

Backgrounder



Continua
HEALTH ALLIANCE

DELIVERING ON THE PROMISE OF MODERN MEDICINE: THE NEED FOR INTEROPERABLE HEALTH & MEDICAL DEVICES

In a system well-designed for improving health, people with heart disease or diabetes can transmit their vital signs – blood pressure, heart rate, glucose levels, etc. – seamlessly from home to their health professional, and get real-time feedback on their condition. A busy professional is able to receive a daily electronic check-up on the health status of his aging parent who lives alone, suffers from a series of chronic conditions and is on multiple medications. A traveling businessperson can have a real-time discussion about the workout she just completed with a trainer who is hundreds of miles away.

Today, technologies like these, which can enable more proactive personal health, exist and are being applied – but not nearly as commonly as needed to radically improve health and quality of life and eliminate unnecessary costs from the healthcare system. To become a central component of the way we manage health, personal health and medical devices must be fully interoperable with each other and with other information sources. Because broad interoperability has yet to be achieved, it is an emerging priority for health systems and for the medical and information technology industries.

A New Model of Care

Given the rise of chronic conditions and the rapid aging of the population, there has never been more urgent need to improve healthcare quality while at the same time reducing unnecessary costs. Because healthcare systems have evolved around the concept of acute disease, they are organized to perform when addressing patients' episodic and urgent concerns.

Yet chronic conditions – defined as health problems that require ongoing management over a period of years or decades – have overtaken acute problems to comprise the major health burden in developed and developing countries, causing significant economic strain on the world's healthcare systems.¹ As an acute care model is applied to a population that now suffers primarily from chronic conditions, healthcare systems run the risk of growing increasingly inefficient and ineffective. Already struggling systems will be challenged by an influx of new demands they are ill-equipped to handle, making it imperative that healthcare leadership today pursue a more sustainable model of care.

Seniors are the segment of the population that require the most care for the most common chronic conditions – Alzheimer's, Parkinson's, heart disease and cancer. Many developed nations will soon witness a disability epidemic, largely driven by increased aging and chronic conditions, which will propel healthcare consumption to unprecedented levels. In 2000, the worldwide population of those 60 years of age or older was 600 million.² By 2025, this demographic group will double to 1.2 billion.³

¹ World Health Organization. Facts related to chronic disease. Accessed via Internet February 2006: <http://www.who.int/dietphysicalactivity/publications/facts/chronic/en/index.html>

² *The Global Embrace Handbook*; World Health Organization, 2001. Accessed via internet February 2006: http://whqlibdoc.who.int/hq/2001/WHO_NMH_NPH_01.3.pdf.

³ *The Global Embrace Handbook*; World Health Organization, 2001. Accessed via internet February 2006: http://whqlibdoc.who.int/hq/2001/WHO_NMH_NPH_01.3.pdf.

Other common chronic conditions such as asthma, diabetes and obesity are less age-specific but are also on the rise and require long-term management.⁴ One study found that 15 chronic conditions were responsible for more than half the increase in healthcare spending between 1987 and 2000, and five of those conditions were responsible for nearly one third of the increase.⁵ Among the young, chronic conditions are on the rise and the number of Americans with chronic conditions is expected to rise steadily over the next 30 years.⁶

As demands on healthcare systems intensify, technology that connects people and information in new ways can create a better distribution of overall health investment and interventions – enabling a shift away from the current disproportionate emphasis on acute care in an institutional setting when health is in crisis to a more proactive model that empowers individuals to continuously protect and enhance health, irrespective of location. Greater continuity of quality health information not only in the medical institution but throughout our lives can make it possible to take greater control of our health, avoid or delay catastrophic events, remain independent longer, and enjoy greater quality of life.

The Promise of Digital Health – Connecting People and Information

In an information-intensive endeavor like healthcare, an inability to connect sources of information to each other and to the people who make critical decisions compromises quality and ultimately increases rising costs. Despite the clear need to move information more effectively into decision-making channels, healthcare is at least a decade behind

⁴ Centers for Disease Control (CDC). New State Data Show Obesity and Diabetes Still On the Rise. December 31, 2002. Accessed via internet February 2006: <http://www.cdc.gov/od/oc/media/pressrel/r021231.htm>. Accessed February 2006 and CDC. Asthma Prevalence, Health Care Use and Mortality, 2002. Accessed via internet February 2006: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm>.

⁵ Hillstead, Richard et. al. “Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings and Costs.” *Health Affairs*, September/October 2005; 24 (5):1103-1117.

⁶ Anderson, Gerard, *The Growing Burden of Chronic Disease in America*. Public Health Reports. May-June 2004 v119: 263-270.

other industries in the adoption of information technology⁷ that can better connect people and information to improve quality and efficiency.

Connective technologies, traditionally referred to as information technologies, are the essential ingredient that can make interaction and high-quality information exchange possible throughout the complex healthcare system.

The Interoperability Imperative

Despite the obvious need to apply our best information technologies in healthcare, the healthcare industry in many countries remains at least a decade behind other major industries in terms of innovation and adoption in this area.⁸

Much of the technology that can improve healthcare already exists in some form. For example, medical devices that monitor health and fitness – blood pressure cuffs, glucose meters, medication trackers, weight scales and pedometers – are on the market; however, these pieces cannot be integrated into full personal telehealth systems that can send data from multiple vendors' medical devices to a health care provider or fitness coach. No standards exist that fully define interoperability among these devices, thus the market is unable to invest in interoperable solutions.

The reasons for slow adoption of interoperability standards in healthcare are manifold:

- ❖ Change comes more slowly in healthcare, in part because risk tolerance is naturally low when human life and health are at stake, and changing established work patterns introduces perceived risk.
- ❖ Incentives are often misaligned, making poor quality unreasonably good for business in certain instances. Many healthcare systems, for instance, pay for

⁷ *Health Information Technology Leadership Panel*. The Lewin Group, 2006. Page 29. Accessed via Internet February 2006: <http://www.hhs.gov/healthit/HITFinalReport.pdf>

⁸ *Health Information Technology Leadership Panel*. The Lewin Group, 2006. Page 29. Accessed via internet February 2006: <http://www.hhs.gov/healthit/HITFinalReport.pdf>

medical visits and procedures but do not reward for outcomes, therefore creating incentives for volume but not for quality improvement.

- ❖ Liability and financial responsibility falls upon, a single vendor when they obtain regulatory clearance for a telehealth system.
- ❖ Costs involved with technology adoption are a barrier, and a lack of standards that discourage investment in interoperability.

Interoperability standards that allow independently manufactured products to work together are necessary so their unique functions can interact to advance the entire system. Such standards are the building blocks for industry-wide innovation and interaction, and allow greater horizontal integration and ease of information exchange. By making it possible to connect disparate data streams, standards create opportunities for companies and providers to innovate in ways that can improve quality of care, improve efficiency, reduce errors and reduce costs.

As a building block for interoperability, standards are an essential aspect of healthcare system infrastructure. International interoperability standards require the collaboration of ecosystem players and the development of public policy, incentives and regulations, without which such standards will not naturally emerge. Policy makers, regulators and industry leaders must collaborate to remove policy barriers to standards development worldwide and create new policies and incentives to advance harmonization.

Fortunately, critical mass of interest and political will is building in this area in many countries – with the ultimate goal of deploying interoperable technologies to deliver quality healthcare and improve human health, even as healthcare burden grows.

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