

## Homecare and Disease Prevention: Reviewing a Decade of Evolution - Privacy Still the Biggest Hurdle

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**Abstract**— Over a decade ago, while at the Agency for Health Care Policy and Research (AHCPR), now known as the Agency for Health Research and Quality (AHRQ), a vision was created by the author that projected two different concepts. One was the use of telemedicine in a homecare environment (in urban, suburban and rural areas) to offer particularly to the elderly population, suffering from a number of chronic conditions an environment which would allow to improve the quality of services while decreasing the costs of the (then and projected) “current” system. The second theme involved the potential use of genetic-related discoveries with personal health records for disease prevention purposes. While the homecare – telemedicine environment for the elderly with chronic diseases (has and) is evolving, the outcomes (cost and medical effectiveness) are not completely clear. On one hand, in the US, the disease that was chosen for the evaluation was diabetes. The system could be better suited for certain conditions than others. For example certain diseases and/or conditions require more invasive methods to accurately measure the condition of a patient than the ones offered by current technology. On the other hand we face a large number of countries in the rest of the world, which are governed by different health care delivery systems. The result is that what may be cost-effective in one country may not be in another one. The second premise, which involves the use of electronic health records, genetic discovery and intelligent agents, has moved much slower (if at all) than anticipated. In the US, at least, most of the barriers have been related to fears of privacy breaches. The original work was presented in multiple subsequent meetings in this continent, i.e. US, Canada, Mexico and Latin America, as well as Europe (Spain, Luxemburg, Holland, UK, Check Republic, France, Italy) and Asia (Taiwan, South Korea and Japan). In 2006 (and beyond), we have new medical and public health challenges as well as new opportunities to address them. The world is continuously facing emerging and re-emerging diseases such as: HIV/AIDS, Tuberculosis, Malaria, Mad Cow Disease, West Nile Virus, SARS and now in particular Bird Flu. Currently we all are also facing, the potential for a pandemic flu. The creation of the correct vaccine is a challenge on its own because of the constant mutations that the H5N1 avian influenza virus has (and will keep having), however this is not the only hurdle. Perhaps the major one is that the developed nations of the world do not have the

physical capacity (i.e., hospitals) to house the casualties that such a disaster would generate. The home environment, once again may prove to be the best place for doing the “quarantine” of both healthy and sick individuals.

In the developed (and parts of the underdeveloped) world the current houses have multiple forms for getting information into and out of this environment. The combination of Radio, Television, Computers and Telephones have become increasingly complex systems. These systems allow us to do a variety of actions that include: tele-banking, e-commerce, tele-education, tele-work, tele-health, tele-shopping, entertainment on demand, etc. In other words a family could stay home, get the food and water delivered, as well as any product bought from any store. While kids or adults could take courses at a distance, others in the family could tele-commute (i.e., work from home). Any member of the family could be “visited” by a health care worker, or the family member could decide to “visit” specialist because of a specific condition / symptom or circumstance.

So far very few of these segments are interconnected and therefore most of these applications exist as silos. For example many cable or satellite TV services have bidirectional communications. The services they provide today are multiple but mainly they have expanded the “entertainment industry”. The combination could result in a very powerful tool for the 21<sup>st</sup> century. The constant advancement in the areas of science and technology will allow us to reach new heights by helping humanity deal more effectively both medically and economically with all these diseases. A major challenge that we need to resolve is securing the privacy of the personal information.

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