

2004 *telehealth & disease management*

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We've heard the warnings. Over the next 30 years 80 million baby boomers will enter government-supported programs consuming a staggering two-thirds of an already compromised U.S. health care system. Geriatric practitioners will also be tapped as seniors look to this waning segment of health care for treatment. Practitioners, of all specialties, will have to pitch in and embrace broader disease management practices as boomers enter their golden

years [only 3 percent of today's medical students are registering in geriatric coursework (Cryns, 2003)]. With a steady shift in services from the private sector to the federal government, one of our first challenges will be to amend the current health care delivery model from a cure perspective to a care perspective.

Americans are living to age 65, and beyond, with chronic ailments like diabetes, congestive heart failure (CHF), and cardiovascular disease. According to the Centers

for Disease Control and Prevention, 90 million Americans with chronic conditions consume more than 75% of the country's \$1 trillion health care costs. Currently, the Centers for Medicare and Medicaid Services (CMS) and Veterans Affairs, are responsible for almost half of all health care related expenditures. Future health care burdens will continue to be shouldered by the federal government and a dwindling workforce.

Workforce Projections

1965 = 4 workers per retiree

2005 = 3.3 workers per retiree

2045 = 2 workers per retiree

(2003 Social Security Trustees' Report)

This scenario poses an enormous challenge for our government and private sector. In order to counterbalance the financial burdens of a lopsided economy [workers vs. retirees] home health technology [i.e. telehealth] must be introduced to a wider segment of the health care market or current payment mechanisms will dry up. When telehealth is factored into the health care equation, practitioners have the opportunity to treat, evaluate, and educate patients from remote locations [i.e. an individual's home]. This technology decreases costs, improves transmission of vital signs, and adds a variety of measurement capabilities.

A second challenge in controlling health care costs is to get to the root of the problem. Patient education and self-management have been shown to reduce costs by 7-17 percent (Fries, et al, 1998) and are essential components for long-term economic health and sustainability. The earlier we educate Americans and help them take charge of their health, particularly children, the healthier the economy and society will be.

According to the U.S. Surgeon General's recent testimony, an alarming fifteen percent of American children are either overweight or obese. Nine million children [1 out of every 7] are at increased risk of weight related illnesses [i.e. dia-



betes]. The direct and indirect costs of obesity, alone, are estimated to be \$117 million and the cost of managing diabetes has risen to 100 billion dollars annually. It is hard to imagine, but our nation may be caring for 30 million diabetics by the year 2050. Given these alarming statistics, we have no choice but to get “connected” in order to reduce health care expenditures and increase the quality of patient care. For the first time in our country’s history, we may see a generation of children less healthy with shorter life expectancies than their parents (Carmona, 2004).

The Cost Of Illness

The total economic costs of illness [direct and indirect] are approximately \$3 trillion annually. Direct costs total \$1.3 trillion and includes: diagnosis; surgery; treatment; physician visits; hospital stays; and nursing home rehabilitation, etc. Indirect costs total \$1.7 trillion and includes: lost worker productivity from reduced job performance or missed work due to illness or premature death. Direct and indirect costs represent about 31 percent of the U.S. gross domestic product and do not reflect intangible costs [emotional or physical pain and suffering that patients and their families experience] (Joint Economic Committee of Congress, May 2000).

Our government must begin to offer incentives to employers to help reduce health care costs directly related to illness. To date, the argument has been that Americans change jobs too frequently [men = every 3.9 years, women = every 3.4 years] (Bureau of Labor Statistics 2002); therefore, employers’ resist investing in employee education and prevention programs. Even our country’s HMOs and PPOs, who should be promoting a healthier America, admit that they would rather cut costs elsewhere than have their members take their new-found education to competing providers. Teaching em-

ployees how to better self-manage their health conditions is an investment in our country’s future.

Telehealth And Home Health: The Solution

Demand reduction combines patient education with clinical management to increase patient self-efficacy, improve health risk behaviors, and reduce the long-term care and costs associated with chronic illnesses. A patient’s self-efficacy drives health care utilization: Patients with high levels of health education, and support, demand less from health care services and seek out appropriate medical care. One estimate indicates that a reduction in need and demand of medical services could reduce medical costs by 20 percent or more (Fries, et al, 1998)

In 1999, Americans made 756 million trips to their physicians’ offices. If telehealth is introduced into the treatment paradigm, it could conservatively reduce physician visits by a minimum of 20 percent [at approximately \$60 per visit] resulting in savings of \$9 billion. Not to mention the additional greater savings generated from reduced trips to hospitals and emergency departments (EDs).

ED visits comprise 7 percent of health plan budgets and cost about six times more than the same care delivered in the physician’s office (Tufts Managed Care Institute, 2001). According to the Centers for Disease Control and Prevention, EDs experienced 110.2 million visits in 2002 [an increase of 2.7 million from 2001]. The largest increase was for patients requiring urgent care 56% [up from 50% in 2001]. It was reported that patients spent more time waiting for treatment than they have in past years. Ask any practitioner and they will tell you that it is optimal for chronically ill patients to receive treatment from their primary care provider who is fully versed in their condition. ED physicians frequently treat at a disadvantage [through no fault of their own]

because they do not have a patient’s full medical history.

Telehealth lets patients transmit vital signs to practitioners and, if necessary, practitioners can direct patients to the nearest hospital for treatment or make changes in medication. Home health technology lets practitioners monitor patients who require legitimate clinical episodes and allows less emergent conditions to be monitored in the comfort and privacy of a patient’s home. For patients with chronic illnesses, the emotional and physical costs associated with travel time to and from visits can be enormous.

It is estimated that an alarming 50 percent of patients leave physicians’ offices without the appropriate knowledge of how to care for themselves (DiMatteo, 1998). Lack of patient education [due to time constraints, overburdened practitioners, staffing shortages, or poor communication skills] drives up costs, reduces quality of care and increases ED utilization. Telehealth technology allows patients daily visual and voice communications with practitioners so they can get the information they need to best manage their condition.

Telehealth connectivity also levels the economic “playing field” by introducing affordable health care to households – rich or poor, urban or rural. Monitors reside in a patient’s home and require a simple telephone line connection. Voice prompts assist patients with medication adherence, appointment scheduling, and the transmission of: temperature; weight; blood pressure; blood oxygen; blood sugar; cardiac and lung sounds and electrocardiogram results. Advanced monitors now offer virtual home visits and web access via digitized technology. This offers patients and practitioners the ability to share real-time interactive video sessions and transmit pictures of wounds or body parts for review. Once in receipt of this information, health care providers

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can offer immediate diagnosis, treatment, or referral.

Advocates of home health technology do not want to eliminate the home or physician visit completely. In order for this technology to succeed, it must be viewed as a complementary tool to reduce the demand of health care services for the chronically ill. Its goal is to offer Americans health management options that promote early intervention, self-efficacy, and quality care.

U.S. And Canadian CHF Studies

CHF accounts for approximately 5 million cases annually and 500,000 new cases diagnosed each year. CHF accounted for 875,000 hospitalizations and is the most common “first-listed” diagnosis among hospitalized patients (Robinson and Rogers 2002). Patients with CHF have high incidences of ER utilizations, as well as hospital re-admissions.

When telehealth is utilized for CHF patients, it offers patients the ability to perform sophisticated clinical and diagnostic measurements [i.e. O2 saturation, heart and lung sounds, electrocardiograms, etc.]. CHF is well suited for telehealth application due to the strong correlation between weight gain and hospitalization. The ability to observe vital signs, particularly weight gain, can be lifesaving.

U.S. Study – As a result of the Balanced Budget Act of 1997 and CMS’s response, Jewish Home & Hospital was selected to be a Medicare Demonstration Program. They are currently collaborating with the School of Health Technology and Management at the State University of New York at Stony Brook. This study is tracking the medical conditions of twenty congestive heart failure patients with vital sign telehealth technology. Although the study is still underway, it is already demonstrating a 50% decrease in physician, ED, and hospital utilization in the study group.

This study will also challenge the effectiveness of the present 60-day episode of care that CHF patients receive upon hospital discharge. More than 50 percent of CHF patients die within the first year of diagnosis; therefore, home health monitoring is one of the most critical challenges for CHF patients and providers. Researchers of this study hypothesize

that if telehealth connectivity remained in the patient’s home, beyond the 60-day episode of care, and patients received virtual visits periodically, it would substantially reduce treatment costs and provide patients with better disease management compared to patients without connectivity. The economics of extending the technology would be minimal compared to what these patients are costing the health care system after the 60-day episode of care.

Canadian Study – Canada recently completed its largest and most comprehensive telehealth pilot ever. This study reported an astounding 95.5 percent overall patient satisfaction rate after patients received home health video conferencing visits. Patients felt that their access to health care increased and participating nurses were able to double the number of patients seen [4,320 home health visits annually per year, per nurse]. One of the biggest cost savings was the 75 days in travel time nurses saved [travel time to patients’ homes was eliminated]. (March Networks, 2002). This study clearly demonstrates how home health technology reduces costs, maintains quality of care, promotes patient satisfaction, and utilizes staff and services more efficiently. It also offers a solution to the pending U.S. nursing shortage. By the year 2020, Americans can expect to experience a 20 percent shortage of required nurses (JAMA 2001).

These studies are raising interesting questions for CMS and providers to consider. 1) What are the savings and benefits of home health technology remaining in the home after the 60-day episode of care? 2) Who is best suited to continue patient management when the 60-day episode of care ends? 3) Why aren’t U.S. home health agencies utilizing the skills of nurse practitioners (NPs) to help meet demand?

NPs And Home Health: A Good Fit

In order for CHF patients to be monitored after the 60-day episode of care, CMS must offer incentives to providers so they can afford to offer a continuum of care. If home health is deemed the provider of choice [why reinvent the wheel] one suggestion is to introduce NPs into the home health model.

For example, if a CHF patient requires a change in blood pressure medication, home health nurses must contact physicians for prescriptive services. These routine requests place enormous burdens on physicians and are not a cost effective way to treat these patients. It is far more cost effective for the home health industry to invite NPs to join their health care team.

Average Annual Salaries

Nurse Practitioner* \$ 69,203
M.D. (family practice)** \$150,000
(*ADVANCE for Nurse Practitioners)
(**Guglielmo, 2003)

Just like physicians, NPs have full prescriptive rights and are eligible for third party reimbursement under Medicare making them an extremely valuable addition to home health. Utilizing their services would offer significant economic advantages for home health agencies, since they can bill directly for their services. If we examine a Level 3 follow-up visit for an established patient [CPT code 99213], NPs in private practice are reimbursed \$52.87 and physicians are reimbursed \$62.20 for the same visit according to Medicare’s physician fee schedule. In 1993, CHF patients made over 2.9 million visits to their physicians and required 65,000 home care visits, resulting in health care expenditures estimated at \$18 billion. If we assume conservatively that 50-75 percent were physician visits by established patients for follow-up purposes and if NPs delivered care, the savings would be a staggering \$14-\$22 million dollars. By the year 2050, the aged population will be 80 million which would suggest an even greater savings (\$35-\$55 million). In addition to the cost savings, NPs would improve the continuity of care, as active team members of the home health agency.

NPs can offer around the clock care for the aged population while alleviating the burdens of primary care physicians [i.e. freeing them up to treat more complex cases or having nurses and patients wait for prescription changes because they are occupied]. With a switch from tertiary to primary care, and a shortage of geriatric physicians, NPs and home health

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need to combine resources. Unfortunately, NPs are not being utilized to their fullest potential. It is incumbent on those in health care, particularly home health, to reevaluate the important contributions this discipline can offer toward cost savings and quality of patient care.

Consumerism Redefining Health Care

With the decentralization of health care systems, and a shift from a physician-driven market to a consumer-driven market, health care will soon be setting up shop in many homes across America. As home technology emerges, hospitals, ERs, and physicians' offices will no longer be the first line of defense in chronic disease management.

Home health is one of the fastest growing segments in the U.S. health care industry [comprising 7,000 agencies] (www.cms.hhs.gov/marketupdate). Once partnered with telehealth, our nation will be better equipped to handle the challenges the U.S. health care market currently faces. For the first time in our country's history, Americans can have health care continuity follow them from traditional medical settings right into the familiarity of their own homes.

Baby boomers are well-educated and savvy consumers and are going to demand alternative treatments, direct access to health care providers and a better quality of life than past generations. This demographic will insist on treatment in the comfort of their own homes, assisted living communities, or nursing facilities, once they realize that this empowering technology is available to them.

Reimbursement Incentives

Paying for performance programs [connecting outcomes to payments] seems to be the way health care reimbursement is heading. Many OASIS providers, physicians, and hospitals will receive higher payments, and even bonuses, for improved patient outcomes and quality care. This type of initiative [tying performance to financial rewards] has traditionally been the bait of corporate America to help stimulate productivity and reduce costs. Now Medicare and private insurers are baiting the hook hoping

that providers can reduce expenditures through improved patient and disease management. No doubt this reimbursement model will attract more and more providers to home health technology. In order to remain competitive, they will need the ability to transmit point of care testing (POCT) and vital signs to enhance diagnostic decision-making and treatment options, and efficiently utilize resources. The more fiscally responsible they are, without jeopardizing quality of care, the greater the rewards from CMS and private insurers.

The Road Ahead

The federal government and private insurers need to quicken their pace in order to keep up with a growing home technology market. Although, the federal government is investing money via research grants more needs to be done. The next step is to work on reimbursement and regulatory issues so that millions of Americans with chronic illnesses can benefit from and afford this technology.

As is the case with most emerging technologies, as utilization and production increases, costs for home health technology will decrease. Experts predict that future generations of telehealth will become more interactive than ever imagined. The more this technology advances, and the more patient-friendly and less invasive diagnostic tests become, the more attractive it will be to everyone involved. The promotion of home health technology has become a matter of conscience. We can no longer ignore what the research is telling us: The elderly want to manage their illnesses in the comfort and safety of their homes for as long as they possibly can. Telehealth is the key to open that door. **RR**

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