Disease management (DM) in the US can trace its roots back to the mid-1980s with the early work of California health plans and has come a long way since then. However, it wasn’t until the mid 1990s that disease management became part of mainstream thinking, after several private for-profit companies introduced outsourced disease-management programs to large commercial health insurance providers. The “process/evolution” of DM in the United States has been and continues to be the major difference between disease management in the US and the UK…and other countries.

Originally, in the early/mid-90s, most of these first-generation companies provided single-state disease programs for conditions like asthma, diabetes, COPD, and heart disease. However, they soon began to recognize the problem of co-morbidities and developed comprehensive multi-disease programs to accommodate people with multiple chronic diseases. The early “generation” of disease management was largely driven by the Boston Consulting Group’s 1991 report on opportunities in chronic disease that was followed up by a second 32-page report in 2006, “Realizing The Promise of Disease Management: Payor Trends and Opportunities in the United States” [http://www.bcg.com/impact_expertise/publications/files/Realizing_the_Promise_of_Disease_Management_Feb06.pdf].

In this second phase of the DM industry companies like Diabetex expanded from a focus on diabetes and foot care to full service DM and was renamed XLHealth. Cardiac Solutions expanded from a single focus on congestive heart failure to a full service DM company and was renamed Cortalios in 2004. The Diabetes Treatment Centers of America changed its name to American Healthways in 1999 to mark its new full service/multiple disease company…and again later to Healthways to mark its expansion into international markets. Finally Airlogix originally only offered asthma and COPD disease management. Cardiocom was one of only a few companies that has not changed its name despite its capabilities to offer single source vital sign remote disease management for CHF, COPD, Asthma, Diabetes, Hypertension and Obesity.

The Next Generation of Disease Management: 2009 and Beyond – [http://www.dismgmt.com/107ais_book_nextgen.htm] - Atlantic Information Services has published this new book discussing the future of disease management. With chronic-care programs already well-established in most health plans, DM is becoming more targeted, more integrated with other programs including wellness and lifestyle coaching, and more focused on the bottom line. The Next Generation of Disease Management: 2009 and Beyond brings expert insight into DM’s basic building blocks. $223.00. Click here to order.

The next major development began in 2005-2006, when many large insurers began to bring these programs in-house, i.e., Aetna followed its acquisition of Active Health in 2005 with development of their own in-house program in 2006 while
Nationwide insurance developed Nationwide Better Health via acquisition of FutureHealth and Wellpoint acquired disease management capabilities via the acquisition of Trigon and its disease management subsidiary Health Management Corporation. In May, 2008 Blue Cross & Blue Shield of Minnesota announced that it was launching its own DM program and ending its relationship with Healthways, a Tennessee-based DM vendor. The BCBSMN program is based on telephonic support for patients and uses computer searches of medical records. There are also some health plans that combine in-sourcing with outsourcing, i.e. UnitedHealth Group has its own in-house disease management unit, OptumHealth but OptumHealth subcontracts with Alere to provide several DM programs.

A survey by Health Industry Research Companies (HIRC) found that in 2006 health plans purchased 169 such programs from DM vendors. In 2007, that number had fallen to 80. A marketing push by a couple of vendors brought that number back up to 112, as of the spring of 2008. In response to this “troublesome” market shift a number of DM companies acquired wellness companies/capabilities and began to market these broader health management programs directly to large employers that were essentially self-insured.

There has since been a period of consolidation, with many of the early DM pioneers being acquired and or consolidated. Typically, as mentioned above this also involved an expansion into the “wellness” arena…again, typically via the acquisition of wellness companies. This evolution from separate disease management programs and separate wellness programs into “total population health management” was a natural evolution that satisfied market demand, economies of scale, etc. Shortly after this consolidation phase of the market, many/most DM/Health Management Companies also began to explore international opportunities, with the ‘export’ of US-style disease-management programs. The best example of this was the acquisition of Health Dialog [Boston, MA] by the international giant healthcare provider, BUPA. The following is a chronological overview of the DM industry. Clearly the DM industry has evolved considerably over the past decade and is expected to continue to evolve.

**Evolution of the US DM Industry**

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<tr>
<td><strong>Mid-Late ’80s</strong></td>
<td>Kaiser &amp; Group Health Pioneer research In chronic disease</td>
<td>Free Standing Single State DMOs plus Insourced Programs</td>
<td>Medicare Market Opens</td>
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<td><strong>Early-mid ’90s</strong></td>
<td>Pharma/RX Based DM</td>
<td>DMO Industry Shifts to 1-stop shopping</td>
<td>Integration Of DM &amp; Wellness in Employer Mkt</td>
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<td><strong>Late 1990s &amp; early 2000</strong></td>
<td>2002 to Present</td>
<td>Direct to Employer Market for DM</td>
<td>DMO Consolidation</td>
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<td><strong>2002 to 2004</strong></td>
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<td><strong>2006 &amp; Future</strong></td>
<td>Potential New DMO Upgrades</td>
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<td>Inter-National Markets Opening</td>
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<td>HPI Plan Insourcing</td>
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ome of the major acquisitions, mergers and strategic partnerships over the past 5-6 years include:

- **Healthdyne acquires Home Nutritional Services**, a home infusion company [1983]
- **FutureHealth founded** as a population risk management company [1992]
- **Zene Launches Stuart Disease Management Service Company** [1994]
- **Ralin Medical, Inc. acquires Cardiac Solutions** in 1994 [1994]
- **WellCare began a disease management program in diabetes offered by its pharmacy benefit manager, Diversified Pharmaceutical Services.** [July, 1994]
- **Pfizer created Pfizer Health Solutions in 1995**
- **National Jewish Medical and Research Center sells its disease management division to Alere Medical of Reno** - National Jewish found it difficult to compete for business in a field that required expertise in a wide range of chronic diseases because so many patients suffer from more than one disease. [October, 2005]
- **Matria Healthcare Inc. formed** via the merger of Healthdyne and Tokos Medical [March 1996]
- **Ralin Medical acquires CareTools** [May, 1998]
- **HBO acquired National Health Enhancement Systems** [December, 1997]
- **Healthdyne Technologies was merged with Respironics** [1997]
- **Matria Healthcare Signs Licensing Agreement With National Jewish; Matria Will Have Exclusive Rights to Market Asthma and COPD Programs** [September, 1998]
- **HealthMedia, Inc formed** as a technology spin-off of the University of Michigan Office of Tech Transfer. HealthMedia received some of its initial seed capital from Avalon Investments, a Michigan-based venture capital firm. It also received seed funding from the Michigan Economic Development Corp. The University has gone on to launch 92 new start-ups in the 11 years since they helped start HealthMedia. [1998]
- **HBO, Inc acquires Access Health Inc.** [December, 1998]
- Ralin Medical’s **Cardiac Solution officially becomes CorSolutions** [October, 1998]
- **McKesson acquires HBO, Inc.** [January, 1999]
- **Matria purchased three diabetes related businesses** for an initial consideration of $130 million [1999] - Diabetes Self Care, a diabetes mail order supply business; Facet Technologies, a medical device design and manufacturing business; and, a diabetes supply and services business based in Germany by the name of Dia Real. Each of these three companies were eventually sold off.
- **Diabetes Treatment Centers of America** changes name to American Healthways [1999]
- **ParadigmHealth, Inc. was founded in 1991** to provide care and disease management services for acute and clinical patients. Its services include catastrophic care for traumas, severe burns, spinal cord injuries, acquired brain injuries, and central nervous system disorders; intensive care for premature and newborns in neonatal intensive care units and special care nurseries; and complex care for health plans and employers. [1991]
- **American Healthways acquires Care Steps and Empower Health** [May, 2001] The history of American Healthways
- **Anthem** [now Wellpoint] acquires **Health Management Corp** via its acquisition of Trigon Healthcare [2002] – HMC was originally formed in 1983 by Trigon.
- **Matria** acquires **Quality Oncology**, first significant acquisition in pure disease management [2003]
- **AdvancePCS** acquires **Accordant Health Services Inc** [November, 2002]
- **Caremark Rx Inc** acquires **AdvancePCS** from **CVS Corp** [March, 2004]
- **DMAA Convenes Major Depression Conference** [June, 2004]
- **DMAA Releases First Ever Dictionary for Disease Management And Guide for Program Assessment** [October, 2004]
- **DMAA’s 2nd Annual International DM Summit Sets New Attendance Record** [October, 2004]
- **I-Trax** acquires **CHD Meridian** [2004]
- **Cardiac Solutions renamed** **CorSolutions** [November, 2004]
- **Aetna** acquires **ActiveHealth Management** [May 2005]. The beginning of Aetna’s move to bring DM in-house.
- **AXIA Health Management Acquires American WholeHealth Networks Inc.**
  [http://www.allbusiness.com/health-care/medical-practice-alternative-medicine/5006755-1.html] - AXIA Health Management LLC, a national leader in preventive health solutions, today announced the acquisition of American WholeHealth Networks Inc. The acquisition solidifies AXIA as the most robust and complete national network of fitness centers, community-based CAM providers, and health/wellness programming resources in the nation. [July, 2005].
- **Matria** acquires **CorSolutions**, January, 2006.
- **I-Trax** acquires **Continum Healthcare** [2006]
- **American Healthways Changes Name to Healthways**, Inc [January, 2006] to facilitate international expansion
- **Nationwide Better Health** was formed in 2006 by combining the expertise and resources of GatesMcDonald, a leader in absence, leave and disability management, and **FutureHealth**, a leader in disease and medical management. This union has produced the industry’s first integrated disease and disability management offering. Nationwide Better Health also acquired WellCorp, Inc. and INTERxVENTUSA, leading providers of health management services, work-site health services and online self-management tools.
- **Healthways Signs Definitive Agreement to Acquire Axia Health Management**
- **Gallup, Healthways Announce Global Well-Being Index(SM)**
  [http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=109&STORY =/www/story/03-06-2008/0004769239&EDATE] – The Index will be based on 1,000 daily surveys which Gallup polling experts began conducting in January, 2008 and which will continue throughout the 25-year term of the agreement. Armed with this unprecedented depth of information, leaders across government and business will be able to collaboratively and more effectively address the health, wellness and prevention needs of their population.
The acquisition by **CenCorp Health Solutions** [a subsidiary of Centene Corp] of **Cardium Health** [May, 2006] and **Air Logix** [October, 2007]. The combined companies were renamed **Nurtur** which also acquired **Worklife Innovations** [January, 2007].

**I-Trax acquires ProFitness Health Solutions** [2007]

**Healthways and LifeMasters** mutually terminate merger plans [October, 2006]


The multiple acquisitions of **Alere** [November, 2007], **ParadigmHealth** [Nov. 2007], and **Matria** [05/2008], by **Inverness Medical Innovations, Inc.** Waltham, MA.

**QMed, Inc, a provider of device-based disease management shuts down** [2007]

The acquisition of **Health Dialog by BUPA** [12/2007]

**Health Hero** acquired by Robert Bosch GmbH [December, 2007]

**WellPoint Acquires Resolution Health** [April, 2008]

The acquisition of **I-Trax/CHD Meridian by Walgreens** [May, 2008]

**Walgreens acquires Whole Health Management** [May, 2008]

**Longitude Health Unveils MyHealthVillage.com** [September, 2008]

**McKesson Health Solutions and IBM to Deliver Business Intelligence Solutions to Health Plans** [October, 2008]

**J&J acquires Energy Management Provider** and Health Media [http://www.nj.com/business/index.ssf/2008/12/jj_acquires_firm_that_preaches.html] - The New Brunswick health care giant has acquired [December, 2008] privately held LGE Performance Systems, which runs the **Human Performance Institute** that trains employees to use psychology, exercise and nutrition to boost their workplace energy and focus. One program offered by the Orlando, Fla.-based institute is called "Corporate Athlete." This is J&J's second foray into the health and wellness field. In October, 2008, the company bought **Health Media** of Ann Arbor, Michigan an online "health coach." The company, under growth and strategy czar Nicholas Valeriani, is trying to capture a broader slice of the health-care market beyond its sturdy franchises in pharmaceuticals, medical technology and consumer products. NJ Business News. December 19, 2009.

**Pfizer Health Solutions –UK continues to provide disease management programs** [January, 2009]

2007/2008 also witnessed the infusion of capital into specialty players like **XLHealth Corp** [$290 million in August, 2007] plus the continued focus on the special needs market by re-organized **APS Health Care**, a player in the Medicaid DM market.

**New Players:** The entry of new players like Celera, Panasonic, **Philips, IBM**, Trizetto, Intel, and others also introduces the potential for a new generation of technology-based DM programs. A recent example of the potential influence of technology companies on the DM industry is the announced alliance between **GE and Intel** to invest $250 million in New Market Opportunity wherein the two companies will develop and market innovative technologies for independent living and chronic disease management. GE Healthcare will sell and market the Intel Health Guide, a personal health system, in the United States. GE Healthcare's capabilities in disease management, and its distribution reach in the healthcare sector will help drive understanding of the benefits of this innovative technology, which includes patients' self-monitoring of health status and a direct
communications channel to healthcare professionals. Philips executive management team recently presented their views on how Philips will bring technology solutions to the home health market. See presentations. The potential of eHealth technologies is summarized in a January, 2009 study entitled “eHealth in Action: Good Practice in European Countries” [http://ec.europa.eu/information_society/activities/health/docs/studies/2009good_eHealth-report.pdf]. The Health Intelligence Network is also now marketing a book on the medical home concept entitled “Model Medical Homes: Benchmarks and Case Studies in Patient-Centered Care.” Free-standing players – Healthways, McKesson Health Solutions, XLHealth, APS Healthcare and LifeMasters are some of the few remaining free standing disease/health management companies.

In the meantime a number of US DM companies are working hard to figure out the international market, which as seen below, continues to expand and now includes opportunities in large markets like China, Brazil, Canada, and India along with existing programs in the UK, France, Spain, the Netherlands, Germany, South Africa, and Australia. Some examples of the “exporting” of DM internationally include the following. In a number of cases traditional DM providers are expanding internationally via strategic alliances:

**U.S. Preventive Medicine:**

<table>
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<th>U.S Preventive Medicine Employs Internationally-known Centers of Excellence Partnering Strategy to Expand in the USA and Internationally</th>
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- **U.S. Preventive Medicine, ParkwayHealth of Singapore** Sign Affiliation Agreement to Jointly Deliver Preventive Medicine Services in Asia. Parkway Laboratory Services Ltd, a major provider of laboratory services, and also operates 48 International Patient Assistance Centres (IPAC) across the globe. February, 2006.
- **U.S. Preventive Medicine®, Mayo Clinic Sign Agreement** to Deliver Preventive Medicine Services [http://www.uspreventivemedicine.com/getdoc/9b82c2c5-9133-4eca-8a79-c7aa933c7e93/Mayo-Clinic_joins.aspx]. March 20, 2009.
- **U.S. Preventive Medicine®, The Mount Sinai Medical Center Sign Affiliation Agreement** to Jointly Deliver Preventive Medicine Services. February 9, 2009. U.S Preventive Medicine
- **U.S. Preventive Medicine® Signs Agreement with Massachusetts General Hospital**
- **US Preventive Medicine to expand into UK.** January, 2008. US Preventive Medicine signed a letter of intent with iHealth UK Ltd. to jointly develop three preventive medicine businesses in the United Kingdom.
Health Dialog:

- **Health Dialog Selected To Lead First Care Management Pilot Program in France**
  [http://www.redorbit.com/news/health/1240542/health_dialog_selected_to_lead_first_care_management_pilot_program/index.html] – Health Dialog today announced it has been selected by the Caisse Nationale de l'Assurance Maladie des Travailleurs Salariés (CNAMTS) to support France's first whole person care management pilot program. CNAMTS is the primary health insurer in France, covering 85% of the population or approximately 50 million lives. The pilot program will target a population of 136,000 diabetics living in 10 of the country's 97 départements (political and geographic areas in France).

- **BUPA completes Acquisition of Health Dialog**

Healthways:

- **New Total Population Agreement with HCF Australia Expands Healthways Global Presence**
  [http://investors.healthways.com/phoenix.zhtml?c=91592&p=irol-newsArticle_pf&ID=1231172&highlight=] - Healthways International, a wholly owned subsidiary of Healthways, Inc. (NASDAQ: HWAY), today announced a five-year agreement to offer comprehensive Health and Care SupportSM solutions to The Hospitals Contribution Fund of Australia Limited (HCF), one of the largest private health insurers in Australia with over 1 million members. Healthways has successfully entered markets on three continents in the past 12 months, continuing evidence that the health care and productivity issues faced by U.S. health plans, employers and government payers are global issues. Healthways now provides health improvement programs and services throughout the United States, Brazil, Germany and Australia.

- **Healthways Enters Brazilian Market Through 10-Year Disease Management Service Agreement With Fleury**

- **Deutsche Angestellten Krankenkasse (DAK) Selects Healthways to Implement Programs for Members with Chronic Diseases in Germany**
  [http://investors.healthways.com/phoenix.zhtml?c=91592&p=irol-newsArticle&ID=1046536&highlight=] - Healthways International GmbH, a wholly-owned subsidiary of Healthways (NASDAQ: HWAY) and the Deutsche Angestellten Krankenkasse (DAK) have announced a three-year agreement to provide Healthways Health and Care SupportSM Programs to DAK members with chronic diseases in two regions of Germany (Bavaria and Baden-Wurttemburg),
beginning January 1, 2008. This agreement marked Healthways' first international contract and reflects the Company's commitment to delivering proven solutions tailored to the unique health needs of individuals around the world. August, 2007.

**Matria [Now Inverness Medical Solutions]:**

- **IBM and Matria to offer health management services to Japanese insurers.** IBM has unveiled plans to collaborate with US health enhancement specialist Matria Healthcare to offer health management services to Japanese insurance companies. "Through our agreement with IBM, Matria will become one of the first US disease management companies to offer these services to Japanese companies," said Parker Petit, Matria's chairman and CEO. October, 2005

**The Future of Disease Management** - So what will disease management look like in the future? As indicted below, because total healthcare costs represent an increasing percentage of GNP in the United States it is likely that the DM industry will continue to evolve and change dramatically. The change will be fuelled by the **anticipated economic burden of our aging populations**. Certainly in the US, the needs of this growing segment of the population will lead to further consolidation and evolution of the DM industry.

### Total US Healthcare Spending as % of GDP

![Graph showing Total US Healthcare Spending as % of GDP](image)

Source: January 2008 Projection by the US Congressional Budget Office

One forthcoming change could concern *who* provides disease-management programs. It is interesting to see that several international technology companies are showing an interest in the challenges of an aging population and perhaps they could be at the centre of the DM industry in the near future. As indicated above firms like Intel, GE, Microsoft, Philips, Panasonic, IBM and others are pushing the envelope with new remote patient-monitoring devices that are easy to use and potentially highly cost-effective. In addition there is also an opportunity for progressive pharmaceutical companies to re-invent how DM is delivered. *Sanofi-Aventis* recently indicated a interest in expanding into disease management and as indicated above *Johnson & Johnson* has already made several
acquisitions that positions it to be a major player in the disease management/health management space. The economics of relatively small, free-standing, high margin DM companies appears to have waned. Again, as indicated above, many DM companies have already exercised an “exit strategy” with only a few of the original players still remaining as free standing companies.”

You don’t need to look far to see that other relatively new movements, such as social networking, the patient-center medical home [see 25 page IBM white paper, “Home Sweet Medical Home] and retail health clinics, are also expected to change the landscape, in terms of what sort of companies drive disease/health management in the US. Each of these movements/concepts has their pros and cons.

International - We are also now experiencing an acceleration of activity in programs aimed at better management of chronic disease and/or broadening their scope to include wellness and prevention. The pending tsunami of chronic disease is truly a global crisis that now includes developing countries.

For example, Singapore [now offer by both integrated delivery systems on the island and supported/encouraged by the government], Australia [public and private policies to adopt DM versus adding new hospitals and other infrastructure] and Japan [several disease state mandated to offer DM programs in 2007] have already essentially adopted disease-management programs in one form or another and are aggressively pursuing wellness initiative. Disease management associations have also been developed in Japan, Australia [founded in 2005 www.adma.org.au or the Australian Disease Management Association], India [http://www.dmai.co.in/] Disease Management Association of India founded in 2008] and Germany [founded in 2003; www.dgdm.de or Deutsche Gesellschaft fur Disease Management Association] with new associations being formed in Brazil, South Africa and China. Interestingly countries outside of the USA are much more interested in “wellness/prevention” than in US-style DM.

In addition, as suggested above, developing countries are also now exploring new models of disease management to address the increasing burden of chronic disease. Importantly, the World Health Organisation has said that “the social and economic burden of non-communicable chronic diseases will soon outweigh the progress made against communicable disease in developing countries.”

Other countries that have also experimented with DM include Brazil, Argentina, France, Canada, Spain and India. In the US, we will start to see aggressive attempts by first- and second-generation DM companies to form strategic partnerships with others companies that have either distribution or technological capabilities. Perhaps the most interesting recent development is that Google, Microsoft and several other web companies have been looking closely at the concept of social networking as the foundation of new models of disease management. This novel development could attract several types of company to the task of improving management of chronic disease.

It is certain that, as the tsunami of an older population materialises, efforts to find the right model of disease management and prevention will accelerate dramatically In the future, it is likely that the experience of non-US models of disease management and or the entry of “new players”...including the pharmaceutical industry...will challenge traditional/historical models of DM in the US, as the world comes to realise that the challenge of managing chronic disease is not a medical problem but a social problem.
Solutions are likely to be less medically focused and more socially oriented, with broader chronic-disease models, such as those described by Dr Ed Wagner, director of the MacColl Institute for Healthcare Innovation in Puget Sound, representing the way forward.

Warren E. Todd has been at the forefront of the disease management movement in the United States for more than a decade. His history as the “Johnny Appleseed” of disease management began in the early 90s at the National Jewish Medical Research Center where he initiated the development of one of the first asthma disease management programs in the United States. In 1996 he published the first book on disease management [Disease Management: A Systems Approach to Improving Patient Outcomes] with his colleague Dr. David Nash from Thomas Jefferson University and in 1999 helped to found the Disease Management Association of America [DMAA]. In addition Mr. Todd served as editor of the Disease Management & Health Outcomes Journal from 2000-2001. He also served as DMAA conference chair from 1999-2004, Executive Director of the DMAA from 2001-2004, and later served as the editor-in-chief of the Disease Management Journal from 2002-2004. In 2005 he founded, and now serves as executive director for the International Disease Management Alliance [IDMA].

The IDMA publishes the most widely distributed weekly disease management e-newsletter in the world. Today the IDMA DM World e-Report reaches over 9,000 healthcare professionals in 83 countries. In addition Mr. Todd has pioneered initiatives in chronic disease management in 23 countries and has served as a catalyst in the founding of major DM associations in three countries [Germany, Japan, and Australia] and participated personally in their initial conferences. IDMA is now engaged in collaborations with colleagues in Brazil, China, and South Africa to develop chapters of IDMA. In 2009 IDMA will collaborate on the development of a new association in South Africa that will be focused on the chronic disease problems of developing countries. It seems that the aging populations, unhealthy lifestyles, western foods, etc has indeed created a tsunami style crisis in chronic disease prevention and management.

The core mission of the IDMA is to identify important international efforts in disease management/wellness and to create international dialog concerning “best-in-class” solutions.

Contact: Tel: 908-806-3961; E-Mail: toddnjc@aol.com; Website: www.dmalliance.org; IDMA publishes a complimentary weekly e-Newsletter covering disease management and prevention around the globe. To register go to www.dmalliance.org