



**ELECTRONIC MEDICAL RECORDS (EMR)
STATE OF THE MARKET**

May 30, 2005

Provided by:



TABLE OF CONTENTS

EXECUTIVE OVERVIEW	1
KEY TERMS.....	1
EMR ADOPTION BY PROVIDERS.....	2
DRIVERS/TRENDS.....	3
PRIMARY VENDORS/PRODUCTS/COSTS	5
HIPAA REQUIREMENTS	7
SUMMARY COMMENTS	8
APPROACH AND METHODOLOGY.....	9

ELECTRONIC MEDICAL RECORDS- STATE OF THE MARKET

EXECUTIVE OVERVIEW

Electronic Medical Records (EMR) technology products are in an early state of market maturity, particularly with respect to internet/browser-based EMR solutions. This is evidenced by the massive number of vendors, lack of clear standards, and lack of market settlement activities. According to amednews.com, as of 12/2004 there are over 200 different vendors. Approximately a dozen vendors are emerging as having the strongest EMR solutions or potential future solutions. It is unclear when a single strong leader will emerge from this group. The market will generally clarify itself in the future, through acquisitions or fallout. Market settlement could easily take five or more years.

The remainder of this document provides additional detail on market condition and products, discusses drivers behind EMR adoption.

Recommendation

Milestone recommends that health care clients considering EMR adoption **conduct their pilot projects** during this stage of early market maturity (of internet/browser-based EMR products), to flesh out implementation issues, to sharpen their focus on the best use of EMR for patient benefits and business gains, and to ensure continuing HIPAA compliance.

KEY TERMS

Electronic Medical Record (EMR): Electronic record with full interoperability within an enterprise (hospital, clinic, practice)

Electronic Health Records (EHR): Generic term for all electronic patient care systems

CPR (Computer-based Patient Record) Lifetime patient record that includes all information from all specialties (even dentist, psychiatrist) and requires full interoperability (potentially internationally); unlikely to be achieved in foreseeable future

PHI (Protected Health Information) PHI is individually identifiable health information transmitted by electronic media, maintained in electronic media, or transmitted or maintained in any other form or medium (per 45 CFR 150.103).

The three terms EMR, EHR, and CPR, and definitions thereof are published in Healthcare Informatics, May 2003, in an article by C. Peter Waegemann. See http://www.healthcare-informatics.com/issues/2003/05_03/cover_ehr.htm

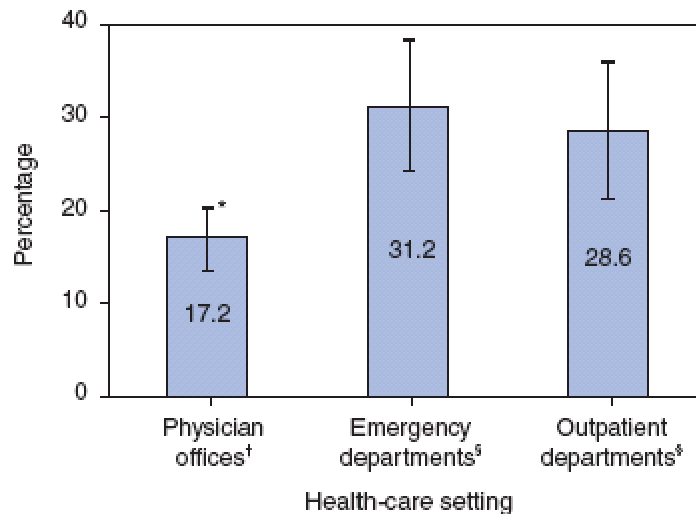
EMR ADOPTION BY PROVIDERS

The following statistics show the utilization of electronic medical records by health care providers in the United States from 2001 to 2003. Although data more recent are unavailable, some additional growth since the measurement period can be logically assumed. In the final analysis, the room for additional growth is significant. This market growth typically leads to settlement of the market and its competitors.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Health-Care Providers Using Electronic Medical Records, by Health-Care Setting — United States, 2001–2003



* 95% confidence interval.

[†] During 2003.

[§] During 2001–2002.

Electronic medical records were used in nearly one third of emergency and outpatient hospital settings and less frequently (17.2%) in physician offices. Approximately 73% of physicians used information technology for billing patients, but only 8% used computerized systems for ordering prescriptions electronically. Additional information is available at <http://www.cdc.gov/nchs/nhcs.htm>.

SOURCE: Burt CW, Hing E. Use of computerized clinical support systems in medical settings: United States, 2001--03. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2005. Advance Data no. 353. Available at <http://www.cdc.gov/nchs/data/ad/ad353.pdf>.

DRIVERS/TRENDS

Customers appear to be moving towards EMR solutions based on perceived benefits of potential gains from improved workflows. The payoff comes from reductions in costs and improved services. Since the market has not yet reached a commodity status it will be difficult to obtain a short-term favorable Return on Investment (ROI). A ROI could easily take greater than ten years. This is due in large part to the high startup costs per physician, \$12,000 to \$24,000 (per amednews.com, 12/2004).

HIPAA privacy and security rules, with the final security rule going in effect on April 21, 2005, drive EMR adoption. Developing audit-proof systems that show up-front compliance with HIPAA is important to holders of protected health information (PHI). A well-designed EMR system can help ensure HIPAA compliance. HIPAA is discussed in this document in a subsequent section.

The U.S. government is a strong driver for EMR adoption. In 2004, President George W. Bush announced an ambitious goal that most Americans should have an electronic medical record within 10 years. He believes that we can improve care and save lives when doctors, hospitals, and patients are able to share information privately, securely, and have it available to them where and when care is needed. The U.S. Government pledged \$100 million in 2004 towards this aim. This money appears to be primarily funneled through the Agency for Healthcare Research and Quality. Other federal agencies, such as the Bureau of Primary Care, the Centers for Medicare and Medicaid Research, and the Veteran's Administration have indicated support for EMR or EMR-type initiatives.

A number of health care organizational groups are attempting to jump on the EMR bandwagon. According to amednews.com, 12/2004, there are as many as 80 different initiatives to push EMR adoption, although the adoption rate continues at a slow pace.

The Institute of Medicine (IOM), a nonprofit health care policymaking group has produced a set of functionality standards for EMR/EHR-type systems. According to the Institute of Medicine, the eight core capabilities that EHRs should possess are:

Health information and data. Having immediate access to key information -- such as patients' diagnoses, allergies, lab test results, and medications -- would improve caregivers' ability to make sound clinical decisions in a timely manner.

Result management. The ability for all providers participating in the care of a patient in multiple settings to quickly access new and past test results would increase patient safety and the effectiveness of care.

Order management. The ability to enter and store orders for prescriptions, tests, and other services in a computer-based system should enhance legibility, reduce duplication, and improve the speed with which orders are executed.

Decision support. Using reminders, prompts, and alerts, computerized decision-support systems would help improve compliance with best clinical practices, ensure regular screenings and other preventive practices, identify possible drug interactions, and facilitate diagnoses and treatments.

Electronic communication and connectivity. Efficient, secure, and readily accessible communication among providers and patients would improve the continuity of care, increase the timeliness of diagnoses and treatments, and reduce the frequency of adverse events.

Patient support. Tools that give patients access to their health records, provide interactive patient education, and help them carry out home-monitoring and self-testing can improve control of chronic conditions, such as diabetes.

Administrative processes. Computerized administrative tools, such as scheduling systems, would greatly improve hospitals' and clinics' efficiency and provide more timely service to patients.

Reporting. Electronic data storage that employs uniform data standards will enable health care organizations to respond more quickly to federal, state, and private reporting requirements, including those that support patient safety and disease surveillance.

Within the State of Washington, there is some evidence of activity underway with regards to Electronic Medical Records or Electronic Health Records:

- Department of Corrections recently posted requirements for an EHR system to support its Washington State Jail and Prison Health Services (see http://www.waspc.org/contracting/EHR_part_4.doc)
- The Department of Health First Steps Project (the subject of this document) is examining the viability of electronic medical records.

PRIMARY VENDORS/PRODUCTS/COSTS

The following vendors responded to a survey of the Bureau of Primary Health Care, of the Health Resources Services Administration, a division of the U.S. Department of Health and Human Resources. Survey respondents answered the survey in 2003 or 2004.

Company Name	Product Name	Yrs in business	Yearly Revenues	Number of Customers	Website (www.)
A4 Healthmatics	Healthmatics EMR	34	Not disclosed	1,446	a4healthsystems.com
Allscripts	Touchworks	18	71M (2001)	93	allscripts.com
Amicore	Amicore Clinical Management	12	Not disclosed	227	amicore.com
Cerner	Powerchart Clinical Office	24	752M	231	cerner.com
Cliniflow	Cliniflow	8	Not disclosed	191	mdserve.com monarchmed.com
Companion	Companion EMR	22	80M+	4,115	companiontechnologies.com
General Electric (Logician)	Logician EMR-Centricity Physician Office EMR	20	Not disclosed	700	gemedicalsystems.com; medicallogic.com
Medical Manager Health Systems	ULTIA, OmniDOC, OmniChart, and Digital Image Management System (DIMS)	20	234M (2001)	185,484	medicalmanager.com
Medical Systems, Inc.	Vision; CHS Charting Plus	20	5M	396	msi-chc.com
Nextgen	Nextgen EMR	8	44M (2002)	460	nextgen.com
Noteworthy	Noteworthy EMR	5	Not disclosed	5	noteworthyms.com
Physician Microsystems	Practice Partner Patient Records	20	10M (2001)	1,300	Pmsi.com
Praxis	PRAXIS EMR	23	Not disclosed	4,000	Infor-med.com; cti.com

These firms self-reported this data so the data have limited value and should be viewed skeptically.

AC Group, Inc. (ACG) (www.acgroup.org) performs an assessment of the EMR market on a yearly basis. In 2004, the AC Group assessment identified the following as the top eleven EMR vendors from a group of over 250 vendors/products), based on selected functionality. It should be noted that

several of the firms identified by the ACG were also included in the Bureau of Primary Health survey above. ACG's top eleven firms were as follow:

- Allscripts Healthcare Solutions, (TouchWorks EMR), www.TouchWorksEMR.com
- Bond Technologies, www.bondclinician.com
- Cerner Corporation, www.cerner.com
- eClinicalWorks, www.eclinicalworks.com
- iMedica Corporation, www.imedica.com
- Infor-Med Medical Information Systems, Inc. - PRAXIS EMR", www.praxisemr.com
- JMJ Technologies, Inc., www.jmjtech.com
- Medical Communication Systems Inc., www.medcomsys.com
- NextGen Healthcare Information Systems, Inc., www.nextgen.com
- Physician Micro Systems, Inc., www.pmsi.com
- Synamed, www.synamed.com

In the 2004 survey, ACG identified the following costs in its assessment. The costs represented are software costs per physician for the top 11 EMR vendors, as follows:

- Allscripts Healthcare Solutions: Not reported
- Bond Technologies: \$10,000 - \$12,500
- Cerner Corporation: Not reported
- EClinicalWorks: \$5,000 - \$7,500
- iMedica Corporation: \$10,000 - \$12,500
- Infor-Med Medical Information Systems, Inc: \$5,000 - \$7,500
- JMJ Technologies, Inc.: \$5,000 - \$7,500
- Medical Communication Systems Inc.: \$5,000 - \$7,500
- NextGen Healthcare Information Systems, Inc.: \$10,000 - \$12,500
- Physician Micro Systems, Inc.: \$7,500 - \$9,999
- Synamed: \$5,000 - \$7,500

The 2004 survey can be viewed at:

[http://www.acgroup.org/images/2004 EMR Study - Summary Results - July.pdf](http://www.acgroup.org/images/2004%20EMR%20Study%20-%20Summary%20Results%20-%20July.pdf)

ACG also assessed the EMR market in 2005, using new functionality standards (based on the Institute of Medicine's (IOM) standards as discussed earlier, with an analytical breakdown that provides further segmentation in the description of the market, distinguishing between EMR and EHR. A summary of the new survey data can be located at the following web address:

http://www.acgroup.org/images/2005_EHR_Study_-_Summary_Results.pdf

HIPAA REQUIREMENTS

The Health Information Portability and Accountability Act of 1996 directly affects the management, control, availability, and accessibility of Electronic Medical Records (EMR). Compliance is not optional where the information is protected health information (PHI). PHI data moved into and out of an EMR system via electronic methods are subject to HIPAA transaction set standards and specifications in the movement of the data. Any PHI data contained within an EMR system will be subject to HIPAA Privacy and Security Standards. EMR software does not automatically ensure HIPAA compliance, but well-designed software can definitely support certain aspects of HIPAA compliance.

There are four sets of standards to be considered when designing or implementing an EMR system.

- 1) Transaction and Code Sets
- 2) Privacy Standards
- 3) Security Standards
- 4) National Provider Identifier

There is no apparently simple cross-reference mapping between HIPAA and EMR systems. EMR software design is dependent on the level of functionality sought, and the policies and practices adopted in support of the requirements, including HIPAA.

Some organizations have developed matrices in an attempt to analyze and distill the various standards to understand the impacts in developing a response.

Some examples of these follow:

- 1) HIPAA security standards matrix published courtesy of Philips security systems:
See
<http://www.google.com/search?hl=en&q=HIPAA+standards+matrix>
- 2) A comparative health privacy matrix, draft version (undated), was produced in Washington State, apparently for DSHS. Although this analysis does not appear complete, and does not seem to be currently

available on any Washington state websites, it provides some interesting context. For example, there may be cases where state law or rules exceed HIPAA requirements. See the following website:
<http://health.hss.state.ak.us/das/is/hipaa/pdfs/HealthPrivacyMatrix.pdf>

- 3) The Indian Health Service has developed multiple matrices to analyze the impacts of the various rules on their systems. This can be found at the following website:
<http://www.ihs.gov/AdminMngrResources/HIPAA/ERRoom.cfm#Matrix>

EMR adopters may benefit from conducting a similar matrix analysis exercise, in relation to their chosen HIPAA policies, and other overarching rules or laws, to pinpoint requirements to be met by the design of an EMR system.

SUMMARY COMMENTS

In general, technology markets usually follow patterns of other markets, whereby there is typically a market leader holding a 40-80% market share, followed by a secondary leader holding 20-40% share, followed by a third place leader holding a 10-20% share, followed by a set of niche players holding small percentages of the remaining balance.

In the current EMR market there is substantial competition for market share, with all the various players holding small percentage shares. This condition normally makes for a strong buyer's market, and this information should be used for a purchaser's advantage in a future acquisition. Additionally, early adoption by a state government agency would be an extremely valuable market claim for any emerging vendor. This market condition provides additional negotiating leverage for a state government agency pursuing an acquisition.

Significant complexities and investments are required for EMR implementation, and a favorable short-term return on investment may be difficult to reach. At this stage of market development, an EMR ROI may be measured over a decade or more. Costs and complexities do not favor early adoption.

Milestone recommends a go-slow approach, led by pilot studies of any potential solutions, while the market continues to settle.

APPROACH AND METHODOLOGY

The approach and methodology used in this document was as follows:

- Identify prevailing Internet-based literature concerning Electronic Medical Records, including writings of industry analysts, executive managers, or reputable forums/newsites.
- Identify emerging patterns based on literature analysis
- Outline a predominate thesis based on this pattern
- Draw upon intrinsic knowledge from prior technology market assessments
- Credit the sources of internet information, and provide a pointer to the website
- Venture recommendations based on logical deductions