



Business, Transportation & Housing Agency



Report of the

Health Information Technology Financing

Advisory Commission

Presented to:

Secretary Dale E. Bonner
Business Transportation and Housing Agency

Secretary S. Kimberly Belshé
California Health and Human Services Agency

December 2008

Members of the Commission

Beth Abbott, Health Access
Kimberly Allen, JP Morgan
Ann Boynton, (formerly) California Health and Human Services Agency Designee
Nathan Brostrom, University of California, Berkeley
Vincent Brown, California Department of Finance Designee
Darren Dworkin, Cedars-Sinai
Jonah Frohlich, California HealthCare Foundation
Ken Cohen, San Joaquin County Health Care Services
Cindy Ehnes, Department of Managed Health Care
Jack Ehnes, California State Teachers' Retirement System
Jarvio Grevious, California Public Employees' Retirement System
Stan Hazelroth, California Infrastructure and Economic Development Bank
Steven Henry, UnitedHealth Group/PacifiCare
David Link, California Department of Insurance Designee
Kathryn Lowell, Business, Transportation and Housing Agency Designee
Leslie Kim, M.D., West Bay Orthopedic Group
Charles Kennedy, M.D., WellPoint, Inc.
Gerald Kominski, University of California, Los Angeles
Matthew Mazdyasni, HealthCare Partners
Ralph Silber, Alameda Health Consortium
Michael Torgan, Country Villa Health Services
Patricia Wynne, Office of the State Treasurer Designee

Government Staff

Jeff Newman, Staff Development Specialist
Business Transportation and Housing Agency
Ellen Badley, Assistant Deputy Director, Health Technology
Department of Managed Health Care

University of California, San Francisco

Robert H. Miller, Ph.D.
Professor of Health Economics
Katherine D'Amato, B.A.
Senior Analyst
Nancy Oliva, Ph.D., M.S., M.H.A., M.P.A., R.N.
Senior Analyst
Joel W. Adelson, M.D., Ph.D., M.P.H.
Professor of Social Medicine and Public Health

Consultants

Manatt Health Solutions:
Timathie Leslie, Managing Director
Kier Wallis, Analyst

Table of Contents

Executive Summary	1
Background	5
Overview of the Commission	7
Research Findings	10
Findings by Market Segment	15
Recommended State Actions.....	24
Conclusion	41
Appendices & Endnotes.....	42

Executive Summary

Purpose of Commission

The Health Information Technology Financing Advisory Commission (Commission) was established to determine the extent to which limited access to capital impedes the adoption and implementation of health information technology (health IT) in various health care sectors. The Commission was tasked to provide recommendations for how the state could address these impediments. In addition, the Commission was tasked with surveying sources of funding.

Focus of Commission's Research and Recommendations¹

The Commission developed criteria that identify the health care provider markets to be included in the research scope. The criteria are listed below:

Selection Criteria for Provider Markets Included in Analysis

Providers were included that:

Have difficulty affording clinical information systems due to lack of financial health, lack of access to capital, an unfavorable financial value proposition, and a low rate of adoption.

- Rationale: The overall financial proposition is a barrier to adoption of clinical information systems.

Are likely to use clinical information systems to improve clinical quality.

- Rationale: Intervention is likely to improve quality.

Serve patients facing health disparities and the disadvantaged.

- Rationale: Intervention is likely to reduce the "digital divide" to ensure that health IT is available to all communities.

¹ This report is based on research performed under contract with the University of California, San Francisco. The full research report can be obtained by contacting Dr. Robert Miller at Robert.Miller@ucsf.edu.

Based upon these criteria, the health care market segments identified for focused research and policy recommendations were the following:

Health Care Markets Included in Analysis

- Community Health Centers and similar organizations, including Federally Qualified Health Centers (FQHC), FQHC “look-alikes,” and not-for-profit rural health centers;
- Public Hospitals, including 15 hospitals in 13 counties that are city/county owned and providing general acute care;
- Rural Hospitals, encompassing unaffiliated not-for-profit and district hospitals in rural communities;
- Solo and small group physicians deriving 30 percent or more of their revenue from the Medi-Cal program.

Information provided from the research allowed the Commission to prioritize certain market segments. For instance, organizations that can currently access capital or have already adopted and/or implemented clinical information systems were not included in the research scope. Some health care markets, large health systems and/or plans (Sutter, Catholic Healthcare West, and Kaiser), were excluded from further research early in the process. Based upon the criteria, additional market segments, including large risk-bearing medical groups, as well as solo-small group physicians who are not oriented to serving publicly funded beneficiaries, were also excluded from the research recommendations.

The Commission chose not to address the financing of health information exchange (HIE) architecture or HIE long-term sustainability because the issues are very different than individual provider adoption. Additionally, widespread adoption at the provider level is a precursor to fully realizing the broader value of HIE.

Capital Access Needs by Market Segment

University of California, San Francisco (UCSF) economist Bob Miller, Ph.D., researched capital access needs by health care provider market segments. The table in Figure 1, on the following page, represents the capital access needs by health care market in California, and an estimated capital requirement for clinical information systems (CIS) in California.

Figure 1 – Capital Access Needs by Health Care Market

<u>Priority Segment</u>	<u>CIS Capital Requirements</u>
Community Health Centers	\$250 - \$400 million
Public Hospitals	\$300 - \$450 million
Unaffiliated Rural Hospitals	\$100 - \$150 million
Solo/small groups, Medi-Cal oriented	\$140 - \$440 million
Total Capital Requirement	\$790 million -- \$1.44 billion*

Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

**Please note that in discussions of the financial need for each market segment, the dollar figure covers the implementation of CIS for a seven-year period.*

This broad range of need, spanning several health care markets, indicated to the Commission that solutions, in the form of recommendations to the Schwarzenegger Administration, were necessary.

Principles Guiding Recommendations

The Commission used the following principles to guide the development of its final recommendations for this report. The guiding principles for the Commission's recommendations are as follows:

- Near-term recommendations must be budget neutral.
- Mid- and long-term recommendations must be sustainable and result in more efficient health care expenditures.
- Investment strategies should prioritize options for providers that serve publicly-funded programs and for whom adoption is unlikely to occur absent policy intervention.
- All investment strategies must accrue a public benefit.
- Strategies should support investment into interoperable, certified CIS that result in quality improvement (QI) and efficiency gains.
- All recommendations should clearly outline state involvement and action.

Commission Recommendations

Members of the commission developed a total of 17 recommendations. The five recommendations that received the greatest level of support among the members are listed below. The complete list of recommendations is contained in the body of the report. In some cases, the recommendations are intentionally broad to allow for maximum implementation flexibility.

Recommendations fell into the following defined time frames:

Near-Term: The recommendation can be initiated within two years.

Mid-Term: The recommendation is likely to begin after two years and be accomplished thereafter.

Long-Term: The recommendation requires building blocks to implement, and these building blocks would be initiated in the next several years.

Recommended Priority State Actions

- ✓ **Create a public-private partnership to consolidate future public and private health IT resources (dollars and expertise) and coordinate grants and loans. (Near-Term)**
- ✓ **Finance electronic health records (EHR) through medium-term financing, rather than the more typical short-term CIS loans, consider ways to finance “operating” losses that are a continuation of the original EHR investment, investigate ways to reduce transaction costs through alternative loan programs; and determine the feasibility of the California Health Facilities Financing Authority issuing bonds for this financing. (Near-Term)**
- ✓ **Evaluate the feasibility of new organizations for implementing and providing EHR services. Investigate the possibility of creating support service organizations that either act as application service providers and/or provide support for EHR implementation and development of templates. (Mid-Term)**
- ✓ **Determine the feasibility of establishing a state grant program. (Long-Term)**
- ✓ **Encourage publicly funded programs to consider demonstration projects that incorporate new reimbursement models requiring effective use of health IT (e.g., investigate Medi-Cal pay-for-performance, fee-for-service incentives for medical homes services). (Long-Term)**

Background

Health care is one of the last “cottage industries,” one in which delivery is both highly individualized and inconsistent in quality. These two properties of health care stem from the specialized knowledge of physicians and the autonomy with which they practice. In 2001, the Institute of Medicine reported that scientific knowledge about best care is applied neither systemically nor expeditiously to clinical practice. Further, it takes an average of 17 years for new knowledge generated by randomized controlled trials to be incorporated into clinical practice.²

The variability in care delivery results in both under-treatment (care that should have been delivered, but was not) and over-treatment (care that was provided, but had little-to-marginal effectiveness).³ The highly fragmented delivery system does not make available the integrated data needed by many providers to allow for optimal care delivery. In the current system of largely paper records, information that would improve care is locked in silos among various providers.

Health IT holds great promise for addressing this gap through automation of manual processes, knowledge discovery in data warehouses, and information sharing across provider sites. Applications that support improved care delivery include electronic medical records (EMR), computerized order entry (CPOE), electronic prescribing, and decision support systems.

However, the health care industry lags significantly in its adoption of and investment in sophisticated information systems. Health care only invests two percent of its revenues into IT, while other industries invest an average of ten percent. This delay in integrating IT into the delivery system can be attributed both to uncertainty about obsolescence, due in part to a lack of national standards for data exchange, as well as a lack or misalignment of market incentives for providers to adopt technology.

Implementing Electronic Health Records (EHR) and related information systems requires a transformation in the way care is delivered. Of significant concern to policy makers is the possibility that costs and other implementation complexities will result in “haves” and “have-nots” that disadvantage vulnerable populations who rely upon safety net providers and public programs for their health care.

The character of the health care marketplace creates barriers to financing and implementation. Many individual physicians, clinics, practice groups, and smaller hospitals may lack the necessary capital to deploy integrated IT systems. In addition to the cost for hardware and software (estimated at about \$24,000 per physician), there is an even greater cost in decreased productivity during

² Report Brief: *Crossing the Quality Chasm: A New System for the 21st Century*, Institute of Medicine website accessed July 2008, www.iom.edu.

³ McGlynn, Asch, Adams, et al. *The Quality of Health Care Delivered to Adults in the United States*. New England Journal of Medicine, June 26, 2003, p. 348.

implementation, system retooling, and training necessary to optimize the investment.

California is unique in the nation in the high penetration of managed care and in the use of large integrated medical groups and independent practice associations (IPAs) that deliver care to nearly 16 million patients - approximately half of the insured population. These organizations which assume financial risk for delivery of care are uniquely positioned to take advantage of the benefits of health IT through better care coordination and cost avoidance. These groups increasingly see adoption of health IT as a cost of doing business and a competitive requirement.

Recent data published by the California Health Care Foundation⁴ shows that California leads the rest of the nation in the percentage of physicians reporting that they use EHRs -- 37 percent compared to 28 percent nationwide. This is reflective of a very high percentage of Kaiser physicians who use EHRs as well as more than half the physicians in large practices who use EHRs. In contrast, more than half of solo physicians and nearly half of physicians in small/medium group practice do not plan to implement or use EHRs in the next year.

However, the need and opportunity for access to capital is not well understood. A detailed market study was required to identify a variety of approaches to deploy capital resources to various health care sectors. As such, the Commission needed to identify which health care markets and the extent to which they are impacted by limited access to capital.

There are a number of proposed approaches that could shape the state's role in addressing the barriers to broad health IT adoption. As a major purchaser of health care services for California residents, the state has an interest in achieving greater quality and efficiency of care. The state also has an interest in ensuring the adoption of health IT for the public good. To the degree that market incentives are misaligned between payers and providers to achieve widespread adoption, the state may see the need for intervention or other market incentives.

⁴ Snapshot "The State of Health Information Technology in California", CHCF website accessed in April 2008, www.chcf.org

Overview of the Commission

Membership

The Commission was comprised of 27 individuals who were representative of the following categories of members:

- Secretary, Health and Human Services Agency, Co-Chair
- Secretary, Business, Transportation and Housing Agency, Co-Chair
- Treasurer, State of California
- Commissioner of Insurance
- Director, Department of Finance
- Director, Department of Managed Health Care
- Representative, CalPERS
- Representative, CalSTRS
- Executive Officer, Infrastructure Bank
- Representatives from various health care and financing organizations

Charter and Objectives

This Commission was formed for the purpose of determining the extent to which limited access to capital impedes the implementation of health IT in various health care sectors, whether impediments exist, and whether and how the state should be involved in addressing these impediments.

The Commission was asked to accomplish the following tasks:

Commission Tasks

- Conduct a detailed market study that would assess the capital access needs of various health providers related to implementation of health IT.
- Identify existing state and private sector funding for health IT investment.
- Determine whether there is a market need for additional state-supported funding, and if so, the specific types of support the state can and should provide.

Any suggestions should be in the context of strategies for closing the “digital divide” for access and quality of care to ensure that health information technology is available to all communities.

Focus of Research

The Commission focused its efforts on the specific issue of whether access to capital is a barrier to the adoption of Health IT for some types of health care providers.

The Commission recognizes that there is a significant question around the creation and long-term sustainability of HIE which will fully bring the promise of health IT to fruition. The development and maintenance of the architecture that will support HIE is crucial and the state will need to engage with the private sector in developing an appropriate strategy in this area. However, the Commission focused on the extent to which capital access impedes the adoption of health IT for providers, and specifically did not consider how the exchange architecture should or could be financed, believing that the critical first step is enhancing adoption of health IT by providers.

Project Constraints

The project was executed within the following constraints:

- Need to keep the scope of research to a manageable scale for time and budget purposes
- Availability of resources for research and consultative support

In developing the final recommendations, the Commission also recognized that the current budget crisis in California severely limited the range of strategies that could be developed and implemented in the next 18 months to two years. As a result, all of the near-term recommendations were designed without the requirement for new state general fund dollars.

Project Research Team and Consultants

The UCSF Institute for Health and Aging was contracted to conduct research on the financing of health IT. Robert H. Miller, Ph.D., Professor of Health Economics, headed the UCSF effort as principal investigator.

The scope of work focused on barriers to financing of health IT, specifically clinical information systems, such as:

- Electronic health records
- Chronic disease management systems (CDMS)
- Provider electronic prescribing (e-prescribing) and lab order entry

The Investigators conducted the work in phases.

Phase I	Provided an initial overview of key topics and a plan for further work in Phase II. During this phase, the Commission narrowed the focus to particular prioritized topics and market segments.
Phase II	Provided additional information, focusing on prioritized topics and specific market segments, summarized literature on policies that potentially can lower barriers to health IT financing, and presented policy options for consideration by the Commission.

The overall research approach was to identify market segments that are experiencing barriers to financing CIS and are lagging in CIS adoption, and determine why these barriers to financing exist. The project also obtained data on private/public CIS financing initiatives within California and in other states, and presented alternative policy options.

Project staff used semi-structured questionnaires to interview key analysts, policymakers, executives, and managers in different market segments, and analyzed available databases and literature.

Manatt Health Solutions advised the Commission in formulating its recommendations, assisted with meeting and agenda content, and worked with the UCSF project team. They assisted the Commission in the development of a work plan, including goals and objectives. They provided input into the final recommendations based upon best practices and models that have been established in other regions comparable to California's challenges and opportunities.

The California Council on Science and Technology (CCST) executed the contract on behalf of the State of California. The CCST is a nonpartisan, not-for-profit organization established to provide expert advice to the state government on science and technology-related policy issues. It is governed by a Board of Directors composed of representatives from its sponsoring academic institutions and the corporate and business community, as well as from the philanthropic community. The CCST also provided peer review of the final research report developed by UCSF.

The research and project support was supported in part by a grant from UnitedHealth Group/PacificCare and by the Funders Fostering Technology and Quality.

⁵ Funders Fostering Technology for Quality (FFTQ) is a community of practice addressing issues of health information technology use for quality improvement in the safety net. With 20 public and private sector members, FFTQ meets quarterly and works to coordinate efforts across the state. Contact: Kathy Lim Ko, Community Clinics Initiative, Tides.

Research Findings

What is meant by Clinical Information Systems (CIS)

Health IT includes a variety of applications that improve the quality and efficiency of health care. The focus of this Commission was on the subset of health information technologies known as clinical information systems (CIS). CIS enable health care providers to improve health care quality, reduce medical errors, and advance the delivery of appropriate evidence-based medical care. They are currently used in both ambulatory care and hospital care settings. As examples, health care delivery system CIS include ambulatory care capabilities such as EHRs and chronic disease management systems CDMS, and inpatient CIS capabilities such as picture archiving and communication systems (PACS), electronic medication administration records (eMAR), nursing documentation, and computerized provider/physician order entry (CPOE). This is a distinct segment within the health IT arena.

The Commission applied the following definitions to other mechanisms to describe various aspects of technology associated with health records:

Applied Definitions

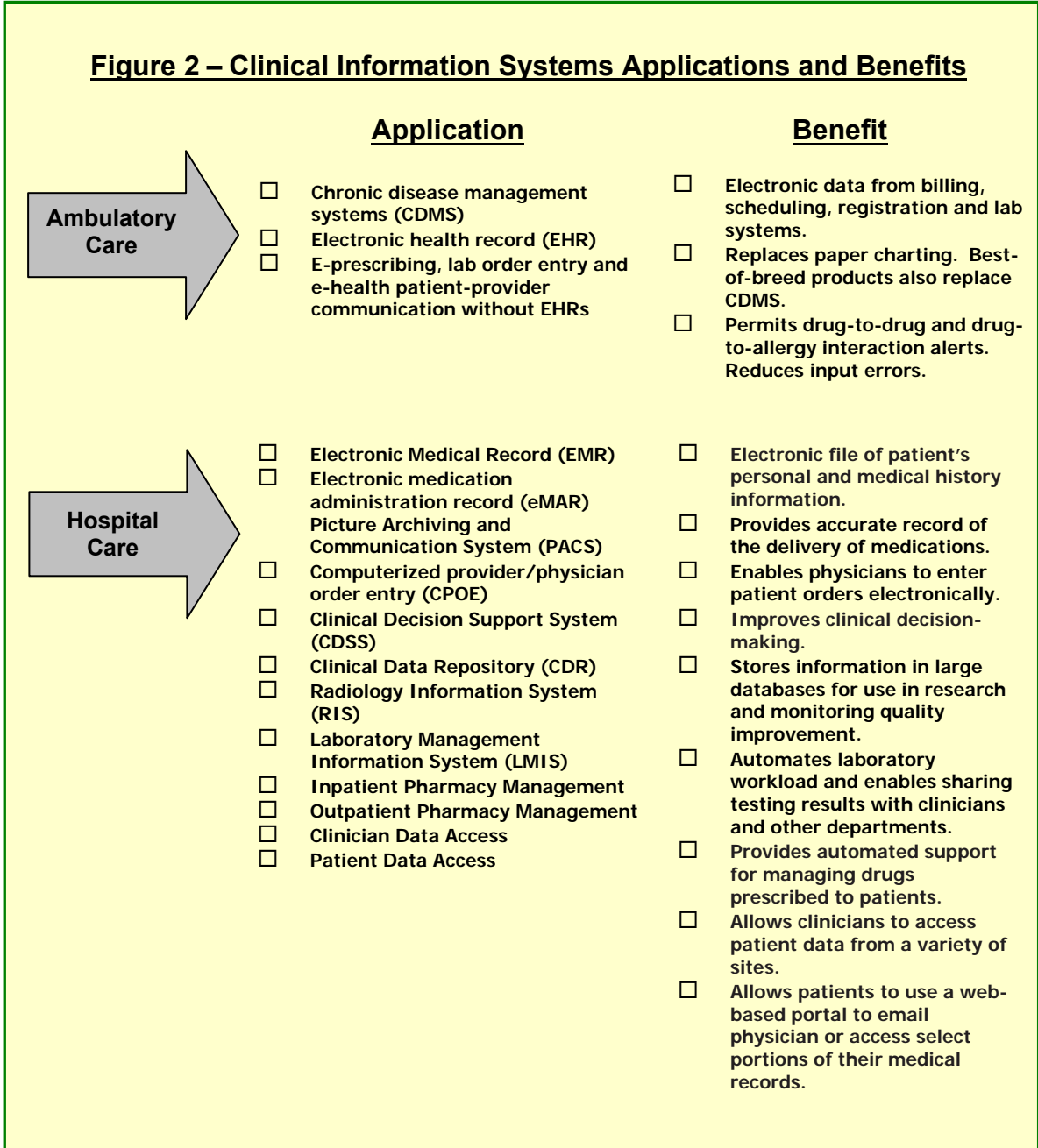
A personal Health Record (PHR) -- provides an individual with an electronic record of health-related information that allows access via electronic means (usually a website).

Health Information Exchange (HIE) -- allows for the electronic movement of health-related information among organizations according to nationally recognized standards.

Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

By using CIS, health care providers can more efficiently and effectively perform the following functions: view clinical data, document visits, order tests/prescriptions, message with other providers/staff, generate lists of patients needing services (e.g., diabetics requiring follow-up tests), create reports on provider performance, and communicate with patients.

Figure 2, below, shows a summary of the capabilities and the benefits of the use of a CIS in ambulatory care and hospital care settings. The first column beyond the arrows shows the applications. The second column illustrates the benefits of each type of application.



Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

Figure 2 illustrates that CIS give the health care provider an array of tools that can result in better outcomes for the patient and quality improvements for the provider.

Business Case and Social Case Concepts

In this report, “business case” means financial costs and benefits, and “social case” means both financial *and* non-financial costs and benefits. These costs and benefits accrue to the health care organization implementing CIS or to “society” (which includes patients, other health care organizations, insurers, and grant funders).

CIS business cases and social cases can have a positive, negative, or mixed value. Health care organizations with better leadership; experience in and financial incentives for the use of CIS for quality improvement (QI), the capacity for technical support, and a track record of implementing Health Information Exchange (HIE), generally have a higher value for their business cases. For those organizations, such as larger private health systems and medical groups with sufficiently large operating margins, a positive social case can be a strong determinant in making the implementation of CIS a financial priority. Examples include cases in which advanced CIS enables them to achieve a number of goals, including protecting their market position, complying with emerging regulatory requirements, meeting payer-designated, quality indicator measurement reporting requirements as reimbursement, and having another strategic tool within the organization’s quality improvement activities. In smaller, less well-funded organizations where CIS is not considered a cost of doing business, such as public hospitals and clinics, smaller unaffiliated hospitals, and many solo/small groups, the value of the business and social cases are mostly determined by two factors: return on investment and how CIS can improve QI. The research noted that business cases or social cases for CIS implementation could be improved by reducing capital access barriers, if this results in lower costs to the borrower.

Priority Criteria

The Commission’s priority was ambulatory care organizations and general acute care hospitals because they generate the majority of health care delivery system expenditures. The research did not focus on specialty hospitals (other than Children’s Hospitals), psychiatric hospitals, or long-term care or home health agencies. These types of organizations require CIS capabilities that substantially differ from ambulatory care and general acute care hospital organizations.

A prioritization working group of the Commission was established to consider a variety of market sectors. The Commission then discussed the recommendations of the working group within the context of the following criteria:

- The degree of difficulty in affording CIS;
- The likelihood of using CIS to improve quality;
- Whether the segment served disadvantaged persons or those facing health disparities.

Factors that determined the degree of difficulty in affording CIS included:

- A lack of financial health or creditworthiness (e.g., low or negative operating margins in the case of clinics or hospitals, and low income for physicians);
- A negative business case for CIS (e.g., financial benefits that do not pay for financial costs quickly enough to warrant the investment in CIS); and
- Low CIS adoption rates.

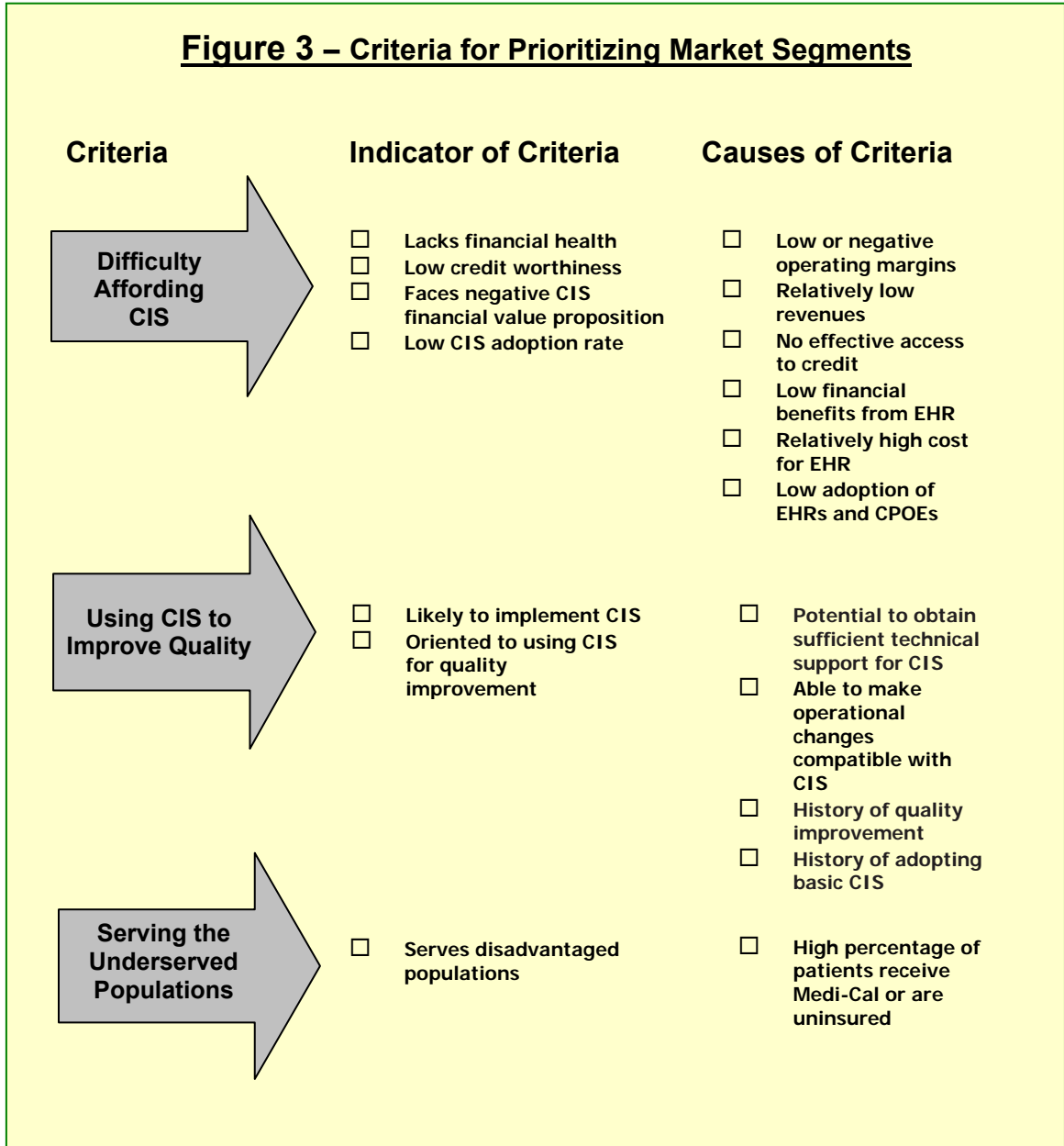
Factors that determined the likelihood of using CIS to improve quality were whether the organization would be able to obtain sufficient CIS technical support and make workflow and other changes to complement CIS, and to what degree the organization had a history of QI efforts and of adopting basic CIS that enables QI.

The final criterion used the percentage of Medi-Cal and uninsured patients that the organization served as measures to identify organizations serving disadvantaged patients.

Using this process, the Commission placed the highest priority for policy interventions on four market segments: community health centers and similar organizations, public hospitals, rural hospitals, and solo and small group physicians.

The Commission also determined that for certain market segments, policy interventions were not necessary for attaining an adequate implementation of CIS. These segments included the Kaiser system, large private hospital systems, investor-owned hospitals, and large risk-bearing medical groups. Sector and segment size were factored into prioritizing the market segments.

Figure 3, on the following page, shows the prioritizing criteria of the difficulty of affording CIS, using CIS to improve quality, and serving underserved populations.



Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

This figure indicates the relationship between the prioritizing criteria adopted by the Commission and the organizational and financial challenges associated with these criteria.

Findings by Market Segment

Community Health Centers (CHCs) and Similar Organizations

Community Health Centers (CHCs) provide comprehensive, quality health care services, particularly for low-income, uninsured and underserved Californians. They are significant providers of care to the uninsured in the state, a major provider of care to Medi-Cal beneficiaries, and the major provider of care in rural California, where they act as safety-net providers. Of the approximately 270 CHCs, most are small, with 33 clinics accounting for half of this segment's revenues. Several of the larger CHCs are financially stable. This segment includes licensed primary care providers. These are Federally Qualified Health Centers (FQHCs), FQHC "look-alikes," and not-for-profit rural health centers (RHCs). The segment has total revenues of approximately two billion dollars.

Evidence of Financial Barriers to Adoption of CIS

The evidence regarding the financing of advanced CIS, such as EHRs within CHCs, indicate that external funding opportunities are limited in the short-term, that they have a financial need for EHR subsidies, that the required maintenance of paper records limits the QI gains from use of chronic disease management systems, that there is a need for a tolerant lender, and that many small CHCs experience difficulties in accessing standard tax-exempt bonds.

In the short-term, there is a need for subsidized EHR purchases or leases by CHCs. This is due to three factors: bonds are not well positioned for CHCs due to lack of revenue streams to pay for EHRs; external grant sources for EHRs are limited; and leases only cover a portion of the costs. Subsidies would allow CHCs to implement EHRs without reducing their operating margins to unsustainable levels.

A CHC seeking to borrow via bonds requires a tolerant lender, as investments in EHR will initially create operating losses. The investment may take longer than the typical five-year loan period to pay for itself, and the credit worthiness of many small CHCs is low.

Due to their small size, many CHCs are limited in their ability to use tax-exempt bonds to finance CIS. About one-third of those CHCs that may be large enough to borrow from standard tax-exempt lenders have operating margins of one percent or less, restricting their access to loans. Others do not have sufficient cash flow to meet lender requirements.

CIS Adoption as Indicator of Affordability

In 2007, EHRs were used by only four percent of CHCs, according to a California Healthcare Foundation Report⁶. CDMS is used in approximately 80 percent of CHCs; of which about 20 percent employ an advanced CDMS that allows data exchange with practice management systems and laboratory systems. This low penetration rate for EHRs reflect the weak financial condition of many of the small CHCs.

Societal Value

The societal value of the use of CIS in CHCs is the improved health of disadvantaged patients and potential cost savings to public funders due to reductions in hospital and emergency room use.

Need for Policy Intervention

The business model of the CHCs has produced very low operating margins. This is true despite the fact that most CHCs receive enhanced reimbursement, and that the Medi-Cal prospective payment system (PPS) reimburses some EHR costs for providers serving Medi-Cal patients. For the smaller CHCs, this low operating margin presents significant challenges in sustainably funding advanced CIS implementation.

It is estimated that the CHC market segment, including for-profit RHCs, needs between \$250 million and \$400 million to implement and use EHRs. This amount could be decreased if networks providing EHR services were to be created, or if CHCs were able to increase their preparedness for EHR, and implement a culture of quality, or if the market provided improved software and health information exchange at a lower price.

Examples of Innovative Funding and Collaboration

Innovative funding of CHCs for CIS has occurred. For example, the Chico Women's Health Clinic approached the California Health Facilities Financing Authority (CHFFA) with a loan request of \$500,000 under CHFFA's three percent loan program. Using this loan, the Clinic appears to have realized savings almost immediately and is regularly making loan payments.

The Community Clinics Initiative, a joint project of the Tides Foundation and the California Endowment, provided grants to fund practice management systems (PMS) and provided a range of technical assistance services to optimize the use of these technologies for both operational efficiencies and for clinical care improvements.

⁶ Moylan, C., D. Sickler, et al. (2005). NAPH Health Information Technology Source Book. Findings from the 2004 Electronic Medical Record Survey. Washington, DC, National Association of Public Hospitals and Health Systems.

Public Hospitals

The public hospital market segment consists of 15 acute-care hospitals located in 13 counties, serving primarily disadvantaged patients. Most are large and are located in the state's larger counties. According to the California Association of Public Hospitals (CAPH), public hospitals care for about half of the state's uninsured population and many Medi-Cal beneficiaries. Outpatient and ambulatory care, as well as inpatient services, are all available at public hospitals. In 2006, public hospitals provided approximately one million general acute patient days, conducted one million emergency room visits, and 4.3 million primary, specialty care, and other clinic visits⁷. All public hospitals are disproportionate-share hospitals (DSH). Organizationally, all fifteen public hospitals are housed within counties or divisions of county health departments. Many public hospitals operate clinics that are FQHCs or FQHC "look-alikes." This document excludes the University of California, long-term-care-focused facilities, and district hospitals, as their business models are very different from public hospitals.

Evidence of Financial Barriers to Adoption of CIS

The evidence regarding the financing of advanced CIS within public hospitals indicates that key public hospital funding sources face reductions, that there is increased competition for Medi-Cal patients from private hospitals, and that counties continue to place a low priority on funding CIS for public hospitals.

In addition, public hospitals benefited from the first two years of a five-year Medicaid waiver program, which reprogrammed how safety net dollars were allocated. However, the program payments are fixed, and costs have continued to rise.

Public hospitals often rely on grant programs to help pay for CIS. Grant programs that subsidize loan costs might help convince a county Board of Supervisors to approve borrowing for CIS, although a few public hospitals could benefit from low-cost loan or lease programs dedicated to lending to safety-net providers. Counties that could provide county-based public hospitals with access to capital are often unwilling to borrow funds for projects without a favorable short-term return on investment. Additionally, they are generally focused on allocating funds to projects that meet public safety or specific regulatory requirements that are not health related. Since most advanced CIS projects typically do not meet those criteria, funding for advanced CIS capital projects have lower priority.

⁷ Office of Statewide Health Planning and Development, 2006 Hospital Data Reporting

CIS Adoption as Indicator of Affordability

Most county-based public hospitals use basic CIS capabilities as well as one or more advanced capabilities systems (order entry and nursing documentation). The use of advanced CIS varies considerably within this market segment. Some public hospitals are beginning to use EHRs in their ambulatory care clinics. Primary care clinic CIS use includes EHRs.

Societal Value

Often public hospitals are teaching hospitals associated with universities. They have strong records of implementing quality improvement programs, but lack the financial backing of universities. The primary societal value of the use of CIS in public hospitals is the improved health of disadvantaged populations. Hospital executives can use advanced CIS to make quality improvement changes. Medi-Cal could benefit from greater integration of inpatient and outpatient care.

Need for Policy Intervention

Currently public hospitals depend predominantly on public funding. Public hospitals receive revenues from the following sources: Medi-Cal, federal funds, and realignment dollars from sales tax and vehicle licensing fees. Most public hospitals have limited capital investment budgets for any purpose, including CIS. Direct county subsidy or general fund support varies widely by county. Private foundations provide important, though small, funding for some capital improvement projects. It is estimated that the public hospitals segment need is between \$300 million to \$450 million to implement and use CIS, with Los Angeles County accounting for about half of projected need.

Examples of Innovative Funding and Collaboration

Some public hospital information systems departments have been innovative in funding new projects. For example, two public hospital information systems departments renegotiated long-term contracts with existing vendors, extracting concessions from vendors to fund new software.

Rural Hospitals

The rural hospital segment is comprised of 59 hospitals which include district, not-for-profit affiliated, not-for-profit unaffiliated, and investor-owned hospitals. Of these, 40 are either district hospitals or unaffiliated not-for-profit hospitals. Rural hospitals serve a population that is slightly older, have somewhat lower income and less health care insurance, and have more health problems than their urban and suburban counterparts. The district and unaffiliated not-for-profit rural hospitals are challenged by an insufficient access to capital to sustainably fund CIS implementation. As a result, these sub-segments are behind affiliated hospitals in the use of CIS.

Evidence of Financial Barriers to Adoption of CIS

The evidence regarding the financing of advanced CIS within rural hospitals indicates that over a five-year period, the cost of implementing CIS could reduce operating margins by at least two to three percent a year. This return is not financially sustainable for most district and unaffiliated rural hospitals.

Affiliated hospitals typically can either borrow through their parent organizations at low rates, or are financially strong enough to afford advanced CIS on their own. This is not the case for some unaffiliated rural hospitals which require credit enhancement in order to be able to borrow sufficient funds to implement CIS in an on-going manner.

In addition, rural hospitals, especially district and unaffiliated hospitals face significant non-capital related challenges to CIS adoption due to their geographic location. These challenges include attracting and retaining technical staff, paying market rates for technical staff, and having access to cost-effective broadband service. With respect to addressing this last challenge, a recent Federal Communications Commission Rural Health Care Pilot Project broadband grant to the University of California that established the California Telehealth Network⁸ may prove helpful.

CIS Adoption as Indicator of Affordability

All sub-segments have used some form of CIS. For inpatient care CIS, most rural hospitals have basic systems which includes pharmacy systems, but do not have advanced CIS capabilities. They also do not have EHRs for use in outpatient clinics.

District and unaffiliated rural hospitals, when compared to affiliated hospitals, have less advanced CIS in place, or are in the planning process. They have more CIS adoption barriers than affiliated hospitals, because affiliated hospitals can rely on their parent organization's access to capital and staff experience in CIS implementation. Further, unaffiliated rural hospitals may face relatively greater challenges in effectively using CIS for QI due to limited resources.

⁸ The California Telehealth Network is undertaking the development of a new network that will connect a total of 319 California health care sites. It is supported by the work of California institutions and stakeholders to create a forward-looking, state-of-the-art telehealth network for California. This group includes California leaders and representatives of multiple offices and organizations, including the Office of Governor Arnold Schwarzenegger, several major state governmental entities responsible for health, business and telecommunications matters, the University of California (Office of the President and UC Davis Health System, as joint partners), non-profit organizations such as the California Emerging Technology Fund (CETF), and California public and nonprofit health care providers, including existing regional rural health networks.

Societal Value

The societal value of the use of advanced CIS in rural hospitals is in the improved quality of care for disadvantaged patients, as well as more efficient compliance with emerging reporting regulations. Using advanced CIS may decrease costs to Medi-Cal over the long-term, due to the reduced utilization resulting from improved preventative care.

Need for Policy Intervention

The overall financial state of rural hospitals is poor, with many showing negative operating margins. Most of the critical access hospitals, as well as many of the district and unaffiliated rural hospitals, lack access to low-cost credit. District hospitals can levy tax assessments.

Unaffiliated district and not-for-profit rural hospitals are financially disadvantaged because system-affiliated rural hospitals generally are larger, have higher operating margins, and can access capital through their systems. Many district hospitals show operating losses, although their taxing capacity and foundation support generally allow for positive net margins.

Weak credit ratings prevent most small district and unaffiliated rural hospitals from using tax-exempt bonds to fund CIS. Thus, there is a need for credit enhancement in this market segment. Credit rating agencies are reluctant to rate small hospitals, as their small size and dependence on a few key physicians who admit a large portion of patients increases uncertainty about future financial performance. Currently, Cal-Mortgage⁹ is the only credit enhancement agency for some rural hospitals.

Significant up-front expenditures for CIS, from existing internal or external sources, are not feasible for some smaller rural facilities. The small size and weak financial health of some district and unaffiliated hospitals makes borrowing more difficult. Some district and unaffiliated rural hospitals face access-to-capital challenges that are similar to those of larger CHCs.

It is estimated that the sub-segment need of district and unaffiliated rural hospitals is \$100 million to \$150 million for implementation and utilization of advanced CIS.

⁹ Cal-Mortgage is a division of the Office of Statewide Health Planning and Development (OSHPD). Cal-Mortgage administers the California Health Facility Construction Loan Insurance Program, and provides credit enhancement for eligible health care facilities when they borrow money for capital needs. Cal-Mortgage insured loans are guaranteed by the "full faith and credit" of the State of California. This guarantee permits borrowers to obtain lower interest rates, similar to the rates received by the State of California.

Solo/Small Group Physicians

Using data from multiple sources, the UCSF researchers estimated that approximately 40,000 to 45,000 physicians provide patient care in solo and small group practices, including approximately 14,000 PCPs and 30,000 specialists. It was estimated that 3,500 solo and small group practice PCPs and 7,500 specialists are “Medi-Cal oriented” (i.e., the practice derives 30 percent or more of its revenue from Medicaid).

Evidence of Financial Barriers to Adoption of CIS

The major challenges to financing advanced CIS for solo/small group physicians include limited adoption and an unclear business case for IPAs or hospitals that might provide services or subsidies.

CIS Adoption as Indicator of Affordability

For solo and small physician groups, EHR adoption has been slow with only 12-20 percent having EHRs. The return on investment for EHR is slower and less certain than for other uses of capital, such as imaging equipment or office space for practice expansion, and EHR costs are relatively high. Only a small percent of physicians appear to have CDMS, although many IPA physicians are provided with CDMS-like data about their patients. This data is used to create lists of chronic and preventive care patients, which results in improved quality of care and increased pay-for-performance benefits. Physicians in larger groups are more likely to have EHRs in place than are solo or small group physicians.

Societal Value

The social case for solo/small group physicians and the society business case are increasingly positive as payers implement incentives for QI, and improve with the implementation of health information exchange.

Need for Policy Intervention

It is estimated that Medi-Cal-oriented solo/small groups physicians need between \$140 million (for PCPs) to \$440 million (for PCPs and specialists) to implement and use CIS. This is based on the assumption that practices are able to generate sufficient benefits to cover ongoing, EHR-related costs.

Examples of Innovative Funding and Collaboration

Some physicians avoid large initial costs by obtaining EHR services through an Application Service Provider (ASP) subscription model, but those ASPs currently have little EHR market share.

Summary of Research Findings

The findings of the research are summarized in Figures 4 and 5 below. They place the research findings in the context of an increasing digital divide, and the financial and organizational challenges faced by each priority market segment.

Figure 4, below, shows a comparison of market segments that were prioritized by the Commission for study to comparable market segments that are able to successfully implement CIS based upon evidence of adoption and use. The two groups are compared using the metrics of relative CIS adoption, relative business case, relative financial health and access to capital, and relative ability to treat disadvantaged and underserved populations.

Figure 4 – Priority Market Segments Face an Increasing Digital Divide

Priority Segment	Comparable Segment	Relative CIS Adoption	Relative Business Case	Relative Financial Health and Access to Capital	Relative Ability to Treat Disadvantaged and Underserved Populations
Community HealthCenters	Private Practices	Worse	Worse	Worse	Much Better
Public Hospitals	Health Systems and Most Large Hospitals	Worse	Worse (possibly)	Worse	Much Better
Unaffiliated Rural Hospitals	Affiliated Rural Hospitals	Worse (probably)	Worse (possibly)	Worse	Better
Solo/Small Groups	Large Medical Groups	Worse	Worse	Worse (probably)	Same
Solo/Small Groups, Medi-Cal Oriented	Large Medical Groups	Worse	Worse	Worse	Better

Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

Figure 5, on the following page, indicates the financial and organizational challenges of each priority market segment. This table provides an overview of the capital need of each market segment, as well as a characterization of each segment relative to the criteria used to include these sectors within the scope of research, and to the segment’s current potential for meeting their organizational and financial needs in order to implement CIS.

Figure 5 – Financial and Organizational Challenges for Each Priority Market Segment

Priority Segment	CIS Capital Requirements	Difficulty Accessing Tax-Exempt Debt	Negative Business Case	Shortage of Technical Expertise	Insufficient CQI Training	Shortage of Grant Funds	Insufficient Medi-Cal (HMO) Pay-for-Performance
Community Health Centers	\$250 - \$400 M	High	High	High (without networks)	Medium	High	High
Public Hospitals	\$250 - \$400 M	High	High*	Low	Medium	High	High
Unaffiliated Rural Hospitals	\$250 - \$400 M	Medium	High	Medium	High	High	High
Solo/Small Groups, Medi-Cal Oriented	\$250 - \$400 M	N/A	Medium**	High*	High	High	High
Total Capital Requirement	\$775 M - \$1.4 B***	--	--	--	--	--	--

Miller, Robert. Professor of Health Economics, UCSF, San Francisco, CA.

* *Particularly for inpatient setting*
 ** *Lower for IPA and hospital support*
 *** *Note that in discussions of the financial need for each market sector, the dollar figure covers the implementation of CIS for a seven year period.*

It is clear from this table that the challenges to each of the segments in implementing advanced CIS are significant. Meeting these challenges will require innovative and collaborative solutions that allow the segments to reach the goal of sustainable CIS implementation.

Recommended State Actions

The Commission determined that there is a market need for additional state-supported involvement. The specific types of support that the state can provide are both active and facilitative. The Commission recommended the following actions for the state to pursue:

- Facilitate the establishment of a public-private partnership.
- Convene stakeholders to explore a medium-term loan program.
- Consider the creation of state grant programs targeting CIS.
- Determine ways to provide credit enhancement.
- Evaluate the feasibility of establishing CIS technical support organizations.
- Encourage Medi-Cal to consider strategies to support CIS adoption.

Time Frames for Recommendations

For the purposes of the recommendations below, near-term indicates that the recommendation can be initiated within two years; mid-term indicates that the recommendation could begin after two years and accomplished thereafter; and long-term indicates that the recommendation requires building blocks to implement, and that these building blocks would be initiated in the next several years.

Principles Guiding Recommendations

All recommendations are compatible with strategies that close the “digital divide” for access and quality of care, help to ensure that health IT is available to all communities, and adhere to the following principles:

Guiding Principles for Recommendations

- Near-term recommendations must be budget neutral, while mid- and long-term recommendations must be sustainable and result in more efficient health care expenditures.
- Investment strategies should prioritize options for providers that serve publicly funded programs and for whom adoption would not occur absent policy intervention.
- All investment strategies must accrue a public benefit.
- Strategies should support investment into interoperable, certified CIS that results in efficiency gains and quality improvement.
- All recommendations should clearly outline state involvement and action.
- Successful implementation requires collaboration across public and private sector entities.

Commission Recommended State Actions

Using the above principles, and taking into consideration financial feasibility in the current budget environment, the Commission developed a list of 12 recommendations. The five recommendations that received the greatest level of support among the members are listed below.

Five Priority Recommendations

- Create a public-private partnership to consolidate future public and private health IT resources (dollars and expertise) and coordinate grants and loans. (Near-Term)
- Finance EHRs through medium-term financing, rather than the more typical short-term CIS loan, determine how to finance “operating” losses that are a continuation of the original EHR investment, investigate ways to reduce transaction costs; and determine the feasibility of the California Health Facilities Financing Authority issuing bonds for this financing. (Near-Term)
- Evaluate the feasibility of new organizations for implementing and providing EHR services. Investigate the possibility of creating support service organizations that either act as application service providers and/or provide support for EHR implementation and development of templates. (Mid-Term)
- Determine the feasibility of establishing a state grant program. (Long-Term)
- Encourage Medi-Cal to consider demonstration projects that incorporate new reimbursement models requiring health IT (e.g., investigate Medi-Cal pay-for-performance, fee-for-service incentives for medical homes services). (Long-Term)

All recommendations, along with their respective suggested action steps, are presented below. They are grouped in near-term, mid-term, and long-term time frames. The priority recommendations are noted in parentheses.

Near-Term Actions

Recommendation: Create a Public-Private Partnership **(PRIORITY RECOMMENDATION)**

The Commission recommends creating a public-private partnership (Partnership) initially to provide advice on policy interventions and potential stakeholder actions.

In the near term, the Partnership would catalyze statewide collaboration by encouraging stakeholders to build upon the recommendations of the eHealth Forum Report and the California Broadband Task Force Report; statewide activities such as the California Telehealth Network; and regional initiatives, such as the Northern Sierra Rural Health Network¹⁰. The Partnership would also analyze the “use case” for the investment in CIS, working with both the immediate and ultimate beneficiaries of the deployment of CIS to create collaborative approaches for enhanced revenues that will sustain the implementation of CIS to all communities in California.

State participation in the near term must be in-kind (i.e. staffing and resources) with respect to implementing this recommendation, and private sector funding would be required to cover operating and staffing costs.

In defining the charter, goals, missions and governance model for, as well as the roles and responsibilities of the members of, the Partnership, there are a number of models that the state can emulate.

For example, New York created a public-private partnership through the Health Care Efficiency and Affordability Law for New Yorkers Capital Grant Program (the HEAL NY Program). This program was established in 2004 to effectively reform and reconfigure New York’s health care delivery system to achieve improvements in patient care and increased efficiency of operation. State law provides that the HEAL NY Program shall be jointly administered by the New York State Department of Health (DOH) and the Dormitory Authority of the State of New York (DASNY). The DASNY provides financing and construction services to public and private universities, not-for-profit health care facilities, and other institutions which serve the public good.

¹⁰ The Northern Sierra Rural Health Network promotes the health and well-being of communities in rural Northern California through comprehensive health care planning, integrated health care delivery systems, educational activities, and charitable programs and services that expand access to care for all residents, regardless of ability to pay.

The two primary objectives of HEAL NY are to identify and support opportunities for development and investment in health information technology (IT) initiatives on a regional level, and to identify and support opportunities for restructuring health care delivery systems on a regional basis in a manner that results in improved quality, efficiency, and stability of health care services. Funding has been made available through state appropriations beginning with the State Fiscal Year 2006 and, pursuant to section 1680-j of the Public Authorities Law (PAL), DASNY bonding authority in the amount of up to \$740 million, as well as through the Federal State Health Reform Partnership (F-SHRP). A full list of the participating entities is available at <http://www.nyhealth.gov/technology>. The organization of the HEAL NY program is collaborative in nature, with a shared governance structure.

In Massachusetts, where there has been an established tradition of health IT collaboration, no legislation or executive orders have been needed to date. The state has provided encouragement, support, and thought leadership. In addition, it has provided financial support for certain initiatives. Examples of these include the Massachusetts Health Data Consortium, a non-profit, private corporation, to which the state provides funds for ongoing support, and MA-SHARE (a community utility service for state-wide clinical data exchange in Massachusetts), to which the state provided funds for development costs.

In the area of HIE, Massachusetts has a loose collaboration that can be characterized as a virtual Regional Health Information Organization. The components of this virtual organization are the Massachusetts Health Data Consortium (which plays the role of the convener), NEHEN (which provides administrative support to the HIE), MA-SHARE, the Massachusetts eHealth Collaborative (which works to improve broadband connectivity), and MassPRO (which is responsible for the state's Quality Improvement Organization DOQ-IT program).

MA-SHARE is a program of the Massachusetts Health Data Consortium. The MA-SHARE operating model is generally conceived as that of a facilitator and incubator, in which projects exploring health care data connectivity will be undertaken in order to develop, pilot, and demonstrate new health care information technologies across communities and enterprises. The MA-SHARE clinical connectivity vision is to design technology solutions that assemble, organize, and distribute a variety of up-to-date clinical information to a broad range of clinical settings; all accomplished in a secure, confidential manner.

Another effort in Massachusetts is the Massachusetts eHealth Collaborative (Collaborative), formed in 2004 as an initiative of the physician community to bring together the state's major health care stakeholders for the purpose of establishing an EHR system that would enhance the quality, efficiency, and safety of care in Massachusetts. The Collaborative has a \$50 million commitment from Blue Cross Blue Shield of Massachusetts to fund its demonstration project phase. By pooling

the resources, talent, and experience of its 34 member organizations and participating pilot communities, the Collaborative hopes to achieve a major leap forward in realizing its visions of better care for the citizens of the Commonwealth. The Collaborative is governed by a board of 34 organizations representing all of the major health care stakeholders in Massachusetts.

In Kentucky, the Kentucky eHealth Network has recently begun several critical breakthrough projects and the long-term planning necessary for the development of e-Health, including the Kentucky Health Information Partnership (K-HIP) and the e-Prescribing Partnerships in Kentucky (ePPIK) Grant Program. K-HIP is bringing together major health care organizations to develop a common web portal for provider-payer communications. The portal will contain a clinical site for accessing a patient health summary based on claims data, and an administrative site for handling common administrative transactions electronically. Through this portal, health care providers would have secure access to clinical information on more than 60 percent of the patients they see, and administrative tasks would be simplified and standardized. The ePPIK Grant Program will assist with adoption of health information technology to advance e-Prescribing in the Commonwealth by promoting the formation of partnerships within a community between physician's offices, hospitals, pharmacies, and other health care entities to facilitate true end-to-end electronic prescription processing. In addition, the Kentucky e-Health Network Board hosts an annual statewide e-Health Summit as a means to bring together payers, providers, policy makers, consumers, and other interested stakeholders to learn about and discuss the development of e-Health in Kentucky.

Recommendation: Seek New Financial Models for Funding CIS
(PRIORITY RECOMMENDATION)

Small rural hospitals, which often serve as sole community providers as well as community clinics and health centers, face significant economic challenges and barriers in accessing debt capital. Developing programs which include some means of paying down the costs of issuance and other related barriers to accessing capital can help increase access by these providers.

The Commission recommends that stakeholders, including lenders and public and private underwriting firms, determine the requirements for these financing vehicles. The organizations that could participate and drive this discussion include the California Health Facilities Financing Authority (CHFFA)¹¹, Cal-Mortgage, the California Infrastructure and Economic Development Bank (I-Bank)¹², the

¹¹ The California Health Facilities Financing Authority (CHFFA) was established to be the state's vehicle for providing financial assistance to public and non-profit health care providers through loans, grants, and tax-exempt bonds. CHFFA administers a Standard Bond Financing Program, a Pooled Bond Financing Program and a Tax-Exempt Equipment Financing Program. CHFFA provides loans to small and rural health facilities through the HELP II Financing Program and offers two grant programs, the Children's Hospital Program and the Community Clinic Grant Program.

¹² I-Bank, located within the Business, Transportation and Housing Agency, promotes economic revitalization, enables future development, and encourages a healthy climate for jobs in California.

California Public Employees' Retirement System (CalPERS)¹³, the California State Teachers' Retirement System (CalSTERS)¹⁴, the Legislature, and WellPoint and United PacificCare, among others.

CHFFA and other municipal bond issuers could also provide lower costs, ease of transactions, and other means of reducing barriers to the tax-exempt bond market for such borrowers. The financing models should reflect creative approaches that reduce loan transaction costs, such as the use of charitable funds to defray costs of issuing the bonds, or considering how the concept of "useful life of the entity" can be applied to interoperable systems. The financing models should include options that meet the needs for the ongoing costs of implementing CIS beyond the up front investment in hardware and software.

The Commission recommends that the state explore mechanisms to increase access to the tax-exempt bond market by unaffiliated rural hospitals. With such programmatic assistance, existing channels for gaining more access to capital, such as Cal-Mortgage or CHFFA, will be more easily and frequently utilized by such providers.

The Commission recommends further study of the New Market Tax Credits (NMTTC) Program to assess the possibility of linking NMTTC funds to loan forgiveness. The NMTTC Program was created by Congress to spur low-income community development by creating an alternative to taxable and tax-exempt financing. It is a combination of equity (through a tax-credit) and debt investment. The investment is approximately 30 percent equity and 70 percent debt. The NMTTC permit taxpayers to receive a tax credit against federal income taxes for making equity investments in Community Development Entities (CDE). CDE is a domestic corporation or partnership that is an intermediary vehicle for the provision of loans, investments, or financial counseling in low-income communities.

The Community Development Financial Institutions Fund (CDFI Fund) administers the program. The CDFI Fund is a wholly-owned government corporation within the U.S. Department of Treasury. It was created for the purpose of promoting economic revitalization and community development. The mission of the CDFI

It is governed by a five-member Board of Directors. The I-Bank has broad authority to issue tax-exempt and taxable revenue bonds, provide financing to public agencies, provide credit enhancements, acquire or lease facilities, and leverage state and federal funds. The I-Bank's current programs include the Infrastructure State Revolving Fund (ISRF) Program and several revenue bond financing programs.

¹³ CalPERS provides pension fund, health care, and other retirement services for approximately 1.5 million California public employees. CalPERS provides benefits to all state government employees and, by contract, to local agency and school employees.

¹⁴ CalSTRS administers retirement, disability, and survivor benefits for California's public school educators and their families.

Fund is to expand the capacity of financial institutions to provide capital, credit, and financial services to underserved markets in the United States.¹⁵

This is a near-term recommendation because it addresses determining the feasibility of these actions. Funding and implementing such actions is a longer-term proposition.

Statewide Health Planning and Development (OSHPD) comments:

OSHPD is supportive of finding ways to reduce transaction costs. Borrowers seeking smaller loans of less than \$5 million do not typically utilize public financing markets due to transaction costs. To mitigate this barrier to capital access, the California Health Facility Construction Loan Insurance Program¹⁶ (Program) works with private underwriting firms that pool smaller loans into one larger bond issue. It also coordinates with the California Health Facilities Financing Authority and the National Cooperative Bank, which both have loan and grant funds available to assist small borrowers. Currently, the Program is working with the UnitedHealth/Pacific Care Capital Access Program which provides access to capital for borrowers from \$1 million to \$5 million. UnitedHealth will provide grant funds to reduce the transaction costs associated with the bond issue borrowings.

Implementing the recommendation to finance Electronic Health Records Systems (EHRS) for a mid-term period, for example ten years, and financing operating losses with loan insurance will cause the Program to sustain financial losses due to loan defaults, which would increase risk to the state's general fund.

There appear to be several concepts included within the recommendation. For clarification purposes, the Program insures loans issued by lenders to non-profit or public entity health care facilities. The Program does not make loans or issue bonds. OSHPD has the following concerns:

- It is an unsound financial underwriting practice to allow debt service to extend beyond the useful life of an asset. Typically, the useful life of IT systems is three to five years. Without ongoing investments to upgrade system components and software, a typical IT system is rendered useless in less than five years. Defaults increase when required payments extend beyond the useful life of the asset.*

¹⁵ New Market Tax Credits Website, accessed in June 2008, www.nmtc.com

¹⁶ The California Health Facility Construction Loan Insurance Program stimulates the flow of private capital into public and nonprofit health care facility development, expansion, or renovation projects in order to improve accessibility to needed health care services in communities throughout California. The Program is required to operate without cost to the taxpayers. During its 36-year history, it has facilitated more than \$5.5 billion in health care facility construction financing that has contributed to the development of California's health care infrastructure, particularly in underserved communities. To date, the state's general fund has not contributed any money to the Program.

- *Underwriting the financing of EHRs is complicated by the fact that no revenues are produced by the asset. Most borrowers pay for the acquisition of EHRs from available excess cash, or finance it based upon ongoing net income from operations. The borrowers that do not have available cash or sufficient ongoing net income typically seek out grant funds. Defaults increase when there is no revenue stream or identifiable cost savings generated by a financed asset.*
- *It is an unsound financial underwriting practice to finance operating losses. In addition to the lack of revenue production, financing losses provides short-term cash, but creates long-term debt that increases the monetary losses of the borrower and exponentially increases its debt. As this policy is intended for health care entities in underserved communities, the end result will create excessive debt and operational losses long after the useful life of the EHRs has expired. Defaults increase when borrowers are over-leveraged with debt.*

Alternative Recommendation put forward by OSHPD:

- *The California Health Facility Construction Loan Insurance Program should continue to seek methods for providing access to capital for small borrowers through cooperation with private/public underwriting firms and lenders.*
- *Encourage large hospital systems and financially strong hospitals to provide proven EHRs technology to local and regional health care providers, creating a health care delivery system in which patient services are seamlessly connected.*
- *Identify additional grant funds for the acquisition of EHRs by safety net health care providers.*

Recommendation: Encourage Alignment Between Foundations and Other Funders

Encourage health plans' and hospital systems' community benefit programs and foundations to join funding collaboratives such as the Funders Fostering Technology and Quality (FFTQ), in order to better align grant making initiatives targeted to these market segments.

The goal of this effort would be to avoid duplication of efforts, spread innovation, share lessons learned, and encourage cooperation to create sustained efforts that improve the quality and efficiency of health care delivery.

In the example of the FFTQ, numerous public and private funding organizations have developed a vision for widespread adoption and use of health IT to improve quality outcomes for California's uninsured and underinsured. This group has developed common principles to guide funding initiatives with the shared objectives of spreading success, aligning quality efforts, advancing readiness, and promoting consumer centered care to ensure sustainable investments. These principles include the concepts that collaboration creates economies of scale, that organizational change is fundamental to success, and that technology solutions must be interoperable.

Recommendation: Medi-Cal Managed Care Plans Should Explore Establishing Pay-for-Performance Programs

There is a need to establish a single set of performance measures that can be used to spur the use of CIS. Further, the specific measure agreed upon should have a simplified method of data collection, one that is based on electronic collection, rather than paper surveys or attestation. The fee-for-service pay-for-performance program established by the Integrated Healthcare Association (IHA) should be considered for use as a model for establishing pay-for-performance incentives within the Medi-Cal managed care program to further incentivize reporting of quality measures and adoption of CIS.

The IHA was formed in 1994 with the goal of creating breakthrough improvement in the California health care delivery system. IHA members cross the spectrum of health care stakeholders, including health plans, medical groups, health systems, hospitals, purchasers, and consumers. The IHA pay-for-performance program is the largest in the country, comprising seven major health plans which paid out \$65 million in incentives to participating medical groups in 2007. Key to the success of the IHA program has been the development of a standard set of performance measures that are used by all of the participating health plans as a basis for the payment of incentives. Each plan, however, determines its own methodology for payment. The measure set is designed to be evidence-based and provide a single set of performance measures across all payers in order to provide a common yardstick for comparing medical groups. The groups represent nearly 40,000 physicians caring for over 12 million Californians. Evidence from the IHA program indicates that 40 percent of participating physician groups are able to produce actionable information for population management, and that these groups have accelerated their adoption of IT to improve care management processes.

At the present time, approximately 3.5 million Medi-Cal recipients are enrolled in managed care plans. If these plans also adopted IHA measures, it would enhance the ability of consumers to compare the quality of care between public and private sector payers.

Department of Health Care Services (DHCS) Comments:

DHCS agrees that reimbursement to Medi-Cal providers should create incentives to drive the delivery system toward higher quality care and improved health outcomes – pay-for-performance is one means of achieving this goal. Requiring Medi-Cal providers to use health IT as a condition of reimbursement is another tool in driving system change.

DHCS has taken an important step in incorporating performance based incentives into program administration through implementation of a default algorithm that rewards higher performing plans with assignment of members who have not exercised their right to choose a health plan. This process uses the “reward” of members to drive quality improvement.

DHCS would like to provide reimbursement based incentives for provider and plan performance that improves quality and health outcomes. It understands that such investments may indeed moderate health care cost growth in the long-term. Given the state budget challenges, it is not likely that it will be able to implement reimbursement based incentives in the near term. California’s Medi-Cal program has the lowest per-person costs of any Medicaid program in the nation. Recent budget actions further reduced reimbursement levels for most providers by ten percent. Regrettably, at this time DHCS does not believe it is feasible to make significant progress on reimbursement based incentives. It is engaged in preliminary planning efforts such that when the state budget improves, it can provide options for policy. DHCS will work with plans, providers, and advocacy groups to consider options for what types of provider and/or plan performance is rewarded or incentivized. Adoption of CIS will be one of the options considered.

DHCS is engaged in several pilot projects that offer Medi-Cal beneficiaries disease and care coordination management services within Medi-Cal’s fee-for-service (FFS) system. These types of projects, in the future, could be modified or designed to incorporate pay-for-performance program features which would include performance measures that contain a reimbursement component specifically linked to supporting HIT infrastructure. Several approaches used in other states could serve as a blueprint for California, such as that used in New York’s Primary Care Information Project initiative. This initiative provides IT support to physicians serving the neediest communities. California’s models may serve as a jumping-off point for other initiatives or pilot programs, and should be explored further.

Recommendation: The State Should Work with Stakeholder Associations to Optimize Medi-Cal Prospective Payment System Changes

Medi-Cal has proposed changes to the Prospective Payment System that will help pay for some CIS related costs. Associations should educate providers on these optimized benefits, ensure that they understand how to qualify for them and how to assist their providers in demonstrating the value of the use of these technologies in terms of improved quality and outcomes for patients.

Department of Health Care Services (DHCS) Comments:

DHCS recognizes the value of a CIS or an electronic health records (EHR) system in that such a system could improve quality and outcomes for patients in the following manner:

- *Ensure that prescriptions are correctly filled*
- *Result in better drug interaction checking*
- *Laboratory results can be received faster and in a standardized format*
- *Result in more thorough patient reporting and clinical management*
- *Result in stronger security protections for a patient's health data*

DHCS is presently developing criteria to adjust reimbursement rates to help pay for any EHR system that meets certain standards and certifications. Once criteria have been established, DHCS will allow Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs) to submit a scope-of-service change request to increase their prospective payment system (PPS) reimbursement rates.

In addition to FQHCs and RHCs, long-term care (LTC) facilities are also reimbursed under a PPS reimbursement methodology. If an LTC facility purchased an eligible EHR system, the costs associated with the purchase would be an eligible cost that would be used to calculate their future reimbursement rates.

The implementation of EHR into the FQHC and RHC recordkeeping system could be initiated within two years. However, since the addition of EHR will require a scope of service change, it will increase the PPS reimbursement rate and would not be budget neutral.

With regard to Medi-Cal Managed Care plans, to the extent that a provider's costs increase due to implementation of CIS or EHR systems, they would expect to recoup those costs through higher rates. DHCS' managed care rate methodology would acknowledge these costs as part of a plan's cost of doing business with the provider.

Recommendation: Create a Resource Center for CIS Financing Options

The Resource Center for CIS financing options would consolidate information about, and assist provider organizations with, accessing funding for implementing CIS, including grant opportunities, state programs, and other financing mechanisms. In addition, the Resource Center would provide access to subject matter experts who could help organizations think about how to seek and obtain financing, for example by supporting educational programs with financial experts for managers and administrators in all market segments. The public private partnership could facilitate the establishment and development of the Resource Center.

Recommendation: Investigate Incorporating Standard Requirements for Current State Funding Programs

Audit and reporting requirements should be designed to accelerate the use of CIS, perhaps by encouraging the use of pay-for-performance-like incentives in grant-making to spur use of EHRs for QI, standardizing QI reporting requirements for grants/loans, and standardizing and streamlining the application and vetting process for funding EHR grant proposals.

Department of Health Care Services (DHCS) Comments:

The state should pursue collaboration opportunities with local, state, and federal agencies, as well as industry standards organizations, in order to promote increased adoption of data standards. The creation of a public/private collaboration focused on CIS/HIT projects funded by CMS, HRSA, AHRQ and others will better inform DHCS around the value of state participation. This incentive is likely not a cost neutral proposition, as it will require technical resources. This is a long-term objective.

Mid-Term Actions

Recommendation: Evaluate the Role of the State in Incentivizing the Development and Use of Technical Service Organizations to Facilitate CIS Adoption

(PRIORITY RECOMMENDATION)

Implementation cost and the lack of adequately trained staff with expertise in information technology and organizational redesign are barriers to adoption for many of the providers in these market segments. Creating and supporting entities that can provide these services on a large-scale distributed basis is likely to improve CIS adoption. The state should investigate financial and non-financial incentives that would the foster the development of, and participation by relevant stakeholders in, such entities. One example of a non-financial incentive may be making Medi-Cal claims data available at no charge only to entities that participate in such organizations.

These technical support organizations do not necessarily need to be newly created; they can be existing health information exchanges, local networks, Regional Health Information Organizations (RHIOs), or local purchasing consortia. State and local funding of these organizations may be needed.

The Commission recommends that the state assess whether such organizations could accelerate the adoption of CIS either by acting as application service providers, and/or by providing technical support for EHR implementation. Such entities could help to promote and share best practices by providers to help organizations implement workflow changes that support quality improvement efforts. Other activities that would be facilitated include continuous quality improvement (CQI) programs and organizational learning, as well as regional training programs.

The existing Centers for Medicare and Medicaid (CMS) Doctor's Office Quality-Information Technology (DOQ-IT) program is a service model that an organization could promote and execute. The state could expand the DOQ-IT program either through a CMS matching grant to extend it to Medi-Cal providers, or if feasible, through other state resources.

DOQ-IT was funded by the federal government to assist small and medium sized physician offices in the transition to electronic health records. The three-year program, carried out by a contracted firm named Lumetra, was designed to assist in adoption of health IT, provide support for process redesign, improve population-based care management, and enable performance measurement and reporting. This initiative provided assistance to nearly 400 California physician practices.

The California Quality Collaborative (CQC), a coalition of purchasers and providers organized with the goal of improving quality of care in the ambulatory care setting, is another model that could be emulated by Medi-Cal managed care plans to target their provider networks and provide quality improvement and CIS technical assistance. The CQC has numerous funding sources, including financial support from the participating health plans, as well as grants.

Recommendation: Facilitate Development of Technical Assistance Organizations for CIS Services
(PRIORITY RECOMMENDATION)

Investigate the feasibility of creating technical assistance organizations to assist providers in the areas of loan application and financing assistance and organizational learning. Encourage the development of entities that would provide shared services and create buying consortiums for CIS to leverage purchasing power across provider organizations to reduce the current \$30,000-\$50,000 per provider acquisition cost for CIS, and improve the business case for investment.

One example that serves as an illustration of this concept is the California Networks for EHR Adoption. Funded by a coalition of grant funders, this was a three year, \$4.5 million initiative established in 2006 to speed adoption of EHR in community clinics. This strategy is centered in funding networked efforts that would lower the cost of adoption for EHR at individual sites through shared services and technical support.

The state should investigate other incentives that would foster the development and participation in such entities. One example may be making Medi-Cal claims data available at no charge only to entities that participate in such networks.

Department of Health Care Services (DHCS) Comments:

This recommendation suggests investigating ways to encourage participation in CIS, QI, and HIT initiatives. Currently, DHCS believes data is not shared for such purposes. DHCS is interested and actively involved in fostering the adoption of CIS.

DHCS is participating in a Proof of Concept (POC) project to gain knowledge for the purpose of planning, policy setting, and implementing programs that improve quality of care and reduce costs. DHCS has prepared the Medicaid Management Information System (MMIS) to share eligibility, formulary file, and medication histories to the point of care in the Northern Sierra Rural Health Network. The e-prescribing POC is a twelve month POC that will bring the data to five clinics and three hospitals for the purpose of medication management and e-prescribing adoption. DHCS has absorbed the costs of the system readiness, security, and privacy procedures and will absorb transaction fees during the 12 month project. DHCS will gain knowledge through the participation in the POC project that will validate whether there is cost neutrality over the twelve month period. This effort is a collaboration of public and private sector resources. Technical support and education to providers is a key component to success and is privately funded during this POC.

Recommendation: Leverage the Public-Private Partnership (Partnership)
(PRIORITY RECOMMENDATION)

The Partnership should develop policy strategies to facilitate implementation of the recommendations contained within this report. To accomplish this, the Partnership could reach out to the broad stakeholder community and establish multi-stakeholder working groups as implementing these recommendations may require a significant amount of coordination.

As funding becomes available, the Partnership could seek to align future public and private health information technology resources (in the form of both investment and expertise) and coordinate grants and loans. This is currently the

case in New York, where all Heal NY projects are required to participate in the statewide collaboration process to align the development of policies and technical approaches and ensure implementation of a robust health information infrastructure, as well as advance the health IT agenda in the public interest.

This new Partnership could coordinate with the California Telehealth Network, which is building a network to link teaching hospitals to over 300 rural providers in order to improve access to care. The University of California Office of the President, on behalf of a broad coalition of state agencies and private sector stakeholders, was successful in securing a \$22 million grant from the Federal Communications Commission to launch this network. More than \$8 million of additional support was committed by the California Emerging Technologies Fund and UnitedHealth Group to contribute to the sustainability of the effort. This is the type of public-private collaboration envisioned by the creation of this entity. Other actions would include utilizing the recommendations of the Governor's Broadband Task Force (see <http://www.calink.ca.gov> for details of these recommendations), and seeking to leverage existing resources, such as the \$200 million raised by Proposition 1D that will expand telemedicine in California with the investments of private foundations and other large integrated systems

Recommendation: Medi-Cal to Explore CIS New Reimbursement Models Linked to Health IT Use
(PRIORITY RECOMMENDATION)

The Commission recommends that the Medi-Cal program consider developing demonstration projects that incorporate new models of reimbursement that require use of health IT. These projects might investigate the use of Medi-Cal pay-for-performance or other payment incentives for medical homes services. Medi-Cal could also consider pilot projects that link enhanced payment to reporting of quality and outcomes measures. Pilots could incorporate matching grants with county or private sector funds. The matching grant process could be used as a way to align incentives with private payers.

The NYC Primary Care Information Project (PCIP) is an example of an innovative program designed to assist primary care providers serving low income populations through the adoption of health IT. Funded by a \$27 million investment by the city of New York, the initiative intends to create a health information exchange, develop quality reporting and improvement, and extend a network of EHRs. The goal of the project is to connect all of the city's FQHCs, as well as to raise the knowledge of solo/small group physicians and assist more than 1,500 in the adoption of EHRs by 2009. Participation in these programs requires a financial investment from the practices, commitment to quality improvement, use of decision support, and automated public reporting.¹⁷

¹⁷ See www.nyc.gov/pcip

Long-Term Actions

Recommendation: Sustaining the Public-Private Partnership (PRIORITY RECOMMENDATION)

The Partnership will be sustained through an internal business model. This may be through membership fees, community development credit, or other funding approaches appropriate to its focus. The Partnership should focus on specific projects and provide a forum for multi-stakeholder collaboration at regional, state, and federal levels. The Partnership should determine whether statutory authority is required to reach its goals.

In the long-term, this Partnership should advocate for state and federal policy changes that, for example, seek to consolidate and coordinate future public and private sector investment. The partnership should explore the feasibility of new bond financing programs, tax incentive credits, new payment methodologies, and other innovative mechanisms to spur adoption of CIS in the at-risk market segments identified as priority segments.

Recommendation: Determine the Feasibility of Establishing a State Matching Grant Program for CIS (PRIORITY RECOMMENDATION)

When resources permit, the state should assess the need and feasibility for establishing a direct matching grant program targeting CIS adoption and use. Eligibility for such grants should be tied to QI, technical assistance, and organizational learning programs to ensure that the investments yield maximum impact to improving quality of care. Funding for the grant program could come from a CMS waiver to the Medi-Cal program or from other state issued bonds with the public-private partnership serving as the entity responsible for administration.

Department of Health Care Services (DHCS) Comment:

DHCS evaluates all opportunities to apply for grants from the Federal Centers for Medicare and Medicaid Services for support for information systems improvements. It agrees that further discussion of the utility, feasibility, necessity, and effectiveness of a state grant program to encourage dissemination and adoption of CIS is a worthwhile project. Such an effort is likely best conceived as a public private partnership, with funds coming from a variety of sources.

Several projects underway in ten California counties are laying the groundwork for CIS within their administered delivery systems. As part of a federal Medicaid hospital financing waiver, DHCS provides \$180 million in federal funds to ten counties for the purpose of financing care to low-income uninsured persons not otherwise eligible for the Medi-Cal program. This

program is called the Coverage Initiative. In selecting the counties for participation, DHCS required counties to indicate how they would provide a medical records system to track the services provided to Coverage Initiative enrollees. For many of the participating counties, this project is their first effort to create an automated records system for persons served in county facilities.

Recommendation: Coordinate Loans with Grant-Making by Private Foundations and State Agencies

To ensure that all sources of capital are leveraged, the state should strive to identify ways to coordinate loans with grant-making by private foundations and state agencies to facilitate comprehensive financing of EHRs.

Figure 6, below, summarizes the relevancy of specific policy recommendations for each of the prioritized market segments considered by the Commission.

Figure 6 – Relevancy of Specific Policies to Market Segments

Policy Option	CHCs	Public Hospitals	Unaffiliated Rural Hospitals	Solo/small groups, Medi-Cal Focused
Create a public-private partnership	X	X	X	X
Seek new financial models for funding CIS	X	X	X	X
Evaluate the feasibility of new entities to facilitate CIS adoption	X		X	X
Determine the feasibility of a new state-funded matching grant program for CIS	X		X	X
Seek new financial models for funding CIS	X	X	X	X
Encourage alignment between funders	X	X	X	X
Medi-Cal to explore new reimbursement models	X	X	X	X
Medi-Cal managed care plans should establish pay-for-performance program metrics	X			X
Create a resource center for CIS financing options	X			X
Evaluate the Role of the State in Incentivizing Technical Service Organizations to Facilitate CIS Adoption	X	X	X	X
Facilitate Development of Technical Assistance Organizations for CIS Services	X	X	X	X
Work with stakeholder associations to optimize Medi-Cal Prospective Payment System changes	X			
Incorporate standardized reporting requirements	X	X	X	X
Coordinate loans with grant-making	X	X	X	X

This table indicates that with targeted efforts by the State, working in conjunction with stakeholders, the priority market segments can meet their challenges to sustainably implementing CIS, thereby reducing the “digital divide” and providing the benefits of these technologies to all California communities.

Conclusion

The research conducted by UCSF provides a greater understanding of the financial challenges facing selected market segments for the investment in clinical information systems. The Governor has stated his goal that clinical information for all patients should be electronically available at the point of care by 2014. This Commission has found that there are considerable barriers to achieving that goal faced by health care providers who care disproportionately for Californians who are uninsured or who are covered by public programs.

The Commission has offered specific recommendations that the State could pursue. The five priority recommendations are:

- **Create a Public-Private Partnership to consolidate future public and private health IT resources (dollars and expertise) and coordinate grants and loans. (Near-Term)**
- **Finance EHRs through medium-term financing, rather than the more typical short-term CIS loan, and determine ways to finance “operating” losses that are a continuation of the original EHR investment and investigate ways to reduce transaction costs; determine the feasibility of the California Health Facilities Financing Authority issuing bonds for this financing. (Near-Term)**
- **Evaluate the feasibility of new organizations for implementing and providing EHR services. Investigate the possibility of creating support service organizations that either act as application service providers and/or provide support for EHR implementation and development of templates. (Mid-Term)**
- **Determine the feasibility of establishing a state grant program. (Long-Term)**
- **Encourage Medi-Cal to consider demonstration projects that incorporate new reimbursement models that require health IT (e.g., investigate Medi-Cal pay-for-performance fee-for-service incentives for medical homes services). (Long-Term)**

The Commission hopes that this report provides a better understanding of the challenges and opportunities, as well as the policy options, available as we strive to improve access to capital for the implementation of health information technology, reduce the “digital divide”, and ensure that these technologies are available to all California communities.

APPENDIX 1:

Inventory of Available Resources

The Commission, after conversations with Bob Miller and UCSF staff, determined that the following financing programs currently offer the best opportunities for financing California health facilities. The information below, summarizing the essential information about the major financing programs available for health care information technology projects within California, was compiled using information provided by agency and program staff, including information from agency and program websites and collateral materials. The financing program names appear in italics.

The California Health Facilities Financing Authority (CHFFA) provides four financing programs that provide financing to non-profit and public health facilities:

- *Help II Direct Loan Program* -- typically provides financing of \$25,000 to \$750,000 to small or rural health facilities that have an annual gross revenue less than \$30 million, or are in a Medical Service Study Area, or a District Hospital (with exemptions for rural facilities) and are at least three years old. The financing is in the form of a fixed rate loan at three percent for up to 15 years. There is no bond rating requirement; however, the borrower must demonstrate fiscal soundness and present three years of audited financial statements. The program interest rate of three percent for up to 15 years is very favorable as compared to commercial lending rates, and approximately \$52 million has been loaned to 128 facilities since 1988. Applications are accepted on a monthly basis, with a processing time of 30 to 60 days. There is a \$50 application fee, a requirement for a revenue pledge of a minimum of five percent of project costs, and a one-time closing fee of 1.25 percent of the loan.
- *Children's Hospital Program* -- provides voter-approved (Proposition 61) general obligation bond funds to University of California (UC) and non-profit Children's Hospitals in California for a wide range of capital projects. Currently, approximately \$460 million of the original \$750 million remains in the program. There is no bond rating requirement; however, the hospital must provide the most recent audited financial statement. There is an issuance fee of 0.075 percent of the grant amount. For UC hospitals, there is an additional administrative fee of 0.5 percent of the grant amount.
- *Bond Financing Programs* -- offer two options: standard bond financing (at low interest capital market rates for large capital needs, typically more than \$5 million) and pooled bond financing (at low interest, capital market rates, available for smaller capital needs of at least \$500,000). The programs include a "community service obligation," and require that all cost savings provided by CHFFA grants or low interest financing be passed through to the consumer. The terms of the debt are based upon the debt rating of the facility, with lower rated and unrated debt accepted at less favorable terms. The borrower must present three years of audited financial statements. The programs have the following fees: an application fee of \$500; an annual administration fee, which is the lesser of 0.02 percent of outstanding bonds or \$500 for public and small (less than \$2.5 million annual gross revenue) private facilities, and is the lesser of 0.02 percent of outstanding bonds or \$150,000 for larger private facilities; an initial loan closing fee of \$1,000 for public and small private facilities, and 0.075 percent of issue up to \$300,000 for larger private facilities; and a resolution extension fee of \$500. The programs issued \$931 million in bonds in 2007.
- *Tax-Exempt Equipment Financing Program* -- provides tax-exempt fixed-rate loan financing for equipment purchases \$500,000 or more, with exemptions for minor installation costs. These loans have been obtained by acute care hospitals, HMOs, clinics, and long-term care centers. The program includes a "community service obligation," and requires that all

cost savings provided by CHFFA grants or low-interest financing be passed through to the consumer. The maturity of the loan must be related to the useful life of the equipment to be financed, as the notes are collateralized by equipment purchased. There is no bond rating requirement; however, borrowers with lower rated debt are accepted at less favorable terms. The program has an application fee of \$500, a one-time initial fee of 0.05 percent of the loan, and an annual administrative fee of \$400 per year. In addition, unsuccessful financings are subject to charges that cover the estimated costs to CHFFA. The program has three components: the Competitive Equipment Program, for yet-to-be-identified equipment purchases, through which CHFFA competitively bids the notes and negotiates the interest rate for the facility; the Generic Equipment Program, for which the equipment to be purchased has been identified, wherein CHFFA issues tax-exempt notes; and the G.E. Capital Equipment Program, for facilities using GE Capital Public Finance, Inc. as a placement agent. The program issued \$5 million in notes in 2007.

The California Statewide Communities Development Authority (CSCDA) has three financing programs for non-profit and public health facilities:

- *California Communities Lease Finance Program (CaLease)* -- provides financing for state municipalities. Projects range from \$500,000 to \$7 million. All projects must demonstrate tangible benefits for the community and be supported by registered CSCDA program participants. There is no bond requirement; however, the borrower must present three years of audited financial statements and maintain good credit. The program's tax-exempt bonds are usually 30 percent better than commercial lending rates. The program has provided \$121 million since its inception. Applications are accepted online on a rolling basis, and successful applications will receive funding within approximately two months. There is an application fee of \$2,500 and a three percent issuance fee for loans of up to \$2 million, or a two percent issuance fee for loans more than \$2 million. There are no ongoing fees.
- *501(c)(3) Small Issue program* -- provides financing for 501(c)(3) registered not-for-profits, such as hospitals, skilled nursing facilities, and clinics without underwriters or bond writers. Projects range from \$500,000 to \$7 million. All projects must demonstrate tangible benefits for the community and be supported by registered CSCDA program participants. There is no bond requirement; however, the borrower must present three years of audited financial statements and maintain good credit. The program's tax-exempt bonds are usually offered at about 30 percent better interest rates than commercial lending rates. The program has loaned \$17.6 billion since 1988 to not-for-profits, including educational and human service organizations. Applications are accepted online on a rolling basis, and successful applications will receive funding within approximately two months. There is an application fee of \$2,500 and a three percent issuance fee for loans of up to \$2 million, or a two percent issuance fee for loans more than \$2 million. There are no ongoing fees.
- *501(c)(3) Conduit program* -- offers generally larger public offerings on the order of tens to hundreds of millions of dollars to 501(c)(3) registered not-for-profits, such as hospitals, skilled nursing facilities, and clinics without underwriters or bond writers. All projects must demonstrate tangible benefits for the community and be supported by registered CSCDA program participants. The program requires a bond rating of A- or better by two of three rating agencies (i.e., Standard and Poor's, Fitch, and Moody's). The program's tax-exempt bonds are usually offered at about 30 percent better interest rates than commercial lending rates. Applications are completed online on a rolling basis, with successful applicants receiving funds in thirty to sixty days. There is an application fee of \$5,000 and a 0.2 percent issuance fee for loans of up to \$20 million (with a \$15,000 minimum fee). For loans more than \$20 million, the issuance fees are \$40,000 plus 0.05 percent of the value of the loan. There is an ongoing annual fee of between 0.015 percent to 0.030 percent, depending on the issuance amount and the amount of outstanding principal.

Northern California Community Loan Fund -- provides loans to non-profit community organizations, such as small community clinics and health centers, benefiting low income communities with \$10,000 to \$1 million loans and lines of credit. These loans are typically \$500,000 insured and \$100,000 uninsured. The program does not require a bond rating, as the loans are to unrated health organizations. The program offers seven percent to ten percent flexible amortization to organizations not qualifying for conventional financing. Over the twelve years that the program has been in place, \$19 million has been loaned, mostly to community clinics that have no credit rating. An on-line application typically requires that additional information be gathered to complete the three-to-four-week underwriting evaluation. There is a one percent commitment fee and a one percent issuance fee; for line of credit borrowers there is an on-going annual fee of \$500.

Association of Bay Area Governments Finance Authority for Non-Profit Corporations (Authority), a Joint Powers Authority (JPA) -- provides financing for a wide range of non-profit health facilities, such as hospitals, clinics, and retirement facilities insured by Cal-Mortgage. The Authority issues conduit tax-exempt debt (with a minimum of \$750,000) as a low-cost financing alternative to conventional bank loans to finance projects which demonstrate public benefit. Projects must offer tangible public benefits to the community, and must be located within the jurisdiction of a member of the JPA, whose members are located throughout California. The Authority does not require a bond rating; however, a loan insurance commitment from Cal-Mortgage is required, and the interest rates are much higher for non-rated facilities.

The Authority has issued \$90 million in financing just to the Children's Hospital in Oakland. To date, it has delivered more than \$3.2 billion in financing. The Authority charges a variety of fees: a \$1,000 application fee; a five basis-point issuance fee; a five basis-point fee on equipment leases, with a minimum fee of \$5,000 and a maximum of \$25,000; an annual fee of two basis points for credit enhanced loans, five basis points for non-rated loans, and two basis points for equipment leases – each with a maximum of \$10,000; a closing fee of five basis points for credit-enhanced loans, ten basis points for investment grade loans, and fifteen basis points for non-rated loans, plus five basis points for equipment leases - with a minimum fee of \$5,000 and a maximum of \$25,000; a project monitoring fee of the lesser of 12.5 basis points annually based on the original principal, or \$4,000 per project; and other miscellaneous fees.

Small Business Administration (SBA) 7(a) Loan Program -- \$2 million maximum guarantee loan program available to for-profit organizations that are unable to otherwise obtain funding. The program provides a joint guarantee between the lender and the SBA, with up to a 25-year maturity for equipment, and a seven-year maturity for working capital. Hospitals, clinics, emergency outpatient facilities, medical/dental laboratories, and licensed convalescent/nursing homes providing more than just room and board, have received loans through this program. There is no bond rating requirement; however, the borrower must demonstrate the ability to repay loans. There is no application fee. There is a commitment fee of one percent of the loan, and an issuance fee that can be passed on to the borrower from the lender. This program approved approximately 100,000 loans for a total of \$14.3 billion in 2007.

The *US Department of Agriculture Rural Development* area has three financing programs available to rural facilities:

- *Community Facilities Program* -- provides funds to develop essential community services for public use in rural areas, and for public and non-profit entities or Indian tribes in communities with populations of less than 20,000 people, with priority given to low-income, small population communities. Program funds can be used to develop public facilities or refinance certain types of existing debt. The program has three components: direct loans available at three different rates starting at 4.5 percent, with a payback period of up to 40 years; a grant program available to fund up to 75 percent of total project costs; and a loan guarantee of up to 90 percent for 40 years. There are no bond rating requirements; however, a borrower must demonstrate financial need and financial soundness, responsible management, and substantial community support. The program's guaranteed

and direct loan rates, which are based on current market yields for municipal obligations, are typically favorable compared to commercial lending rates. There have been \$1.9 billion invested through this program, with 33 percent of the funds going to rural health facilities. The program takes approximately 45 days to process a pre-application. The length of the full application process varies on a case by case basis. There is a fee of one percent of the guaranteed portion of the loan.

- *Telecommunications Distance Learning and Telemedicine Program* -- offers a highly competitive telemedicine grant program as well as a broader non-competitive combination loan/grant and loan program. The broader program has \$28.2 million available in 2008, with a minimum award of \$50,000 and maximum of \$10 million. Combination grant/loans are typically comprised of a 90 percent loan and ten percent grant funds, with a loan period of up to ten years. In addition, the program offers a special **EMR Initiative, which has \$12.5 million available in 2008, with a maximum award of \$1 million with an 80 percent - 20 percent loan-to-grant ratio.** There is no bond rating requirement. A financial analysis must deem the loan portion of the funding repayable. The program interest rates are based on the cost of money to the United States Treasury at the time of draw-down of funds. The combination grant/loan or loan applications are accepted on a rolling, first-come, first-served basis. There are no fees associated with this program.
- *Community Connect Grant Program* -- provides funds of between \$50,000 and \$1 million to foster community-oriented broadband connectivity in extremely rural, lower-income communities. Through five years of pro forma financial information, the applicant must demonstrate that the project has sustainability, the necessary expertise, and sufficient resources to succeed. The program requires the applicant to provide free broadband internet access to critical community facilities, and a community center with at least ten computer workstations, for two years. The applicant can charge residents and businesses for broadband internet service during and after that two year period. **There is a 15 percent match from a non-federal funds matching requirement. Private entities are eligible. There is no bond rating requirement. In 2008, there is \$13.4 million available to this program. Historically there have been very few awards to California.** The applications are due on an annual basis. The program typically takes approximately five months to process applications, and awards grants within five months of the due date. There are no fees associated with this program.

APPENDIX 2

State and Federal Programs

The following is a listing and brief description of state and federal programs in the area of Health Information Technologies.

State Programs

Cal-Mortgage. Cal-Mortgage is a division of the Office of Statewide Health Planning and Development (OSHPD). Cal-Mortgage administers the California Health Facility Construction Loan Insurance Program (Program), and provides credit enhancement for eligible health care facilities when they borrow money for capital needs. Cal-Mortgage insured loans are guaranteed by the "full faith and credit" of the State of California. This guarantee permits borrowers to obtain lower interest rates, similar to the rates received by the State of California.

California Health Facilities Financing Authority (CHFFA). CHFFA was established to be the State's vehicle for providing financial assistance to public and non-profit health care providers through loans, grants and tax-exempt bonds. CHFFA administers a Standard Bond Financing Program, Pooled Bond Financing Program and a Tax-Exempt Equipment Financing Program. CHFFA provides loans to small and rural health facilities through the HELP II Financing Program and offers two grant programs, the Children's Hospital Program and the Community Clinic Grant Program.

California Infrastructure and Economic Development Bank (I-Bank). The I-Bank, located within the Business, Transportation and Housing Agency, promotes economic revitalization, enables future development, and encourages a healthy climate for jobs in California. It is governed by a five-member Board of Directors. The I-Bank has broad authority to issue tax-exempt and taxable revenue bonds, provide financing to public agencies, provide credit enhancements, acquire or lease facilities, and leverage state and federal funds. The I-Bank's current programs include the Infrastructure State Revolving Fund (ISRF) Program and several revenue bond financing programs.

California Public Employees' Retirement System (CalPERS). CalPERS provides pension fund, health care and other retirement services for approximately 1.5 million California public employees. CalPERS provides benefits to all state government employees and, by contract, to local agency and school employees.

California State Teachers' Retirement System (CalSTERS). CalSTRS administers retirement, disability and survivor benefits for California's public school educators and their families.

California Quality Collaborative (CQC). CQC is a coalition of purchasers and providers organized with the goal of improving quality of care in the ambulatory care setting. The CQC identifies and accelerates the adoption of proven innovations in ambulatory care to ensure the highest attainable value of health care is provided.

California Telehealth Network (CTN). CTN is undertaking the development of a new network that will connect a total of 319 California health care sites. It is supported by the work of California institutions and stakeholders to create a forward-looking, state-of-the-art telehealth network for California. This group includes California leaders and representatives of multiple offices and organizations, including the Office of Governor Arnold Schwarzenegger, several major state governmental entities responsible for health, business and telecommunications matters, the University of California (Office of the President and UC Davis Health System, as joint partners), non-profit organizations such as the California Emerging Technology Fund (CETF), and California public and nonprofit health care providers, including existing regional rural health networks.

Chief Information Officer (CIO). CIO is a cabinet-level agency with statutory authority over IT strategic vision and planning, enterprise architecture, policy, and project approval and oversight.

Integrated Healthcare Association (IHA). IHA is a statewide leadership group that promotes quality improvement, accountability, and affordability of health care in California. IHA membership includes major health plans, physician groups, and hospital systems, plus academic, consumer, purchaser, pharmaceutical and technology representatives. The IHA's principal projects include pay-for-performance, medical technology assessment and purchasing, the measurement and reward of efficiency in health care, and prevention programs directed at obesity.

Office of Statewide Health Planning and Development (OSHPD). OSHPD promotes health care accessibility through leadership in analyzing California's health care infrastructure, that promotes a diverse and competent health care workforce, provides information about health care outcomes, assures the safety of buildings used in providing health care, insures loans to encourage the development of health care facilities, and facilitates the development of sustained capacity for communities to address local health care issues.

Federal Programs

Agency for Healthcare Research and Quality (AHRQ). AHRQ conducts and supports a wide range of health services research fulfill its mission to help the Nation improve our health care system. AHRQ is part of the Department of Health and Human Services.

Centers for Medicare and Medicaid Services (CMS). CMS ensures effective, up-to-date health care coverage and to promote quality care for beneficiaries of Medicare, Medicaid and the State Children's Health Insurance Program. CMS is part of the Department of Health and Human Services.

Health Resources and Services Administration (HRSA). HRSA is the primary Federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable. HRSA is part of the Department of Health and Human Services.

Office of the National Coordinator for Health Information Technology (ONC). ONC provides counsel to the Secretary of HHS and Departmental leadership for the development and nationwide implementation of an interoperable health information technology infrastructure. ONC is part of the Department of Health and Human Services.

Doctor's Office Quality - Information Technology (DOQ-IT). DOQ-IT is a Physician-Focused Quality Initiative sponsored by CMS whose focus is the adoption of information technology in the outpatient setting.

APPENDIX 3

Clinical Information Systems Definitions

There is no standard set of definitions for clinical information systems. For ambulatory care, we provide our own definitions; for inpatient care, we revised and added to definitions used in a National Association of Public Hospitals document.

AMBULATORY CARE

The key potential CIS capabilities are those that enable providers to: view data, document visits, order tests/prescriptions, message with other providers/staff, generate lists of patients needing services, generate reports on provider performance, and communicate with patients. Decision support at the point of care (reminders/alerts) usually is embedded in the viewing, documenting, and ordering capabilities.

Chronic disease management systems (CDMS). CDMS are population management tools that use electronic information while the practice continues to use the paper chart. The best systems pull data out of practice management systems (billing, scheduling, and registration/demographic data) and integrate those data with data from reference labs (e.g., Quest Diagnostics) and (sometimes) prescription data from a source like SureScripts—putting all the data into a single database. Using that data, the practice can identify chronic/preventive care populations. In an example of CDMS use with a diabetic population, nurses/medical assistants can print out summaries of patient data for a diabetic and attach it to a chart prior to a visit; the summaries may include a reminder to order a test or an alert that a particular value such as HbA1c is out of range. Care team members manually fill out boxes in the summary sheets with specific types of data (e.g., does the patient smoke) that can then be entered into the CDMS after the visit. The organization can then use the electronic data to generate lists of diabetics due for specific services (e.g. retinopathy screening), facilitating outreach to those patients. The organization also can generate reports on provider or team performance in caring for diabetics.

Electronic health record (EHR). We use the term interchangeably with electronic medical record. Most EHRs include electronic forms (templates) that providers fill in as they document the visit. At the same time, providers can view patient data and may view reminders that the patient is due for a test or service (for example, a foot check for a diabetic). Physicians often also enter information in lab and prescription order entry screens and receive alerts for drug/drug, drug/lab, or drug/allergy interactions; in most cases, the provider prints out the order and hands it to the patient, but some systems enable the provider to send the order electronically to the lab, radiology department, local pharmacy and so on (if health information exchange has been established).

Most EHRs have some chronic disease management capabilities, including for generating lists of patients needing services and provider performance reports. Larger groups tend to use 3rd party software tools to better generate that information (using data from the EHR database). Some EHRs are integrated with patient portals—in that case, a patient logs onto a web site and sends messages to, or receives messages from, a provider; the provider can see and send messages within the EHR. With some EHRs, providers and staff can print out visit summaries or education materials for the patient.

HOSPITAL CARE

Electronic Medical Record (EMR). An EMR also is referred to as an electronic health record, automated patient record, or computer-based patient record, among other names. An EMR is computer-based, electronic file that includes personal and medical history information about a patient. A comprehensive EMR may include ancillary systems (lab, pharmacy, radiology systems), clinical documentation (used by nurses and physicians) and other capabilities explained below—electronic medication administration record (eMAR), picture archiving and communication system (PACS), and computerized provider/physician order entry (CPOE) that often includes clinical decision support.

Electronic medication administration record (eMAR). A system to record and ensure that the medication prescribed for a patient is also the medication given at the point of care. If the scanned information does not match the doctor's orders, a warning message is provided to the clinician.

Picture Archiving and Communication System (PACS). Used in the radiology department (and other areas that need to store images), its primary function is acquisition, display, and storage of digitized images, such as x-rays or magnetic resonance imaging.

Computerized provider/physician order entry (CPOE). A process that allows for the electronic entry of provider/physician instructions for the treatment of patients. These orders are communicated over a computer network to the medical staff (nurses, therapists or other physicians) or to the departments responsible for fulfilling the order (pharmacy, laboratory or radiology). Almost all CPOE systems offer some amount of clinical decision support.

Clinical Decision Support System (CDSS). Any system designed to improve clinical decision-making, usually as part of CPOE. Typical CDSS suggest default values for drug doses, frequency, or routes of administration. More sophisticated CDSS offer notifications about drug-drug interactions or drug allergies, or even medical suggestions based on evidence-based care standards (e.g. "You have ordered heparin -- Would you like to order a PTT in 6 hours?").

Clinical Data Repository (CDR). A large database that consolidates personal and medical data on a patient from a variety of departments within a hospital. It is most often used for research purposes or as a surveillance tool for population health.

Radiology Information System (RIS). A technology used to manage an imaging order. A fully-featured RIS can usually: automate repetitive tasks; reduce paperwork associated with ordering, scheduling, etc.; store information for future reference or retrieval; facilitate accurate billing; and communicate results to other systems.

Laboratory Management Information System (LMIS). Automates the workload of laboratory department personnel and facilitates the dissemination of testing results and other information from the laboratory to clinicians and other departments.

Inpatient Pharmacy Management. Provides automated support for managing drugs prescribed to patients during their inpatient stay. It generally supports clinical patient management, drug utilization review, therapeutic drug monitoring, and investigational drug tracking/monitoring. It can also provide administrative support to the pharmacy for inventory control, productivity management, charge processing, and cost capture.

Outpatient Pharmacy Management. Provides automated support for managing the drugs prescribed to patients in an ambulatory or retail pharmacy setting. It often has many similar features as inpatient pharmacy management. It may also support electronic billing to third parties from community-based pharmacy outlets and provide staff support for pharmacy system ad-hoc reporting and data analysis.

Digital Dictation. Supports voice input into a digital storage device, which others may access to hear a direct dictation of a given event. In the health care setting, for example, a provider may use a digital device to verbally record the events of an office visit. A medical transcriptionist can later use this recording to complete the patient's medical record and submit billing information.

Clinician Data Access. Often used in conjunction with an EMR, it allows clinicians to access patient data from a variety of sites. The types of information links can include pre-admissions, scheduling, order entry, and results inquiry. Web-based or portable devices are used to facilitate clinician access.

Patient Data Access. A system that allows patients to use a web-based portal to email their physician or access select portions of their medical record such as results or appointment scheduling. Some systems allow patients to update or request changes in demographic and insurance data, schedule appointments, or make payments.