5(59%/8%) ≥6(30%/27%)