

Washington State Health Care Authority
in collaboration with the
Health Information Infrastructure Advisory Board

**Washington State Health Information Infrastructure:
Final Report and Roadmap for State Action**

December 1, 2006

Copies of this report will be available at: <http://www.hca.wa.gov>



(This page left intentionally blank.)

**Washington State
Health Care Authority**

**P.O. Box 42700 • Olympia, Washington 98504-2700
360-923-2828 • FAX 360-923-2606 • TTY 360-923-2701 • www.hca.wa.gov**

November 29, 2006

Thomas Hoemann
Secretary of the Senate
Washington State Senate
P.O. Box 40482
Olympia, WA 98504-0482

Rich Nafziger
Chief Clerk of the House
House of Representatives
P.O. Box 40600
Olympia, WA 98504-0600

Dear Mr. Hoemann and Mr. Nafziger:

The Health Care Authority (HCA) is pleased to submit the final report to the Legislature and the Governor as directed by Substitute Senate Bill 5064 (SSB 5064), Chapter 261, Laws of 2005 regarding Health Information Technology and Electronic Medical Records.

This report represents the joint work of the HCA and the Health Information Infrastructure Advisory Board (Board) over the past year. My staff and I, as well as the Chair and members of the Board, will be glad to address any detailed questions you may have concerning this final report and recommendations.

Sincerely,



Steve Hill
Administrator

Enclosure

cc: Senator Karen Keiser, Chair, Senate Health & Long Term Care Committee
Senator Alex Deccio, Ranking Minority Member, Senate Health & Long Term Care Committee
Representative Eileen Cody, Chair, House Health Care Committee
Representative Bill Hinkle, Ranking Minority Member, House Health Care Committee
Nick Lutes, Office of Financial Management
Christina Hulet, Governor's Policy Office
Jonathan Seib, Coordinator/Counsel, Senate Health & Long Term Care Committee
Erik Sund, Fiscal Analyst, Senate Ways & Means Committee
Elaine Deschamps, Senior Fiscal Analyst, Senate Ways & Means Committee
Dave Knutson, Research Analyst, House Health Care Committee
Dave Pringle, Counsel, House Appropriations Committee
Members, Health Information Infrastructure Advisory Board

November 16, 2006

V. MARC DROPPERT
(206) 340-8780
mdroppert@grahamdunn.com

Steve Hill
Administrator, Health Care Authority
P.O. Box 42700
Olympia, WA 98504-2700

Re: Washington State Health Information Infrastructure Advisory Board

Dear Steve:

I am writing in my capacity as Chairperson of the Washington State Health Information Infrastructure Advisory Board (HIIAB), which was created by the HCA pursuant to the requirements of Substitute Senate Bill 5064. The HIIAB has worked closely with the Health Information Infrastructure Stakeholder Advisory Committee (HIISAC) and the HCA staff to develop the recommendations included in the Report. As such, it represents the perspectives of a broad cross section of Washington's healthcare community, was developed with significant consumer focus and input, and incorporates lessons learned from the efforts of others from throughout the country.

It is clear from the HIIAB's work that, due to the foresight of the legislature, the community initiatives already underway in this State, and the clear commitment of the broad cross-section of the provider and of the healthcare community, Washington State is uniquely positioned to demonstrate the benefits of a cohesive health information system. While there is much work to be done, I believe that the HIIAB, the HIISAC, and the HCA staff have made important progress in identifying how such a system can be developed and operated. The critical next steps are to develop a detailed implementation plan, to initiate initial implementations in selected communities, and to, based on those experiences, implement wide spread deployment throughout the State. This is no small task, but it is, as we all know, not a small problem, and one that will require all of our efforts.

The HIIAB Board members, and I, look forward to working with the HCA in continuing to move forward in achieving the objective of an integrated health information infrastructure.

Pier 70
2801 Alaskan Way ~ Suite 300
Seattle WA 98121-1128
Tel 206.624.8300
Fax 206.340.9599
www.grahamdunn.com

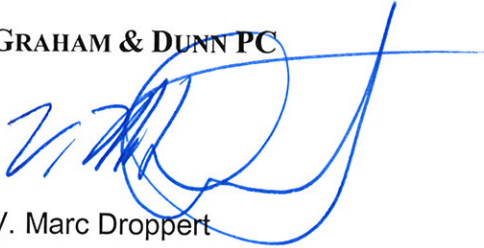
SEATTLE - PORTLAND

Steve Hill
November 16, 2006
Page 2

Should you, Governor Gregoire, or any others have questions about the Report, or the efforts of the HIIAB, please let me or any of the other HIIAB members know.

Very truly yours,

GRAHAM & DUNN PC

A handwritten signature in blue ink, appearing to read 'V. Marc Droppert', is written over the printed name. The signature is stylized and somewhat abstract, with a large loop at the end.

V. Marc Droppert

cc: The Health Information Infrastructure Advisory Board

I:\clients\Droppert, Personal\HIIAB (Health Info Infrastructure Advisory Board)\Hill - HIIAB support for final report.doc

November 21, 2006

Mr. Steve Hill
Administrator
Health Care Authority
PO Box 42700
Olympia WA 98504-2700

Dear Mr. Hill:

I am writing in my capacity as Chairperson of the Washington State Health Information Infrastructure Stakeholders' Advisory Committee (HIISAC). The HIISAC is pleased to support the submittal of the "Washington State Health Information Infrastructure: Final Report and Roadmap for State Action."

The forty-two member HIISAC was formed through an open invitation to interested parties. The members represent a breadth and diversity of interests including those of consumers, hospitals, physicians, health information organizations, employers, health quality organizations, care delivery, AARP, Veterans' Affairs, Department of Health, Labor and Industries, vendors, payers, and others.

The HIISAC participated in the Health Information Infrastructure Advisory Board (HIIAB) process in multiple ways. First, the HIISAC reviewed the Board's draft documents and provided feedback. Second, HIISAC members served jointly with Board members on subcommittees to develop detailed recommendations in four areas: 1) consumers, 2) organization and governance, 3) technical and infrastructure, and 4) finance and sustainment. Third, the HIIAB and HIISAC met jointly to review the final report. The report reflects this collaborative work.

The Board and HCA also sought out input from stakeholders and interested parties throughout the State at public meetings and forums and through written correspondence.

Stakeholder engagement and commitment have been key success factors in health information projects around the country.^{1,2} In choosing to embrace the diverse perspectives of stakeholders at the process outset, the Board and HCA followed not the easy course but the proven one, benefiting from lessons learned in other communities. The stakeholders look forward to continuing to build on this shared vision and plan for health information infrastructure in Washington State and to the resulting improvements in health care quality and affordability.

Sincerely,



Sandra A. Rominger

¹ Mark E. Frisse, "State and Community-Based Efforts to Foster Interoperability," *Health Affairs*, Volume 24, Number 5 (September/October 2005): 1196.

² Kurt Conrad, "Organic Information Management — A Better Way to Reengineer Information Systems," *The Sagebrush Group* (April 2000) [online]; available from <http://sagebrushgroup.com/new/archives/oim.htm>; Internet; accessed 21 November 2006.



Table of Contents

Executive Summary	viii
Background	x
Introduction	1
Health Information Technology: National and State Focus	2
Vision for Washington: Availability of Health Information	4
Recommendations: Washington State Health Information Infrastructure	5
1. Complete the plan for initial implementation	6
2. Implement the first health record banks	6
3. Engage consumers in the development of health record banking.....	7
4. Promote EMR adoption in the health care provider community.....	8
5. Provide funding for the 2007-2009 biennium.....	8
Risk Mitigation of Recommendations	9
Future Risks and Challenges	10
A Roadmap for Washington State	11
Conclusion	13
Appendix A: Substitute Senate Bill 5064	14
Appendix B: Health Information Infrastructure Advisory Board	19
Appendix C: Health Information Infrastructure Stakeholder Advisory Committee	21
Appendix D: Stakeholder Report Forum Schedule	22
Appendix E: Current Health Information Technology in Washington State	24
Appendix F: Washington State Health Information Infrastructure Design Principles	28
Appendix G: Washington State Health Information Infrastructure Target Statement	29
Appendix H: Models for the Health Information Infrastructure	30
Washington State Health Information Infrastructure Requirements	33
The Three Models Depicted	34
Ability of Models to Address Requirements	35
Appendix I: Consumers of the Health Information Infrastructure	36
Appendix J: Identification of Consumer Issues	37
Appendix K: Risks of Health Information Infrastructure and Strategies for Mitigation ...	39
Appendix L: A Roadmap for Washington State	40
References	42
Health Information Technology Terms and Definitions	44

Executive Summary

“The development of an information technology infrastructure has enormous potential to improve the safety, quality, and efficiency of health care in the United States.” - *Institute of Medicine, 2001.*

A consumer sitting in Spokane at his personal computer can better manage his multiple bank accounts than his multiple chronic conditions because he has far better access to financial information than health care information. *We can do better.*

A physician in Seattle can go online and get detailed information about any drug in the market in seconds; she would have to spend hours she doesn't have making numerous phone calls to even try to learn what medications her own patients are taking. *We can do better.*

Businesses all over the state have moved online to cut costs and improve service; in health care, paper is still the predominant form of information exchange with costs and service suffering accordingly. *We can do better.*

Leaders in Washington State recognize the importance of taking action to address this problem. Substitute Senate Bill 5064 is an important first step towards establishing a statewide health information infrastructure that will leverage the use of existing technology to improve the safety and quality of health care delivery. The bill directed the Health Care Authority (HCA) to establish and collaborate with a Health Information Infrastructure Advisory Board (referred to as “the Board”) to “develop a strategy for the adoption and use of electronic medical records and health information technologies that are consistent with emerging standards and promote interoperability of health information systems.”

The HCA and the Board, as well as a forty-two member Health Information Infrastructure Stakeholder Advisory Committee (HIISAC), reviewed existing infrastructure in Washington State, researched existing literature and other states' efforts, and developed a detailed set of evaluation criteria for possible solutions. From this process a Board recommendation emerged to pursue a phased implementation of a competitive health record banking model. This model meets the requirements developed by the Board while being complementary to existing health information technology initiatives.

A central feature of this model is the active role of consumers in determining access to their secure health records, beyond the federal and state protections currently in place. Under this model, consumers would select to have copies of key elements of their medical records from all sources deposited in a health record bank. These banks would allow aggregated copies of each consumer's medical information to be shared when and where needed, with the consumer's consent with authorized providers. The banks would also have the capacity to be queried for authorized public health and research purposes.

Significant risks and challenges accompany an implementation effort of this magnitude including key privacy and security assurances, consumer and provider participation details, financial sustainability, and technical design. A phased implementation allows for completion of the model design features, ongoing evaluation and modification, and the establishment of parameters for initial implementation sites within the upcoming biennium.

The Board has the following five recommendations:

1. Complete the plan for initial implementation. The implementation plan must detail processes to establish performance measures, educate consumers and providers, and establish the standards, practices, guidelines, and requirements for health record banks and the account locator service, as well as policies for participation of state programs. The plan will also address how the state can model effective purchasing, alignment, and financial incentives to transform the health care delivery system.
2. Implement the first health record banks. The initial health record banks will be based on the design work and must assure consumer trust, have standardized interfaces (for deposit, retrieval, and searches), and securely manage identification of consumers and providers.
3. Engage consumers in the development of health record banking. This activity will be implemented using a three-phased strategy and specific recommendations to fully and appropriately involve consumers in order to realign responsibilities in the provider-patient relationship.
4. Promote electronic medical record (EMR) adoption in the health care provider community. Collaborate with other community partners to better align reimbursement systems to promote sustainable adoption of EMRs. Continuation of the Washington Health Information Collaborative awards and reimbursement reform to better align incentives and payments for electronic medical record adoption are essential to establishing a health information infrastructure.
5. Provide funding for the 2007-2009 biennium. The state needs to invest \$8 million to \$11 million to complete the initial design work and implementation plan, the Washington Health Information Collaborative awards, and partially fund approximately six to eight initial implementation sites for the first health record banks.

A Board-adopted roadmap outlines the significant steps over the next two biennia in building towards the vision of the Washington State Health Information Infrastructure. Despite the design and implementation challenges, it is clear that inaction is far more threatening to Washington's economy and vitality. Local, regional, or national efforts to address the failing health care system all have as their foundation a health information infrastructure strategy. Adopting these five recommendations will transform Washington State's health care system and deliver high-value health information at the point of care.

Background

In 2005, the state of Washington Legislature passed Substitute Senate Bill 5064 enacted as chapter 261, Laws of 2005 (see Appendix A). The bill required the Health Care Authority and the Health Information Infrastructure Advisory Board (see Appendix B) to develop a strategy for the adoption and use of electronic medical records and health information technologies. The activities and recommendations from this collaborative effort are the focus of this report and a key factor in supporting the strategy to expedite and promote the use of health information technology (Health IT). This report fulfills the requirement of this bill.

The strategy to make better use of health information technology was a key factor when Governor Gregoire identified improvement of health care as one of her top priorities in 2005. A five-point strategy was developed to make state government a national leader in transforming the way health care is used and purchased, as well as improving the safety and quality of health care delivery. These strategies are the first step in supporting this top priority and changing the current structure into a high performance health care system:

- Emphasize evidence-based health care.
- Promote prevention, healthy lifestyles, and healthy choices.
- Better manage chronic care.
- Create more transparency in the health care system.
- Make better use of information technology.

While multiple efforts are currently underway in support of these strategies, several key activities are addressing problems at the foundation of the health care system. The Blue Ribbon Commission, for example, is tackling problems related to access, affordability, and quality of health care for all Washingtonians. The Commission is putting together an action plan due to the Legislature December 1, 2006. Other activities are focused on the five-point strategy mandated by the Governor, specifically the work of the Washington Health Information Collaborative and the HCA to lead efforts in making better use of health information technology.

The Washington Health Information Collaborative is a public-private partnership including the HCA, First Choice Health, Qualis Health, and the Puget Sound Health Alliance. The Collaborative promotes the use of Health IT through an annual award program aimed at expediting and supporting the adoption of technology to improve the safety and quality of health care delivery. These awards are directed at providers in the health care community who are enhancing current information technology or implementing a new system. The purpose of the awards is to increase use of information technology, offering a means for providers to more effectively use and disseminate health care information that would otherwise be impossible without combined public-private resources.

Introduction

The United States is facing a national health care crisis that is in desperate need of a national solution. However, Washington State cannot wait for a national solution to address the cost, quality, and safety of health care delivery. Washington citizens deserve a high quality, affordable health care system that addresses these fundamentals and the state has a leadership responsibility to take action to make this happen.

The Institute of Medicine's report, *To Err is Human*, brought to the nation's attention the pervasive problems of safety and quality in the delivery of health care (2000). A key contributor to the problem is the limited application of modern Health IT to ensure communication and exchange of patient information among health care providers. What does this mean?

- Health care consumers are repeatedly writing down their health care information on a paper form for every health care provider they see, because it's not readily available in an electronic format that can be shared among providers.
- Providers are making treatment decisions based on incomplete information at the point of care, because historical consumer information is not readily available.
- Emergency care providers are making treatment decisions based on the scraps of information they can obtain from patients or family members, because historical consumer information is not immediately accessible during a crisis.

Every day, consumers receive treatment in a health care system heavily dependent on a paper-based system, where collected health information is stored in individual provider practices making it difficult for both providers and consumers to access. Compounding the problem, consumers have limited access and control over this information, and are therefore often disengaged from the treatment decision-making process. In Washington State, we can do better.

In 2001, the Institute of Medicine explored this problem and concluded that the development of an information technology infrastructure has enormous potential to improve the safety, quality, and efficiency of health care in the United States. To make these improvements, health information must be electronic so it can be mobilized. This requires that providers use electronic medical record systems. Also, a mechanism must be developed to collect consumers' health information, with their consent, from wherever it is created and make it available when needed. This mechanism is possible through an information technology infrastructure.

In response to the need to make health information available to consumers in Washington State, the HCA and the Board collaborated to develop a strategy for a statewide health information infrastructure. This infrastructure would promote the interoperability of health information systems. Development of the strategy was supported by a national consultant and the health information infrastructure stakeholder advisory committee (HIISAC), see Appendix C, who provided feedback and direction to this effort through subcommittee activities. In addition, other resources were used to complement the contributions of the consultant and advisory committee including:

- Presentations and demonstrations from local communities regarding their implementation of Health IT.
- Review of technical reports and literature on national and regional Health IT activities.
- Additional expert consultants familiar with local and national Health IT implementation efforts.
- Consultation with state officials and attendance at national conferences to discuss Health IT efforts.
- Board and HIISAC subcommittee work to further explore key design and implementation issues for proposed infrastructure models.
- Stakeholder and round table forums throughout the state seeking input on the Board's proposed direction and competitive health record banking model (see Appendix D).

The agendas, presentations, reading materials, meeting summaries, and subcommittee reports are available on the Board's Web site at <http://www.hca.wa.gov/hit/> through June 30, 2007, and will be available on an archived site thereafter.

This report is a summary of the findings and recommendations from this collaborative effort. It discusses the process the HCA and the Board used to gather relevant information about the current status of Health IT in Washington State and presents an end-state vision for statewide availability of health information. It describes how the Board explored technology options that would enable Washington to achieve a fully-functional health information infrastructure through health record banking, an adaptation of the banking system. The infrastructure would also provide an opportunity for providers to make health information available when and where needed, and a way for consumers to participate in the control of this information exchange. The report concludes with a roadmap depicting a phased implementation of the health record banking system, a process for consumer engagement, and recommendations for promoting the adoption and use of EMRs.

Health Information Technology: National and State Focus

The Institute of Medicine (1991) generated national focus on the need for Health IT. Other works have advocated building local or regional health information infrastructures as key factors in facilitating the organizational, financial, legal, and technical aspects needed to interconnect all sources of health information (Thompson & Brailer, 2004; Lorenzi, 2003; Institute of Medicine, 2000; Yasnoff, et al., 2004). Based on national estimates, the widespread effective application of Health IT could save up to 5 percent to 8 percent of health care costs (Johnston, et al., 2004; Walker, et al., 2005). While achieving this magnitude of savings will be challenging, the appropriate application of Health IT offers significant potential to improve the efficiency and effectiveness of the state's health care system.

In addition to building health information infrastructures, the concept of an electronic personal health record as a tool for consumers to access and manage their health care information has drawn attention to the need for interoperability. Although patients' access to health information through these tools is not yet widely used, growing evidence of its positive impacts on the quality and cost of care are emerging. Consumers are becoming increasingly involved in health prevention, wellness, and treatment decisions aided by the use of these tools. However, the effectiveness of the personal health record is limited by the lack of system interconnectivity and readily available personal health information from providers (Powner, 2005).

The state of Washington is fortunate to be in the forefront of Health IT implementation. Based on the results of informal surveys and interviews conducted with the twenty-four largest multi-specialty groups in the state, 88 percent have already adopted or are committed to adopting EMRs (Thomas, 2006). These groups, located in communities across the state, have taken and continue to take various approaches to building health information infrastructures to meet local needs. The infrastructures vary in system design and functionality, and range from those that share information locally to others that share information in an extensive geographic region. Examples of these health information infrastructures can be found in cities such as Wenatchee, Tacoma, Yakima, Bellingham, and Spokane (see Appendix E).

The EMR adoption rate for small to mid-sized practices is estimated at approximately 10 percent to 25 percent (Thomas, 2006). Although considerably less than the adoption rate for the large multi-specialty providers in the state, it is more reflective of the national average which is approximately 20 percent (Blumenthal, et al., 2006). However, it is important to note that while this adoption rate reflects the national average, there remains a significant adoption gap between the small to mid-sized providers and the large multi-specialty providers in the state. When considering that a large portion of health care consumers receive care from these smaller practices, it is reasonable to conclude that many consumers would not have access to Health IT. Therefore, these consumers would be unable to derive any benefit from a health information infrastructure without broad adoption of EMRs.

Due to the low EMR adoption rate, paper-based health information residing with small to mid-sized practices is not easily shared or readily available for use in making treatment decisions. This may not be problematic for some consumers who are better able to aggregate and share information with providers, but for most consumers, particularly those with chronic conditions, serious illness, traumatic injury, or sporadic access to care; this can be a significant barrier. This lack of access places consumers at risk for unnecessary procedures and medical errors.

Consumers who seek care from larger practices are also subject to these risks. Although a higher percentage of these providers use Health IT systems, their systems are unable to share information, even when they use common software product platforms. The absence of a health information infrastructure inhibits communication among provider practices. The lack of available health information can contribute to ineffective delivery of care in the form of:

- Duplicative tests and procedures.
- Medication errors.
- Improper diagnosis and treatment.
- Uninformed consumer treatment decisions.
- Compromised quality and safety of health care delivery.
- Deaths and other adverse outcomes from medical errors.

Also, under the present means of managing consumer health information, consumers lack privacy and security control mechanisms. While consumers' privacy rights are protected under current Federal Health Insurance Portability and Accountability Act (HIPAA) law, there is no reliable method for consumers to know if their personal information is being accessed or exchanged, when and by whom. In addition, health care information can currently be exchanged for the purposes of providing treatment, processing payment with third-party payers, and health care organizational operations without prior notification to or consent from the consumer.

Because a statewide health information infrastructure does not currently exist, Washington State health care consumers cannot dependably rely on having their health information available whenever and wherever health care services are required. The Board concluded that interoperability of health information systems coupled with consumer control would significantly improve availability of information to consumers and providers.

Vision for Washington: Availability of Health Information

In an effort to make health information more readily available to providers and consumers and promote interoperability, the Board has developed and adopted an end-state vision. This vision serves as a guide towards the development and implementation of a statewide health information infrastructure. The vision, which incorporates design principles adopted by the Board (see Appendix F), strongly emphasizes engagement of health care consumers in the access, control, and use of their personal health care information. The Board's target statement is summarized below (see Appendix G).

The Washington State Health Information Infrastructure (WSHII) is an electronic information system available to everyone in Washington State. It provides access to health care information for each consumer who chooses to voluntarily participate in the system. Each consumer controls access to his aggregated information which can be made available in a secure manner for use to improve consumer health, the quality of health care received, and the efficiency of the health care system. Technology and regulations are employed to ensure that the privacy, security, and integrity of the consumer's health information are protected.

The WSHII system will be implemented in phases and evolve with the changing needs of the health care consumer and the health care delivery system. It uses standards for the way health information is collected, transmitted, and delivered to the consumer and health care provider. Any shared elements of the system outside existing health care organizations are operated in an open and transparent manner to facilitate accountability. The system is financially sustainable, highly reliable, and continuously available.

The Board recognized that the mechanisms used for organizing and delivering health information will have a profound and critical impact on the acceptability and practical use of a statewide health information infrastructure for both providers and consumers. With this in mind, the Board reviewed the characteristics of various health information infrastructure models using the end-state vision as a guide to identify the best possible choice. In addition, the Board was also focused on identifying a model that would leverage existing health information systems and local efforts while incorporating mechanisms to support consumer control over information exchange.

The three models were: the distributed model, the central repository model, and the competitive health record banking model. While all the models support the majority of the Board's evaluation requirements for a health information infrastructure, the health record banking model meets them with the added characteristic of being complementary with existing health information infrastructures. It also supports a core principle: the ability for consumers to control exchange of their personal health information. In addition, it provides a secure place for a copy of consumer health information to be assembled for use while maintaining the original health record at its source. Detailed descriptions and evaluation of the models are presented in Appendix H.

Recommendations: Washington State Health Information Infrastructure

Following the evaluation and selection process, the Board sought feedback from stakeholders on the concept of the models through forums and use of an online survey tool. Highlights from the stakeholder feedback report prepared by Thomas, et al in 2006 were:

- The vast majority of the health care industry and community stakeholders strongly supported the Board's recommended competitive health record banking model.
- Stakeholders indicated that while there is strong support for the competitive health record banking model, other efforts such as support of EMR adoption should continue.
- A pilot approach while simultaneously engaging other identified priorities would be helpful in proving the concept and providing operational guidance for future health record banks.

The Board recommends a phased and incremental approach to implementation of a WSHII using the competitive health record banking model. This approach would permit leveraging of existing Health IT infrastructures in the state and incorporation of best practices. It would also provide for consumer control of health care information and the flexibility to make adaptations to keep the effort on track to achieve the desired end-state. The Board recommends five immediate activities for state action to begin the development of the WSHII:

1. Complete the plan for initial implementation

Extend the tenure of the Board to oversee the development of an initial implementation plan. This extended period would complete the initial plan implementation of the health record banking model. This plan development would detail, at a minimum, the following functions:

- Organization and governance to include core functions, outreach processes and programs, privacy and security policies, legal liability research and risk assessment, charter compliance, enforcement mechanisms, and audit functions.
- Technical design to include the transaction details of the health record banks (for retrieval, deposit, or searching of health information), content, and interoperability standards.
- Consumer and provider engagement to include privacy and security provisions, education and outreach, provider information and education, standards, and tools to facilitate consumers' interaction with the information in their health record bank accounts.
- Initial and sustainable funding model to include private donations, federal funding, or other sources of revenue for sustainability.
- Risk mitigation analysis to include continual review and modification of implementation plan.
- Performance measures and establishment of mechanisms to evaluate success and accountability.
- Research and development of initial health record bank implementation sites.

In conjunction with the implementation plan, design details would need to be completed for an account locator service (ALS). The ALS will facilitate the identification process and access to the consumer's health record bank account. It also serves as a backup to locate the consumer's information if the standard means of access are unavailable at the time health care is received. For example, if the consumer misplaces his identification card or cannot remember what health record bank he is affiliated with, using demographic information such as age, date of birth, address, etc., the ALS will locate the consumer's account. This service is an electronic directory accessible only to authorized providers and consumers. The account locator service will also be used by the health record banks to ensure that consumers have only one account open at a time. No health care information will be contained in the account locator database.

This extended tenure would permit a more complete development of the needed framework to create an appropriate environment to implement a permanent oversight entity. Following this tenure the Board recommends creating a nonprofit, public-private organization responsible for the oversight of the WSHII and for creating the necessary conditions, rules, and regulations to develop and implement the statewide health record banking infrastructure.

2. Implement the first health record banks

Initial implementation of the WSHII will involve identifying and funding the start-up of six to eight entities that demonstrate interest, have the requisite technical infrastructure, and meet the requirements of becoming health record banks. In addition to these requirements, the WSHII will need to ensure the following conditions are addressed to facilitate implementation.

Assuring Consumer Trust – Health record banks, with consumer consent, will be assembling copies of health records and exchanging extremely sensitive, personal information. Therefore, health record banks must earn and retain consumer trust to function effectively. A key aspect of this trust is providing the ability for consumer control. Health record banks will manage consumer control by conducting continuous review and adopting regulations to support security and privacy protection.

The Board has been following the work of the Health Information Security and Privacy Collaboration (HISPC) as a resource for this key aspect. The efforts of the HISPC are part of the U.S. Department of Health and Human Services' health information technology plan for achieving nationwide health care data exchange. HISPC has been tasked to:

- Assess organization-level business policies, practices, and state laws that affect health information exchange;
- Identify and propose practical solutions that protect privacy and security of health information and permit interoperable health information exchange; and
- Develop plans to implement solutions within the state and, if applicable, at the federal level.

Standardized Interfaces – For the health record banks to operate in a consistent, interoperable manner, interfaces need to be created in compliance with WSHII standards to exchange consumer health information. The health record banks will be required to perform three functions, all with consumer consent: 1) provide copies to care providers; 2) accept copies from care providers; and 3) provide information to authorized public health authorities and medical researchers. It is especially important for every health record bank to function in a consistent fashion so that providers and consumers can easily send and retrieve information.

Identity Management – A central identity management capability for all banks should be established. This would allow any health record bank to verify a user's authentication credentials, and allow providers to have a single set of credentials for use in any bank. The WSHII must serve in this capacity and authenticate the identity of providers and other entities that require access to multiple banks for retrievals and deposits.

3. Engage consumers in the development of health record banking

Consumers are the recipients of health care and, therefore, the focus of the Board's work. The Board realized the diversity of Washington's health care consumers and engaged as many groups as possible to address the distinct needs and concerns related to electronic health information. This approach provided the opportunity for the Board to explore ideas and work with consumers to craft recommendations that addressed consumer needs. The implementation and success of the WSHII, both economically and politically, will depend on whether these needs are addressed and harnessed as a driver in the marketplace, or whether they will lead to fear and mistrust of the health information infrastructure.

To that end, consumer participation in practical, and meaningful, ways should be an integral part of the implementation of the health record banking model and is a critical success factor. Engaging consumers and other key stakeholders in the development, initial implementation, and evaluation of the first few health record banks will ensure that banks provide services that create value for consumers and providers.

The Board recommends a phased approach to consumer engagement using the following strategies: 1) convene a Council of Consumers to provide ongoing advice and direction as well as respond to consumer complaints and concerns in an open and transparent manner; 2) include consumers in work groups to integrate consumer perspectives into decision-making; and 3) designate a staff position in the organization who will monitor consumer marketing and feedback, manage activities related to special populations, and encourage targeted outreach and education specific to the interests and needs of diverse consumers. A summary of consumer populations and issues related to a statewide health information infrastructure is presented in Appendices I and J.

4. Promote EMR adoption in the health care provider community

The development, expansion, and connectivity of local community health care systems are prerequisites for a statewide health information infrastructure. The continuity and availability of health information should be supported by providing incentives to accelerate the adoption and use of Health IT and EMR systems by providers in Washington State. The Board recognizes that the health care system is not properly aligned to provide incentives for adoption of EMR systems, and reimbursement systems currently do not encourage adoption or incentives for providing quality care. Therefore, the Board recommends collaboration with other community partners to better align reimbursement systems to promote sustainable adoption of EMRs.

The Board also recommends continuation of the Washington Health Information Collaborative program to assist providers in evaluating, implementing, and connecting EMR systems. An important component of this effort is help offered to provider groups, particularly small groups, in redesigning workflows during and after implementation to reduce waste, improve productivity, and enhance clinical quality. The evaluation process should also explore opportunities for reducing EMR costs through group purchasing or the use of Web-based EMR software tools hosted by application service providers. This program should operate in cooperation with the appropriate provider professional societies and engage the private sector.

5. Provide funding for the 2007-2009 biennium

Recognizing that the risks for the first such endeavors in the private sector are significant, while at the same time the potential for societal benefit is large, the Board recommends an initial state investment of \$8 million to \$11 million over the next biennium for the development of the statewide health information infrastructure and the health record banking system. Based on Board estimates, \$3 million to \$4 million of the investment should be allocated to support the design work of the WSHII and the account locator service.

In addition to the design work, the Board also recommends \$4 million to \$5 million be made available in the form of grants for entities to fund up to 50 percent of the cost of establishing the first few health record banks. These banks should be in diverse geographic areas and serve multiple stakeholder and consumer groups. Grants should be allocated to communities where health information infrastructure efforts are already underway to leverage the existing technology and funding allocations.

Finally, the Board recommends \$1 million to \$2 million be allocated to support the EMR adoption efforts of the Washington Health Information Collaborative program during the next biennium. Shrinking the EMR adoption gap between large and small providers in Washington State would provide an opportunity for a large number of consumers to exchange health information in a safe and secure way, improving the delivery of health care by making health care information available to their providers.

Risk Mitigation of Recommendations

The Board recommends continual identification, analysis, and mitigation of risks throughout the initial and operational phases of the statewide health information infrastructure. Although these strategies pertain primarily to the risks related to the initial implementation, they have practical application in the later stages as well. A summary of risks and mitigation strategies are presented below and are listed in Appendix K:

- Leverage public start-up funding with private investment to establish the statewide health information infrastructure. Engage market forces to create competition and build the business case for adoption of EMRs and use of the statewide infrastructure. Initial funding will provide an opportunity to explore sustainable financial models that can be incorporated system-wide.
- Establish initial implementation measures. Review measures periodically to verify relevance and modify as needed.
- Fully engage stakeholders and consumers in the development and governance of the infrastructure. Create a transparent system that is focused on protecting consumer health information through education, choice, and control.
- Identify and use standardized interfaces, data communication standards, and authentication methods to increase participation. Collaborate closely with health care providers and organizations in developing operational design details that facilitate workflow and investments in EMRs.
- Require state-of-the-art computer security in the infrastructure system and establish protocols for health information access control by consumers.

Future Risks and Challenges

Despite well-designed implementation and mitigation plans to ensure the success of the statewide health information infrastructure, risks and challenges still remain. The most obvious challenge is that the competitive health record banking model and the innovative approach to consumer engagement have not been implemented on a statewide basis anywhere in the country. Because this has not previously been done, risks associated with this effort cannot be fully known. However, the Board strongly believes that the risk of doing nothing greatly outweighs the risk of moving forward with this model.

Failing to address issues that interfere with the availability of health information will prohibit improvement of health care delivery and perpetuate the occurrence of medical errors. In addition, unchecked problems with health information exchange among providers will continue to contribute to defensive treatment practices such as duplicative tests and procedures resulting in unnecessary health care costs (Greenlaw, 1982; Schmidt & Svarstad, 2002; Wanlass, et al., 1992).

Because of these risks and challenges, the consumer has been the paramount concern of the Board and the focal point for its efforts. As the implementation of the statewide health information infrastructure and health record banking model moves forward, continual evaluation will be required to seek answers and create workable solutions to address risks and challenges as they arise. Consideration of the risks and challenges in the following areas will be particularly important to the longevity of the health information infrastructure and the ability to make health care information available when and where needed for consumers now and in the future:

- Incomplete implementation – implementation of the health information infrastructure is an important first step in creating a safer and better quality health care delivery system for consumers. Insufficient action will perpetuate the problem.
- Financial sustainability – creation and adoption of a financial model that will support the long-term benefits of a health information infrastructure is vital to system longevity. Absence of such a model poses a risk to the existence and future improvements to the infrastructure expansion.
- Entity participation in becoming health record banks – creation of an environment that provides the proper incentives and supports the business case to become a health record bank is essential to this effort. Without this environment entities best suited to become banks will likely not make the business decision to do so.
- Consumer engagement – development of practical and sensible methods to convey the value of a health record bank account is a necessary prerequisite to consumer participation. An informational campaign along with a trusted system that ensures privacy and security is critical to the success of this model.
- Provider participation (particularly for small to mid-sized provider practices) – development of a sustainable, available, and reliable health information infrastructure will provide the basis for the business case to adopt EMRs locally and statewide. Lack of an infrastructure meeting these business requirements may result in the development of competing parallel systems that perpetuate limited interoperability.

- Interaction with neighboring state and national efforts – health information infrastructure interoperability with neighboring state and national efforts is important to the continuity of health care delivery for consumers and should be addressed. Lack of planning for this interoperability compromises the delivery of health care for consumers who receive care in other states or other parts of the nation.
- Stakeholder value – a statewide health information infrastructure that leverages existing investments in health technology systems provides an environment that supports the ability to compete and create value. An infrastructure that does not accommodate these investments stands little chance of gaining support and successfully accomplishing statewide interoperability for health information exchange.
- Societal value – a statewide health information infrastructure that operates in a transparent manner, engages consumers and providers, and protects privacy and security will earn public trust and create consumer value. An infrastructure not created and operated in this way is a lost investment and unrealized benefit for the community.

A Roadmap for Washington State

The work of the HCA and the Board over the past 18 months is the beginning of the journey to make Washington a national leader in health care delivery by making better use of information technology. There is an unmistakable synergy in the private sector and local communities with regard to health information technology where innovation and investments have been made. This active and committed private sector and local community leadership, coupled with executive and legislative support, creates an ideal environment to build on existing infrastructure and promote interoperability of health information systems.

The roadmap presented in Appendix L highlights significant milestones that can move Washington forward to the envisioned destination with support of the Board’s five recommendations. It provides direction during the next two biennia for completion of the design, initial implementation of the first health record banks, engagement of consumers in health record banking, and activities to promote the adoption of EMRs.

July 2007 to June 2009

The focus during this biennium is to complete the implementation plans and create an operating environment for the first health record banks. This will require completion of the following:

- Organization and governance model for the statewide health information infrastructure.
- Technical design model for the account locator service.
- Consumer engagement processes, programs, and policies.
- Sustainable financing model for the statewide health information infrastructure.

In conjunction with these activities, a plan will be developed detailing the steps needed to research, develop, certify, and audit the first health record banks. Implementation includes activities such as infrastructure design, budgeting, risk analysis, mitigation management, policy analysis, and development of Health IT and EMR adoption strategies. Performance measures established during the implementation plan will track progress against goals. Consumer and provider partnerships will play a key role, including the development of public education, communication, and programs.

Also during this time, state agencies, communities, and the private sector will continue current activities that support interconnectivity, while exploring opportunities to modify internal health information technology systems that facilitate connection with the statewide health information infrastructure. Several of these entities may decide to become health record banks and participate in the initial implementation. The private sector will be engaged in continuing efforts to implement Health IT, adopt EMRs, address transparency issues, realign incentives, and establish outcome measurements to improve health care quality and delivery.

July 2009 to June 2011

Proof of concept for the first health record banks and interoperability of the health information infrastructure are key success factors to the creation and future expansion of the WSHII. Findings from the pilots will be instrumental in making necessary changes and adjustments to the implementation plan. These findings will advance efforts closer to the vision of making consumer health care information available when and where needed. During this time the WSHII will:

- Review the statewide health information infrastructure's effectiveness, ongoing financing needs, policies, and overall performance.
- Synthesize, analyze, and summarize findings from the health record bank and health information infrastructure performance measures against established baseline.
- Monitor risks and manage mitigation strategies.
- Evaluate performance with regard to expansion of health record banks.
- Collect consumer and provider feedback on engagement effort effectiveness.
- Use methods and measures to determine benefits of Health IT through economic assistance and development mechanisms. Realign objectives and methods as needed.
- Partner with private sector, public sector, and local communities to address converging needs through continued use and innovation of health information technology solutions.

Based on the analysis of the data and measures, plans to increase participation in the WSHII will be modified to accommodate new health record banks. Other state agencies and the private sector will play a key role in support of the expansion efforts of the infrastructure. Further evolution of transparency efforts, incentive realignments, as well as outcome measurements, deployed using Health IT in the private sector, will provide insights and tools to support the WSHII's efforts.

Conclusion

The development of a health information technology infrastructure has enormous potential to improve the safety, quality, and efficiency of health care delivery for consumers in Washington State. Although efforts of this magnitude have associated risks and challenges, the risk of inaction is greater, threatening the state's ability to compete globally, support core services, launch development initiatives, and most importantly improve the health of its citizens.

The recommendations of the Board and the proposed statewide health information infrastructure model support the Governor's five-point strategy for improving health care. Adopting these recommendations will result in a high-performing health care delivery system and position the state of Washington as a national leader in health information technology, making high-value health information available for consumers and providers when and where needed.

We can do better.

Appendix A: Substitute Senate Bill 5064

CERTIFICATION OF ENROLLMENT

SUBSTITUTE SENATE BILL 5064

Chapter 261, Laws of 2005

(partial veto)

59th Legislature
2005 Regular Session

HEALTH INFORMATION INFRASTRUCTURE ADVISORY BOARD

EFFECTIVE DATE: 7/24/05

Passed by the Senate April 18, 2005
YEAS 38 NAYS 0

BRAD OWEN

President of the Senate

Passed by the House April 6, 2005
YEAS 98 NAYS 0

FRANK CHOPP

Speaker of the House of Representatives

Approved May 4, 2005, with the
exception of Section 3, which is vetoed.

CHRISTINE GREGOIRE

Governor of the State of Washington

CERTIFICATE

I, Thomas Hoemann, Secretary of the Senate of the State of Washington, do hereby certify that the attached is **SUBSTITUTE SENATE BILL 5064** as passed by the Senate and the House of Representatives on the dates hereon set forth.

THOMAS HOEMANN

Secretary

FILED
May 4, 2005 - 3:11 p.m.

**Secretary of State
State of Washington**

SUBSTITUTE SENATE BILL 5064

AS AMENDED BY THE HOUSE

Passed Legislature - 2005 Regular Session

State of Washington

Legislature

Regular Session

By Senate Committee on Health & Long-Term Care (originally sponsored by Senators Thibaudeau, Deccio, Jacobsen, Parlette, Kohl-Welles, Weinstein and Keiser)

READ FIRST TIME 03/02/05.

1 AN ACT Relating to electronic medical records and health
2 information technologies; creating new sections; and providing an
3 expiration date.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

5 NEW SECTION. **Sec. 1** (1) The Washington state health care authority
6 shall appoint a Washington health information infrastructure advisory
7 board composed of seven to twelve members.

8 (2) Membership shall include representatives of the provider
9 community, including hospitals, information technology experts, health
10 care policy experts, health plan representatives, consumers, the
11 director of the department of information services or the director's
12 designee, and the agency medical directors group.

13 (3) The authority shall appoint the chair of the advisory board.

14 (4) The members of the advisory board shall receive no
15 compensation, but shall be reimbursed for expenses under RCW 43.03.050
16 and 43.03.060.

17 NEW SECTION. **Sec. 2** (1) The Washington state health care authority,
18 in collaboration with the advisory board, shall develop a strategy for

1 the adoption and use of electronic medical records and health
2 information technologies that are consistent with emerging national
3 standards and promote interoperability of health information systems.
4 The strategy should:

5 (a) Be informed by research into, and identification of the best
6 practices in, electronic medical records systems and health information
7 technologies, including system design, implementation, operation, and
8 evaluation;

9 (b) Be designed to encourage greater adoption of electronic medical
10 record and health information technologies among the state's health
11 care providers that reduce medical errors and enable patients to make
12 better decisions about their own health care by promoting secure access
13 to medical records online; and

14 (c) Seek to promote standards and systems that are compatible with
15 current adopters of electronic medical record systems in Washington.

16 (2) The authority, in collaboration with the advisory board, shall
17 identify obstacles to the implementation of an effective health
18 information infrastructure in the state and provide policy
19 recommendations to remove or minimize those obstacles and identify
20 state health care purchasing strategies that can provide incentives to
21 providers and organizations that adopt effective health information
22 technologies.

23 (3) The authority shall advise appropriate parties within the
24 legislature and the executive branch on issues related to the
25 development and implementation of a health information infrastructure.

26 (4) The authority, in collaboration with the advisory board, shall
27 ensure that the strategy and plan preserve the privacy and security of
28 health information, as required by state and federal law.

29 (5) As used in this section, "health information technologies"
30 means a computerized system that provides access to patients' medical
31 records in an electronic format, including e-mail communication,
32 clinical alerts and reminders, and other information technologies as
33 prescribed by the administrator.

34 ****NEW SECTION. Sec. 3 (1) The Washington state health care authority***
35 ***shall provide staff support to the advisory board. In addition, all***
36 ***agencies under the control of the governor are directed, and all other***

1 agencies are requested, to render full assistance and cooperation to
2 the advisory board.

3 (2) The authority may enter into contracts that are necessary or
4 proper to carry out this act to support the advisory board and the
5 authority in the performance of their duties. Such contracts may be
6 awarded for purposes including, but not limited to, the following:

7 (a) Assessing the existing information technology systems of health
8 care providers, state agencies, and third-party payers;

9 (b) Identifying current national trends in the development of
10 health information systems and standards;

11 (c) Determining the feasibility of integrating and connecting
12 existing systems with emerging and recommended health information
13 standards and technologies; and

14 (d) Identifying available government or private grants for the
15 study of or implementation of health information systems.

16 *Sec. 3 was vetoed. See message at end of chapter.

17 NEW SECTION. **Sec. 4** The authority, in collaboration with the
18 advisory board, shall submit an interim status report on its
19 preliminary findings by December 1, 2005. A final report of findings
20 and recommendations shall be submitted by December 1, 2006.

21 NEW SECTION. **Sec. 5** This act expires December 1, 2006.

Passed by the Senate April 18, 2005.

Passed by the House April 6, 2005.

Approved by the Governor May 4, 2005, with the exception of certain
items that were vetoed.

Filed in Office of Secretary of State May 4, 2005.

Note: Governor's explanation of partial veto is as follows:

"I am returning, without my approval as to Section 3, Substitute Senate
Bill No. 5064 entitled:

"AN ACT Relating to electronic medical records and health information
technologies."

This bill creates the Washington Health Information Advisory Board
(WHIAB), and encourages the use of health information technology to
support high quality, cost-effective health care. Section 3 of the bill
directs all agencies under the control of the Governor, including those
not involved in health related issues, to render full assistance to the
WHIAB, giving rise to an issue of governance.

For these reasons, I have vetoed Section 3 Substitute Senate Bill No.
5064.

I direct the Health Care Authority and WHIAB, however, to assess
existing information technology systems of health care providers, state

agencies, and third-party payers; identify current national trends in the development of information technology systems & standards; determine the feasibility of integrating and connecting existing systems; and identify available government or private grants for the study of or implementation of health information systems. The Health Care Authority may still enter into appropriate contracts and coordinate with agencies under existing statutes.

For these reasons, I have vetoed Substitute Senate Bill No. 5064.

With the exception of Section 3, Substitute Senate Bill No. 5064 is approved."

Appendix B: Health Information Infrastructure Advisory Board

Chair, Health Information Infrastructure Advisory Board

V. Marc Droppert, JD
Graham & Dunn, PC

Health Care Policy Experts

David Masuda, MD, Lecturer
University of Washington School of Medicine

Information Technology Expert

Jeffrey Hummel, MD, MPH
University of Washington Medicine Neighborhood Clinics

Provider Community

Hugh Maloney, MD, MHA, President
Washington State Medical Association

Alexis Wilson, PhD, RN, Healthcare Informatics and Policy Consultant
MultiCare Health System

Consumers

Wendy Anne Carr, Access Coordinator
Whatcom Alliance for Healthcare Access

Ed Singler, JD, State Executive Council
Washington State AARP

Health Plan (Carrier) Representative

James Hereford, MS, Executive Vice President
Group Health Cooperative

Department of Information Services

Gary Robinson, Director

State Agency Medical Directors' Group (AMDG)

Richard Onizuka, PhD, Director, Health Care Policy
Washington State Health Care Authority

Other Experts

Thomas M. Fritz, MA, MPA, Chief Executive Officer
Inland Northwest Health Services

Marcus Pierson, MD, Regional Vice President
PeaceHealth, Whatcom County

Appendix B: Health Information Infrastructure Advisory Board (Continued)

Washington State Health Care Authority

Juan Alaniz, Project Manager
Kelly Llewellyn, Health Policy Analyst
Ruth McIntosh, Project Assistant
Annette Burgin, Secretary

Project Consultation

William A. Yasnoff, MD, PhD, FACMI
NHII Advisors (Arlington, VA)

Special Report Consultants

Joy M. Grossman, PhD
Center for Studying Health System Change

Steve Labkoff, MD, FACP
Pfizer, Inc.

Howard Thomas, MBA
Thomas & Associates Consulting, LLC

DJ Wilson
Wilson Strategic Communications

Appendix C: Health Information Infrastructure Stakeholder Advisory Committee

Alkin, Lisa, Puyallup Tribal Health Authority
Anderson, Karen, Washington Veterans Home
Bell, Corinne, PacifiCare
Byron, Tom, Washington State Hospital Association
Campbell, Rick, Department of Social and Health Services
Christiansen, John, Christiansen IT Law
Covington, Bob, Department of Social and Health Services
Co-Chair, Deichert, David, Bastyr Center for Natural Health
DeVore, Brian, Intel Digital Health Group
Fallet, Andy, Foundation for Healthcare Quality
Forquera, Ralph, Seattle Indian Health Board
Fox, Ed, Squaxin Island Indian Tribe
Groshong, Laura, Social Worker/Practitioner
Grossman, Joy, Center for Studying Health System Change
Hamilton, Janet, Columbia United Providers (CUP)
Hartmann-Voss, Karen, Inland Northwest Health Services (Consultant)
Heineccius, Lance, Puget Sound Health Alliance
Huff, Kristen, Regence BlueShield
Jones, Tom, Group Health Medical Center
Kendall, Debbie, Department of Information Services
King, James, Department of Labor & Industries
LaCroix, Roy, PTSO of Washington
Langer, Karen, School of Arts and Sciences
McDonald, Sherri, Thurston County Department of Health
Murphy, Deborah, WA Association of Housing and Services for the Aging
Nelson, Helen, Panorama City Nursing Facility
Nichol, Paul, Veteran Administration-Puget Sound HCS
Pathy, Jay, HealthUnity Corporation
Pence, Stephen, Independent Consultant
Perna, Bob, Washington State Medical Association
Robinson, John, Molina Health Care
Rochon, Jeff, Washington State Pharmacy Association
Chair, Rominger, Sandy, The Boeing Company
Rubin, Rick, OneHealthPort
Sahali, Roy, University of Washington - Library
Shafer, Ron, Washington State Pharmacy Association
Simon, Mark, Maxwell IT
Sittig, Dean, Kaiser Permanente
St. Ours, Lauri, Washington Health Care Association
Thurston, Gil, Senior Lobby
Westrum, Frank, Department of Health
Wilson, Vicki, Governor's Office of Financial Management
Wilson, DJ, Wilson Strategic Communications
Zierler, Brenda, University of Washington

Appendix D: Stakeholder Report Forum Schedule

Date/Time	Stakeholder Meeting	Location	Audience
September 18 th 2:00-3:30 PM	Department of Health (DOH)	DOH Town Center Three Room 224, Olympia	DOH and Agency Medical Directors' Group (AMDG)
September 20 th 7:00-8:30 AM	Pierce County health care and health information technology community	Landmark Convention Center 47 Saint Helens Ave Tacoma, WA 98402-2612	Northwest Physicians Network, Pierce County Medical Society Washington, Tacoma-Pierce County Health Department, MultiCare, Franciscan Health Systems, and interested parties
September 21 st 1:30-3:00 PM	Department of Social and Health Services/ Health Resources and Services Administration (DSHS/HRSA)	DSHS/HRSA Cherry Street Plaza Apple/Peach Conference Rooms (106A and 106B), Olympia	DSHS/HRSA, health care plan providers, and AMDG
September 25 th 1:30-3:30 PM	Senate Health & Long-Term Care Committee	Davenport Hotel Spokane	Legislators and key legislative staff
September 27 th 7:00-9:00 AM	Wenatchee and Omak – Community Choice Healthcare Network	Confluence Technology Center– Videoconferencing with Mid Valley Hospital in Omak	Wenatchee and Omak health care and health information technology community
September 27 th 7:30-9:00 AM	Vancouver	Southwest Washington Medical Center Health Education Center– Classroom 1	Vancouver health care and health information technology community
September 27 th 6:00-8:00 PM	Thurston-Mason Medical Society	Thurston County Public Health & Social Services (Lilly Road) Conference Rooms 107 (A, B, and C), Olympia	Thurston-Mason health care and health information technology community
September 29 th 9:00-11:00 AM	Western Washington stakeholders	Washington State Convention and Trade Center Third Floor – Rooms MR 307 and 308, Seattle	Western Washington health care and health information technology community

Appendix D: Stakeholder Report Forum Schedule (Continued)

Date/Time	Stakeholder Meeting	Location	Audience
October 6 th 8:30-11:30 AM	Agency Medical Directors' Group (AMDG) <i>State agency medical directors</i>	Department of Labor and Industry Conference Room S216, Tumwater	AMDG
October 10 th 6:00-9:00 PM	Technical Advisory Group (TAG) <i>State agency advisory group</i>	Center Point Corporate Park (The Commons Building) 20809 72 nd Ave. S. Kent, WA http://www.hca.wa.gov/tag/meetings/directions.shtml	TAG Members
October 13 th 10:00 AM-12:30 PM	Eastern Washington stakeholders	St. Luke's Rehabilitation Institute 715 South Cowley St. Spokane, WA 99202	Eastern Washington health care and health information technology community
October 13 th 10:00-11:30 AM	The Boeing Company	Boeing Meeting Room King County International Airport, Seattle	Boeing health information technology, new business development, health care, and benefits staff
October 18 th 9:00 AM-4:30 PM	State Board of Health	Yakima Convention Center 10 North 8 th St.	State Health Board members and interested members of the community

Appendix E: Current Health Information Technology in Washington State

Communities

Spokane

Over ten years ago, two competing health care organizations created a trusted third party, Inland Northwest Health Services (INHS), to manage the air-ambulance for the region. Two years later, the success of that program prompted the stakeholders to focus on INHS taking over responsibility for Health IT services for both institutions. Today, INHS supports over three million patients in five states and Canada using a centralized hospital EMR system comprised of:

The Inland Northwest

- 29 counties across eastern Washington and northern Idaho (54,356 square miles)
- 1.65 million people:
 - 23.9 per square mile in Washington
 - 24.5 per square mile in Idaho

INHS Network

- 38 hospitals, with over 4600 beds, participating in the integrated information system sharing a single client identifier
- More than 50 clinics and 450 physician offices (1,000+ physicians) able to view hospital, laboratory, and imaging data in Spokane
- More than 1,000 physicians accessing patient records wirelessly in Spokane hospitals
- 68 hospitals, clinics, and public health agencies connected to the INHS tele-Health network providing clinical and educational programs
- Over 2.6 million unique patient records
- 220 technical staff serving over 25,000 end users

INHS Health IT Accomplishments

- Established a regional Master Patient Index standard that has facilitated the gathering and distributing of patient data to caregivers in the region
- Established standard data sets, allowing comparison of clinical data and enhancing the longitudinal patient record
- Created a regional integrated information system that connects hospitals, clinics, and physician offices, providing a community Electronic Medical Record
- Connected physicians throughout the region, directly in their offices and wirelessly within the hospitals, providing relevant clinical data when and where they need it
- Enhanced care in rural areas by connecting residents and clinicians to specialists through an extensive regional telemedicine network
- Increased patient safety by utilizing advanced systems
- One hospital projected cost savings of \$1.3 million over four years by implementing a new hospital information system within the INHS shared services model
- Pre-INHS, one hospital needed 98 FTEs for information systems; INHS uses 57 FTEs to support that account

Appendix E: Current Health Information Technology in Washington State (Continued)

Bellingham

Led by St. Joseph's Hospital (part of PeaceHealth), the community established a regional health care information organization that provides a hospital-based electronic health record (EHR), community services such as e-mail, and a sophisticated personal health record called the Shared Care Plan.

Yakima

The Yakima community has established a web-based, community-wide EHR by linking multiple sources of patient information using a system called ChartConnect. Hospitals, labs, radiology groups, and pathology groups are linked to 49 clinics and over 75 percent of local providers all using ChartConnect. The system includes results and ordering interfaces, sharing referrals and consults between clinics, as well as chart access for emergency room providers, and night and weekend call sharing between clinic providers. Additional installations of ChartConnect are operating in over a dozen communities throughout the Northwest as well as nationally.

Tri-Cities (Washington)

The Tri-Cities community uses ChartConnect to link all three hospitals, multiple labs, radiology, and pathology groups together with 87 clinics accounting for over 80 percent of the local providers. The system includes results and ordering interfaces, sharing referrals and consults between clinics, as well as chart access for emergency room providers, and night and weekend call sharing between clinic providers. Data is also shared with clinics using other EMR/EHR products.

Wenatchee and North Central Washington

Through collaboration among consortium members and other partners convened by Community Choice, a nonprofit organization, HRSA grant funds were used as seed funding for purchase of initial hardware and software, and for community health information infrastructure. Additional United States Department of Agriculture, Rural Utility Services grant funding to consortium members helped the community implement tele-med applications such Tele-radiology and Tele-pharmacy. There is also inter-regional connectivity between two local hospitals using an INHS network to connect to Sacred Heart Hospital in Spokane. Utilizing the fiber optic networks installed for the infrastructure by the county public utility districts (PUD's), organizations such as Community Choice and Wenatchee Valley Medical Center are able to provide connections for medical record and image access to all providers in the region through a wide area network.

The North Central Washington Medical Wide Area Network (MedWan) consists of nine hospital districts and multiple medical clinics. MedWan's objective is to share in the building of a Medical Virtual Local Area Network (VLAN) connecting Chelan, Douglas, Okanogan, and Grant County PUDs to metropolitan area resources such as the University of Washington, Harborview Regional Medical Center, Virginia Mason, and Children's Hospital networks to MedWan critical access hospitals. MedWan also permits hospital districts to share resources and medical staff.

Appendix E: Current Health Information Technology in Washington State (Continued)

MedWan recently merged with GCI, a large integrated communication provider (ICP) in Alaska and in Washington that connects remote villages to metro area resources. GCI will also bring its satellite technology to North Central Washington as a redundant method of connecting to Tele-health and Tele-radiology.

Organization

Group Health Cooperative

Group Health has implemented the *EpicCare* electronic medical record for all of its ambulatory care operations. It is used in a medical group of over 800 physicians and includes physician order entry, clinical documentation, health alerts and reminders based on clinical conditions (decision support tools), drug-drug and drug-allergy interaction checking, and modules for Emergency Department/Urgent Care and Consulting Nurse, providing Group Health with end-to-end clinical system integration.

Group Health is a national leader in patient-centered Web access. Using their patient Web site, *MyGroupHealth*, patients get access to lab results, problem lists, pharmacy refills, allergy and immunization data, and secure e-mail messaging to all physicians within the medical group. This patient Web portal also provides patients with a Web-based education and wellness tool, *Healthwise Knowledge Base*, to help patients manage their health. Among the categories this education and wellness tool currently provides to patients are general health topics, medical tests, medications, support groups, and a complementary and alternative medicine section. Group Health has over 40 percent of its patients in Western Washington interacting clinically with the care delivery system through *MyGroupHealth*.

Group Health is also a leader in the implementation of an online health profile for patients that is available on *MyGroupHealth*. The patient-entered health profile is integrated into the electronic medical record, allowing information patients submit to populate the medical record and drive messages to clinical teams regarding areas of potential high risk that require immediate intervention.

Northwest Physicians Network

Northwest Physicians Network, in collaboration with the Pierce County Medical Society, has developed a secure, community-wide communication network to facilitate the sharing of health information among patients and providers. The infrastructure is housed in the South Sound Health Communication Network, a nonprofit organization with a community board comprised of Network participants. The Network serves as the Pierce County medical community's "interoperable tissue," connecting providers across platforms, systems, and firewalls, regardless of EMR software or lack thereof.

By the fall of 2006, the Network hosted more than 1,200 physicians, patients, nurses, and health care staff. These users have exchanged over 100,000 secure messages, facilitating patient care. In addition to community providers, the Network connects across platforms to three major hospitals, a national clinical laboratory, and a leading area radiology group.

Appendix E: Current Health Information Technology in Washington State (Continued)

University of Washington

The University of Washington (UW) uses a combination of different EMRs and legacy systems for making clinical data available to providers. The legacy system called *Mindscape* is a data repository containing dictated clinical notes, dictated radiology interpretations, laboratory information, prescription order information, pathology results, and special tests such as cardiac echo results. This data cache is available in view-only mode to any authorized provider via a secure Web site. The entire UW clinical community uses the Epic Systems module for scheduling and registration and is implementing the Epic Systems program for admissions, discharges, and transfers as well as professional billing.

For clinical applications UW Medicine is currently implementing the *Cerner* in-patient application at the University Hospital and Harborview Medical Center, and there are plans to implement *Cerner* in ambulatory specialty clinics.

The UW Medicine Neighborhood Clinics (UWPN), an eight clinic primary care network, has been using *EpicCare* since 1997. *EpicCare* is also the EMR for the student on-campus Hall Health Clinic, the UW Family Medicine Center Residency Program, the East Side Specialty Center in Factoria, and the Alderwood Cardiology Clinic. UWPN is in the process of rolling out *MyChart*, the *EpicCare*'s secure Web portal, which allows patient access to both the medical record and secure messaging between the patient and a provider team as the first step in the e-Care initiative for the University of Washington.

Clinical data transfer between the various parts of the delivery system involves a number of interfaces that move order transmittal data and clinical results for laboratory medicine, pathology, and radiology from UWPN to the UW Medical Center or Harborview and back. For clinical progress notes the process is more complicated. There is view-only *Epic* Web access available to UW Medicine clinicians through the legacy *Mindscape* system when specialty clinicians need to see primary care information from the Neighborhood Clinics. For consults sent from the UW Neighborhood Clinics to the University of Washington, paper copies of dictations are sent to the referring clinician by mail, upon which office staff cut and paste the electronic files from *Mindscape* into *EpicCare* where they appear in the electronic in-basket of the ordering provider.

Appendix F: Washington State Health Information Infrastructure Design Principles

1. Achievable

- Maximize simplicity
- Promote tangible and functional outcomes
- Leverage opportunities and apply best practices based on local and national experience
- Keep recommendations realistic (e.g., interoperability capabilities)

2. Consumer / User Centered

- Promote ease of use and portability
- Promote/provide access to information to patients/consumers in balanced ways
- Obtain and administer access responsibly with patient permission
- Allow patient input and interaction

3. Incremental

- Each step must build on existing systems and be as self-sustaining as possible
- Maximize stakeholder consensus

4. Ensure Security and Privacy

- Use trusted solutions
- Use a trusted third party
- Ensure integrity of data

5. Inclusive and Collaborative Process

- Promote cooperation over competition
- Ensure proper roles for government and the marketplace

6. Align Incentives

- Pay for performance to achieve better outcomes
- Maximize quality and efficiency
- Promote consumer involvement
- Make participation voluntary
- Ensure sustainability
- Work locally

Appendix G: Washington State Health Information Infrastructure Target Statement

The Washington State Health Information Infrastructure (WSHII) is an electronic health information system available to everyone in Washington State. It provides access to all substantive health care information for each consumer who chooses to voluntarily participate. Each consumer controls all access to his information, and it is made available in a secure manner to users he authorizes. WSHII is implemented incrementally to improve the health of consumers, the quality of health care delivered, and the efficiency of the health care system. It uses national and system standards for encoding and transmitting information. Information available includes, for example, inpatient, outpatient, long-term care, home health, lab, medication, imaging and consumer-generated information, and coverage and payment data. A trusted organization sets standards and operates shared elements of the system in an open and transparent manner to facilitate accountability. WSHII is fully sustained through operational revenue. The system is highly reliable and continuously available. Privacy, security, and integrity of the consumer's health information are protected.

FINAL DRAFT – HCA AND BOARD DISCUSSION MATERIAL
6/23/06

Appendix H: Models for the Health Information Infrastructure

Distributed Model

In the distributed model, health record information remains at its location of origin. A central record locator service (RLS) is established in the community containing a list of locations where records may be found for each consumer. When the records are needed, the RLS sends record requests to each system at which the consumer has health information, receives the records from each system, aggregates the records, and makes them available to the requesting provider. When new health information is produced, a “reminder” is sent to the RLS indicating that records are now available in that location for retrieval next time the consumer’s health records are needed.

Central Repository Model

In the central repository model¹, the substantive health records for all consumers in Washington State are stored at a single location. When a consumer receives care, his health record is retrieved from the central repository. After care is completed, a copy of the new health information that was created is sent electronically to the central repository.

Competitive Health Record Banking Model

In the competitive banking model, multiple organizations in the community operate as health record banks (HRBs) where consumers may choose to store their health records. Each consumer elects whether to participate and selects the HRB he wishes to use. A central account locator service is established to keep track of which HRB holds the record for each consumer. When the record is needed for care, the consumer will provide the access information for his record (i.e., the name of his bank and account number). If the consumer doesn’t have the information with him, the account locator service can be used to locate it. The consumer record is obtained directly from the applicable HRB. When the care is completed, a copy of the information is sent directly to the consumer’s HRB for aggregation with his existing health record.

To ensure that health care providers can easily access health care records in any HRB, each HRB must provide identical interfaces for three functions: 1) retrieval of the consumer’s health information; 2) deposit of new information to the consumer’s health record; and 3) authorized searching of consumers’ health records. Within an HRB system, existing technology architecture could be used. This allows flexibility of architecture and technology for communities or other organizations that may wish to become an HRB (e.g., such as a local hospital, an insurance company, or professional health care organization) while maintaining consistent functionality for consumers and providers statewide.

¹ Note that the central repository model is analogous to the competitive banking model except there is a single bank for the entire state.

Appendix H: Models for the Health Information Infrastructure (Continued)

Evaluation and Comparison of the Models

The models were compared using a subset of the WSHII requirements established by the Board. Certain requirements were excluded because they are unaffected by the architectural model (e.g., the characteristics of the organization that operates the health information infrastructure). In addition, the Board has previously identified the importance of flexibility and scalability, as well as the ability of the architecture to incorporate existing systems to the greatest extent possible. The requirements used by the Board and a brief description of each are listed below:

- Availability – supplies health information when and where needed
- Consumer controlled access – consumer control of health information sharing
- Error correction – capability to allow correction of erroneous health information
- Information transfer – ability to transfer health information among health information systems
- Information for public health and medical research – allow access of health information for public health and medical research (with consumer consent)
- Information authentication – health information is reliably associated with the correct consumers
- Transmittal standards – capability to operate using health information sharing standards
- System use and interoperability – systems accessing the statewide health information infrastructure are interoperable and facilitate sharing
- Access audit trail – system creates a record of health information sharing access for the consumer
- Privacy and security – capability to support privacy and security laws
- Financial sustainability – generates finances necessary to remain operational
- System reliability and availability – provides health information for access when and where needed
- Existing infrastructure accommodation – interoperable with existing Health IT systems
- Scalability – sizeable according to infrastructure needs
- Consumer and community acceptance – capable of serving consumer privacy, security, reliability, and availability needs, as well as providing notable value

The comparison revealed that the distributed model failed to adequately meet several of the requirements for multiple reasons: 1) this model may not make health information available as quickly as the other two models because of its technical design; 2) data queries for public health or medical research purposes are not supported by the distributed model; and 3) privacy, security, financial sustainability, accommodation of exiting infrastructures, scalability, availability, and reliability requirements may not be well addressed due to the complexity of this model.

Appendix H: Models for the Health Information Infrastructure (Continued)

The central repository and the competitive health record banking models adequately met the requirements. However, feedback provided to the Board from consumers and stakeholders indicated that a central repository model may not be trusted by consumers for political reasons particularly if it was operated by a government entity, an employer, or a health insurance carrier. Also, concern was expressed that health information consolidated in a central repository may make the data more susceptible to breaches of security and privacy as well as misuse of the consumer's information.

Based on the comparison and the Board's discussion, the competitive health record banking model best addressed the shortcomings of the distributed and central repository models. Not only does this model meet the WSHII requirements, but it provides an opportunity for multiple parties to become health record banks reducing consumer mistrust of single entity control while allowing competition to create value for providers and consumers in making health information available when and where needed. The Board's requirements, model diagrams, and a summary of the comparison in table format are presented on the following three pages of this appendix.

Appendix H: Models for the Health Information Infrastructure (Continued)

Washington State Health Information Infrastructure Requirements

Functions

1. The substantive health record(s) for each participating consumer from all sources, with each source identified is available to authorized users when and where needed, and unavailable otherwise.
2. Participation in the WSHII system is voluntary and available to all consumers.
3. Consumers control access to each portion of their EHRs (i.e., each consumer designates the authorized users of each portion of his EHR).
4. Incomplete information or errors in EHR information can be addressed by authorized users via systematic procedures.
5. All or part of a consumer's EHR information may be transferred securely and electronically at the consumer's request.
6. With voluntary patient authorization, EHR information may be made available for public health and medical learning.
7. All information maintained by the system is reliably associated with the correct consumer.

Privacy, Confidentiality, and Security

8. All users are reliably authenticated.
9. Consumers may obtain a report of inquiries made and/or activities performed on their EHRs.
10. The WSHII system complies with all applicable privacy and security regulations.
11. WSHII system security is maintained and reviewed periodically to assess compliance with the then current state-of-the-art.

Organization and Finance

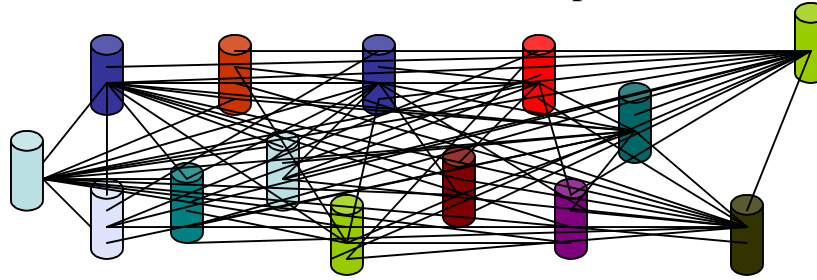
12. A trusted organization operates any shared elements of the WSHII system that are outside existing health care organizations.
13. The WSHII system provides value to stakeholders and is financially sustainable.
14. Health care stakeholders can participate as users and (if appropriate) as data sources.

Technical

15. EHR information is transmitted electronically using national standards whenever available (and system standards when not).
16. WSHII users are able to use whatever information system(s) they choose, provided they can transmit and receive information using designated standards.
17. The WSHII system is continuously available and highly reliable.
18. The WSHII accommodates the use of existing infrastructure.
19. The WSHII system is scalable to accommodate health care consumers in Washington State.

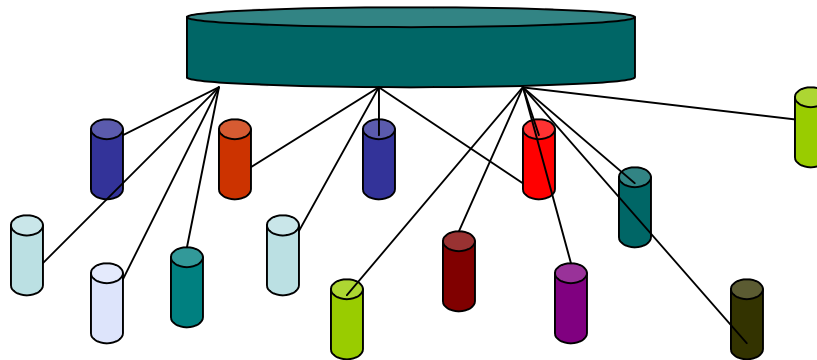
Appendix H: Models for the Health Information Infrastructure (Continued)

The Three Models Depicted



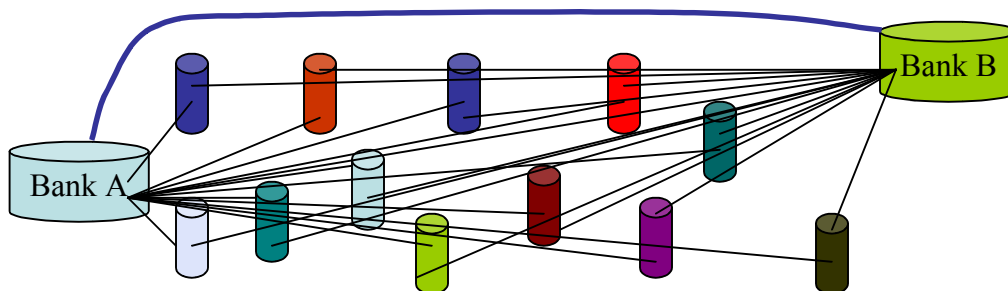
Distributed Model

- In this model every data provider interfaces to every other data provider and the entire community is wired to each other.
 - Every data creator is an incomplete data bank.



Central Repository Model

- In this model all data providers would send the clinical data set to a single statewide “data bank” and each patient’s record would be stored centrally.
 - Interfaces needed with only the Bank - one Bank that all providers must connect to.



Competitive Health Record Banking Model

- In this model different data banks coexist.
- Each bank would host a defined, limited data set of patients.
 - Banks are providers, plans, or trusted entities.

Appendix H: Models for the Health Information Infrastructure (Continued)
Ability of Models to Address Requirements

Requirement	Distributed	Central Repository	Competitive Banking
EHR available (1)	YES, but response time may be a problem and requires national interoperability	YES	YES
Patients control access (3)	YES, but difficult	YES	YES
Error correction (4)	Depends on policies of information holders	YES	YES
EHR information transfer (5)	YES	YES	YES
Public health/research (6)	NO	YES	YES
Information associated with correct person (7)	Challenging	YES	YES
Audit trails available to patients (9)	YES	YES	YES
Complies with privacy and security regulations (10)	YES, with extensive policy development	YES	YES
Financially sustainable (13)	Difficult due to high cost and complexity	Potentially	Potentially
Use of standards (15)	YES	YES	YES
Use any type of EHR (16)	YES (but extra query capabilities needed)	YES	YES
Highly available and reliable (17)	Difficult due to high complexity	YES	YES
Accommodates existing infrastructure (18)	YES, needs extensive new communications	YES, needs repository	YES, only needs router
Scalable (19)	Response time and complexity increases with size	YES	YES

Appendix I: Consumers of the Health Information Infrastructure Who are they and why do they matter?

A consumer is defined as anyone receiving health care services in Washington State. It is important to realize the diversity of Washington consumers and seek to engage as many of these specific groups as possible in the creation and evolution of the HII. Each group will have distinct needs and concerns related to electronic, sharable health information. The adoption and success of HII, both economically and politically, will depend on whether these needs are addressed and harnessed as a driver in the marketplace, or whether they will lead to fear and mistrust. Both health record banks and the central HII entity should consider collaborating with organizations like those listed below as a way to reach these groups. However, they should never be allowed to replace true consumer participation. “Professional patients” or advocates are most effective when they facilitate inclusion of real consumers in the work of HII. We recognize that the groups and organizations listed below are not all-inclusive and must be augmented as HII development and implementation proceeds. A phased outreach strategy is recommended that reaches out to certain groups first as determined by local needs and priorities.

Grouped by	Consumer groups	Examples of organizations working with them
Health Status	<ul style="list-style-type: none"> ▪ People with Disabilities ▪ Chronically Ill ▪ Home and Hospice Care ▪ Catastrophic Illness or Injury 	<ul style="list-style-type: none"> ▪ Dept of Justice Amer. w/Disabilities Division ▪ Shared Care Plan Family Advisory Council ▪ Cancer Society and other support groups
Health Influencers Primary Informers of the “Consumer”	<ul style="list-style-type: none"> ▪ Providers ▪ Caregivers ▪ Family Health Managers <ul style="list-style-type: none"> ○ Adult Children ▪ Watchdogs <ul style="list-style-type: none"> ○ Privacy/Rights Groups ▪ Academics and Bio-ethicists 	<ul style="list-style-type: none"> ▪ WSMA/ WANP ▪ Area Agencies on Aging ▪ Foundation for Healthcare Quality ▪ ACLU
Age	<ul style="list-style-type: none"> ▪ Children ▪ Young Adults (19-30) ▪ Adults ▪ Pre-Medicare Seniors (50-65) ▪ Seniors 	<ul style="list-style-type: none"> ▪ Children’s Alliance, OSPI ▪ Universities/Comm. Colleges/Trade Schools ▪ AARP ▪ Senior Centers, School Retirees Association (and others)
Ethnicity/ Language	<ul style="list-style-type: none"> ▪ Native Americans ▪ Latinos ▪ Russian Speakers ▪ 67 other languages present in WA 	<ul style="list-style-type: none"> ▪ Tribal Councils ▪ Latino Health NW ▪ DSHS Interpretation Contractors
Socio-economic	<ul style="list-style-type: none"> ▪ Uninsured ▪ Medicaid ▪ Transient/Homeless ▪ Incarcerated ▪ Rural ▪ Non-residents (OR, ID, BC, beyond) 	<ul style="list-style-type: none"> ▪ Community Health Centers ▪ Medicaid Outreach Committee-WACOMO ▪ WA Rural Health Association ▪ Department of Corrections ▪ Rural Outreach Projects (CM, MYCC) ▪ Health systems in Portland, Spokane, Bellingham
Affiliation	<ul style="list-style-type: none"> ▪ Employees of Self-insured ▪ Union Members ▪ Veterans Affairs/Department of Defense Users ▪ L & I Recipients ▪ Indian Health Services ▪ HMO Members 	<ul style="list-style-type: none"> ▪ Boeing ▪ AFL/CIO Labor Council ▪ Representatives from: <ul style="list-style-type: none"> ○ Department of Labor and Industries ○ Bureau of Indian Affairs ○ Group Health

Appendix J: Identification of Consumer Issues

Health Information Infrastructure Advisory Board Consumer Subcommittee

	Continuing Responsibility: January 2007–June 2007	Beginning the Conversation: July 2007–June 2009	Deepening the Dialogue: July 2009–June 2011
<p>Listening to Learn</p> <p>-Hear from public and consumers - Issues and concerns</p>	<ul style="list-style-type: none"> ▪ Consistent vehicles for consumer input on process, system, and needs ▪ Develop measurable standards by which the public can determine effectiveness of HII and component banks based upon consumer identified needs ▪ Have consumers and their advocates review privacy/security safeguards 	<ul style="list-style-type: none"> ▪ Construct ongoing infrastructure for communication with public <ul style="list-style-type: none"> ○ Web page ○ Hotline ▪ Develop public outreach strategies to gauge interest: town halls, focus groups ▪ Solicit/report consumer input on functionality <ul style="list-style-type: none"> ○ Start from what they want ○ Outreach through organizations ○ Market research to test ideas ▪ Who pays depends on what they get: ask consumers how they see the risks vs. benefits ▪ Determine consumer role in management of HII ▪ Obtain commitments from consumer organizations to support HII and accelerate transition 	<ul style="list-style-type: none"> ▪ Ongoing education of employers, public, ‘patient aggregators’ <ul style="list-style-type: none"> ○ Educational outreach to schools, communities, nonprofits, etc. ○ Develop courses on utility for consumers, HR professionals, medical office managers ▪ Develop and distribute a grade report of participating banks (quarterly or annually) ▪ Coordinate with community and technical colleges for HII course curricula development ▪ Develop strategies for overcoming regional, cultural, and technology barriers <ul style="list-style-type: none"> ○ Digital divide, language barriers, etc. ○ Demographic issues: age, income, socio-economic ▪ Consider pros/cons of labor and employer roles
<p>Speaking to Inform</p> <p>- Risks vs. benefits - Awareness - Value</p>	<ul style="list-style-type: none"> ▪ Increase awareness of tools for better patient care, health mgmt. <ul style="list-style-type: none"> ○ Quality and safety of care ○ Evidence-based decision support ▪ Use banking analogy to frame information ▪ Illustrate benefits <ul style="list-style-type: none"> ○ Convenience and safety ○ ER, travel, referrals ▪ Illustrate security/privacy of current system vs. proposed HII <ul style="list-style-type: none"> ○ Privacy, security, and audit trail ○ Access control: read vs. write 	<ul style="list-style-type: none"> ▪ Develop, implement full public awareness campaign <ul style="list-style-type: none"> ○ Media work and community outreach ○ Social marketing strategies ○ Public education on utility, access, and benefits ▪ Readable, plain-speak written information <ul style="list-style-type: none"> ○ “Translate” target statement ○ Summarize research on the problem in common language ▪ Develop detailed education curriculum, including appropriate tools, for ease of adoption ▪ Design functions that satisfy consumer interests 	<ul style="list-style-type: none"> ▪ Build annual community marketing plan for nonprofit to communicate with public ▪ Media work: PSA, editorial boards, etc. ▪ Utilize primary marketing channels: providers, plans, employers ▪ Social marketing of health outcome benefits ▪ Continuing education of engaged consumers to support technological evolution ▪ Validate that functions meet consumer interests ▪ Patient view of information translated into layman’s terms ▪ Claims data online and accessible in layman’s terms

Appendix J: Identification of Consumer Issues
Health Information Infrastructure Advisory Board Consumer Subcommittee (Continued)

	Continuing Responsibility: January 2007–June 2007	Beginning the Conversation: July 2007–June 2009	Deepening the Dialogue: July 2009–June 2011
<p>System of Shareholders</p> <p>-Develop a sense of public ownership - Build sense of utility, benefit</p>	<ul style="list-style-type: none"> ▪ Patient control of access - theirs and others ▪ Guarantees of security of records and patient privacy ▪ Authentication of users ▪ Several levels of access ▪ Arbitration and enforcement mechanisms ▪ System reliability 	<ul style="list-style-type: none"> ▪ Consumer participation is voluntary ▪ Credibility: reliable, accessible, transparent, and secure system ▪ Enlist allies with state to educate their members ▪ Test consumer’s trust level of potential/interested trusted parties (Health Record Banks) ▪ Commitment to participate by data suppliers ▪ Truly informed consent/true scope of control 	<ul style="list-style-type: none"> ▪ Open forums on using HII to improve health care quality, safety, and efficiency ▪ Publicize patient’s ability to view Access Log (like credit reports) ▪ Governance has checks and balances ▪ Administrator of central HII organization is committed to including consumers and improving the care they receive through HII ▪ Active audit of banks by public review committees and publish results ▪ Publish participation levels in HII and health care improvement measures

Appendix K: Risks of Health Information Infrastructure and Strategies for Mitigation

RISK	MITIGATION STRATEGY
Privacy loss	<ol style="list-style-type: none"> 1) HII provides copy of consumer's health records; all access controlled by consumer 2) Require state-of-the-art computer security in HII systems
Stakeholder cooperation	Consumers request information to invoke mandatory disclosure by health care stakeholders under HIPAA
Consumer trust	<ol style="list-style-type: none"> 1) Voluntary participation by consumers 2) Open and transparent governance 3) State regulation of HII organizations 4) Educational campaign to inform consumers
Financial sustainability	<ol style="list-style-type: none"> 1) Use low-cost approach to increase likelihood that benefits will justify expense 2) Engage market forces to create competition and establish business case
Non-computability of existing paper records	<ol style="list-style-type: none"> 1) Provide incentives for EMR adoption by providers 2) Accommodate fax input as interim step
Cost of interfaces	<ol style="list-style-type: none"> 1) Require all HII organizations to use the same data communication standards 2) Minimize number of interfaces
System reliability and availability	<ol style="list-style-type: none"> 1) Use operationally proven implementation strategies 2) Require backups and continuity of operations plans from HII organizations
Resistance to change	Use phased incremental implementation
Investment in infrastructure may become obsolete	Define clear vision of the operation of "end-state" and build toward it
Disruptions to health care workflow	Collaborate closely with health care providers and organizations in developing operational design details that facilitate workflow
Inability to monitor HII progress	<ol style="list-style-type: none"> 1) Establish progress measures early 2) Review measures periodically to verify relevance and modify as needed
'First mover' risk to initial HII organizations	State makes modest investment to build minimum necessary HII 'central' infrastructure and provides partial start-up funds for HII organizations
Reliable authentication of users	<ol style="list-style-type: none"> 1) Public-private partnership establishes central identity management service for health care providers 2) HII organizations required to use best practices for consumer authentication (e.g., adopting methods from the financial industry)
Telecommunications costs	Utilize secure, encrypted communications over the Internet
Unanticipated risks	<ol style="list-style-type: none"> 1) Use phased incremental implementation to discover and address unanticipated issues 2) Establish public-private partnership of all stakeholders to guide overall HII development

APPENDIX L: Health Information Infrastructure Vision and Target—A Roadmap for Washington State

Roadmap Milestones

Washington State Leadership and Health IT Vision

Private Sector and Government Activity to Support the Vision

May 2005–
December
2006



Pass legislation SSB 5064 and project funding (\$360,000)

- Appoint Health Information Infrastructure Advisory Board (Board) and Stakeholder Advisory Committee
- Develop HIIAB infrastructure, framework, values, target statement, and scope
- Explore and research
- Develop requirements and assessment criteria

Coordinate efforts between state and congressional delegation

Assess and determine strategies

Stakeholder feedback and input

Submit final report with recommendations and “roadmap”

Implement interim Health IT and adoption strategies

- Governor’s 5 point health care strategy
- Washington State Health Information Collaborative economic investment assistance to promote and expedite Health IT and EMR adoption
- SHB 2573 – Encourage Health IT by 2012
- Blue Ribbon Commission
- Puget Sound Health Alliance

State programs Health IT and strategy alignment

- Align Health IT activities, Board framework
- Coordinate and align activity on Governor’s 5 point health care strategy
- Explore how to expedite and promote Health IT alignment with private sector

Public – private sector conveners informed and support Board framework, Governor’s 5 point health care strategy, Puget Sound Health Alliance (PSHA) efforts, Blue Ribbon Commission

Share information; participate in local, regional, state, and federal Health IT initiatives

Marketplace builds and deploys products and solutions

Secure grant and other funding opportunities and resources to support HIIAB framework such as the Health Information Security Privacy Collaborative Grant (HISPC)

Explore and participate in public – private partnerships and other strategies to promote and expedite local and regional Health IT and EMR adoption

January–
June 2007



Receive final report, recommendations, and “roadmap”

Adopt and fund recommendations (\$8 – 11 million) for health information infrastructure development and first health record banks (HRBs)

Explore and identify venture partners

Adopt legislation and executive orders to expedite coordination and alignment of Health IT activities, Board framework, and recommendations

- Incentives for providers (tax credits, economic investment assistance)
- Align financial incentives pilots
- Evidence-based medicine

State programs model and align activity on:

Governor’s 5 point health care strategy; Health IT needs, Board framework, and recommendations; business case and WSHII participation

Identify partnerships and statewide strategies to leverage resources, knowledge, and strategies for Board recommendations, roadmap and supporting activities.

“Bottom up” meets “top down”:

Coordinate, build, and deploy market solutions for strategies and recommendations; harness and drive market synergy and alignment

Public - private sectors coordinate and deploy provider and consumer education strategies and campaigns

Seek funding opportunities and share resources to support recommendations and specific roadmap activities

Expand public - private partnerships to increase Health IT and EMR adoption towards critical mass adoption

APPENDIX L: Health Information Infrastructure Vision and Target—A Roadmap for Washington State

Roadmap Milestones

Washington State Leadership and Health IT Vision

Private Sector and Government Activity to Support the Vision

July 2007–
June 2009



Appoint interim Board - Create implementation plan/design work, functions, and committees

- Staffing and budget
- Organization and governance
 - Governance, core functions, outreach processes/programs, privacy policies, liability research and risk assessment, audit, charter compliance, and enforcement mechanisms
- Technical architecture ("construction drawings")
 - Transaction architecture (withdrawal, deposit, search), content, and standards
- Establish and assess performance measures; initial and sustainable financing model
- Consumer and provider engagement processes, programs, and policies
 - Privacy and security, education and outreach; provider information and education
 - Personal health record (PHR) requirements, standards, and functions
- Research and development of the HRB initial implementation sites
 - Assess – expand Washington Health Information Collaborative economic development assistance to promote and expedite Health IT and EMR adoption
 - Operational requirements for HRBs; RFP for pilot participation and charter HRB pilots
- Mitigate risks
- Model payment/reimbursement incentives
- Develop state policy and legislative issues for action on: health record banking, strategies, and incentives for Health IT and EMRs

Coordinate and integrate efforts with regional, other states, and federal activities

Improve state programs' health information infrastructure Develop and implement state - private sector consumer and provider engagement plans; participate in pilot charter activities Promote and utilize standardized and certified products

Collaborate with interim Board

- Engage with health information technology charter pilot programs; continue EMR implementation and adoption initiatives
- Expand transparency, incentive realignment, performance measures, and standards

"Bottom up" meets "top down"

- Build - deploy solutions for strategies and recommendations that expand Health IT, EMR adoption, and information exchange
- Deploy and utilize PHRs towards critical mass goals; consumer tools for care management, preventive care, and wellness activities
- Leverage existing investments/resources in the marketplace towards "testing and learning labs"
- Partner with the public sector and local communities on converging needs, continued innovations, and building solutions

Utilize grant and other funding opportunities and resources to support recommendations and specific roadmap activities

July 2009–
June 2011



Review Washington State Health Information Infrastructure (WSHII) organization

- Measure, analyze, and adjust performance; assess operational effectiveness; monitor/evaluate health record bank compliance; monitor risks and manage mitigation strategies
- Test, implement, and assess financing and sustainment model/methods
- Identify and develop policy and legislative framework and requirements related to health record banking and electronic medical records
- "Broaden the Dialogue" - public education programs; provider and consumer campaigns
- Partner with private sector - increase transparency, adopt performance measures, and realign incentives for use of Health IT; assess methodology to demonstrate impact/benefits of Health IT
- Transition from interim Board for statewide HRB implementation

Expand charter pilot program

- Assess 2007 -2009 pilots ; adapt and restate performance measures against established baseline

Expand Washington State Health Information Collaborative investment strategy for Health IT - EMR adoption beyond critical mass

"LEAD and CHANGE" – A transformed high performance health care system

State programs: expanded support of WSHII participation and in pilot programs; assess results and transform health care programs as result of strategy coordination

Implement public - private high performance health care and transformation activities with private sector participating in pilot programs

- Participate in "green field" pilots
- Increase adoption of EMRs in marketplace in tandem with WSHII activity

Build and deploy market solutions that result in high performance health care delivery

Increase: Health IT and EMR use to majority adoption; connect communities with WSHII beyond critical mass; PHR product availability and choice beyond critical mass

"Sustain the Dialogue" with providers and consumers through effective engagement strategies

References

- Blumenthal, D., DesRoches, C., Donelan, K., Ferris, T., Jha, A., Kaushal, R., Rao, S., & Rosenbaum, S. (2006). *Health information technology in the United States: The information base for progress*. Retrieved October 11, 2006 from the Robert Wood Johnson Foundation Web site: <http://www.rwjf.org/files/publications/other/EHRReport0609.pdf>
- Greenlaw, J. (1982). Legally speaking: The deadly toll of communication failure. *RN (For Managers)*, 45, pp. 81-84.
- Institute of Medicine. (1991). *The computer-based patient record: An essential technology for health care*. Washington, DC: National Academy Press.
- Institute of Medicine. (2000). *To err is human: Building a safer health care system*. Committee on Quality of Health Care in America. Washington, DC: National Academy Press.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Committee on Quality of Health Care in America. Washington, DC: National Academy Press.
- Johnston, D., Pan, E., & Walker, J. (2004). The value of computerized provider order entry in ambulatory settings. *Journal of Health Information Management*, 18(1), pp. 5-8.
- Lorenzi, N.M. (2003, December 16). *Strategies for creating successful local health information infrastructure initiatives*. Retrieved June 5, 2005 from the U.S. Department of Health and Human Services Web site: <http://aspe.hhs.gov/sp/nhii/LHII-Lorenzi-12.16.03.pdf>
- Powner, D.A. (2005, February 16). *HHS's estimate of savings from health IT*. GAO-05-309R. Washington, DC: Government Accounting Office.
- Schmidt, I.K. & Svarstad, B.L. (2002). Nurse-physician communication and quality of drug use in Swedish nursing homes. *Social Science Medicine*, 54, pp. 1767-1777.
- Thompson, T.T. & Brailer, D.J. (2004, July). *The decade of health information technology: Delivering consumer-centric and information-rich health care. Framework for strategic action*. Retrieved June 5, 2005 from the U.S. Department of Health and Human Services Web site: <http://www.hhs.gov/healthit/documents/hitframework.pdf>
- Thomas, H. (2006, April). *Health information technology: Local landscape, opportunities, and challenges*. Thomas & Associates Consulting, LLC. Report to WA State Health Information Infrastructure Advisory Board (the Board) – SSB 5064 retrieved November 8, 2006 from the Washington State Health Care Authority Health Information Technology Web site: <http://www.hca.wa.gov/hit/doc/HThomasHITinWAState.pdf>

References (Continued)

- Thomas, H., Wilson, D.J., & Llewellyn, K.L. (2006, November). *Stakeholder feedback report: Assessing recommendations of the health information infrastructure advisory board*. Thomas & Associates Consulting, LLC. Report to WA State Health Information Infrastructure Advisory Board (the Board) – SSB 5064 retrieved November 8, 2006 from the Washington State Health Care Authority Health Information Technology Web site: <http://www.hca.wa.gov/hit/stakeintro.shtml>
- Walker, J., Pan, E., Johnston, D., Adler-Milstein, J., Bates, D.W., & Middleton, B. (2005). The value of health care information exchange and interoperability. *Health Affairs*. Supplemental Web Exclusives: W5-10, W5-18.
- Wanlass, R.L., Reutter, S.L., & Kline, A.E. (1992). Communication among rehabilitation staff: “Mild,” “moderate”, or “severe” deficits? *Physical Medical Rehabilitation*, 73, pp. 477-481.
- Yasnoff, W.A., Humphreys, B.L., & Overhage, J.M. (2004). A consensus action agenda for achieving the national health information infrastructure. *Journal of American Medical Informatics Association*, 11(4), pp. 332-338.

Health Information Technology Terms and Definitions

Account Locator Service – An electronic directory in a community that maintains consumer demographic information for the purposes of definitively and securely locating or matching the consumer with his Health Record Bank account. (Not a Record Locator Service.)

Authentication – The process of proving that a user or system is really who or what it claims to be. It protects against the fraudulent access and use of a system or the fraudulent transmission of information.

Blue Ribbon Commission – An executive and legislative commission tasked with creating a strategy to address access, affordability, and quality of health care for all Washingtonians.

Consumer – Anyone receiving or anticipating receiving health care services in Washington State.

Decision Support – A computer program that taps into clinical resources and presents relevant information to assist users in making decisions. A clinical decision support system gives providers rules-based information to help make decisions on diagnoses, treatment plans, orders, and results. Providers receive alerts about potential medication interactions, drug and lab interactions, as well as indications of potential problems based on a patient's list of symptoms.

Decision support is also available in the form of Patient Support Tools. A patient support system usually provides information on health conditions, medications, tests, and procedures for patients, as well as tips on wellness and prevention. These tools facilitate provider-patient communication, and support patient education, empowerment, and self-management.

Electronic Health Record (EHR) – A longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. See also EMR.

Electronic Medical Record (EMR) – A computer-based patient medical record that facilitates access of patient data by clinical staff at any given location.

Health Information Infrastructure (HII) – The electronic information system of connectivity among health care providers and health care systems that complies with safety, security access, and quality standards, is interoperable, and allows unified access to all available information for a given patient regardless of location of the patient or the information.

Health Information Infrastructure Advisory Board (the Board) – A twelve member representative board from the private and public health care sectors appointed by the Administrator of the Washington State Health Care Authority (HCA) as mandated in SSB 5064. The Board consists of representatives from the provider community, including hospitals, information technology experts, health care policy experts, health plan representatives, consumers, the state information systems director, and the agency medical directors’ group. The Board, with the HCA, was tasked to develop a strategy to expedite and promote the use of health information technologies (Health IT) and electronic medical records (EMRs) consistent with emerging standards and that promote interoperability of health information systems. The final report is due to the Governor and Legislature by December 1, 2006.

Health Information Infrastructure Stakeholder Advisory Committee (HIISAC) – A committee convened and appointed by the HCA that is representative of consumers, hospitals and long-term care facilities, clinicians, payers and carriers, health policy, and health information technology experts. The “Committee” is tasked with providing feedback and input to the HCA and the Board on their recommendations and strategies for the adoption and use of electronic medical records and development of the stakeholder information infrastructure. They also assist the HCA and the Board by staffing Board subcommittees.

Health Information Security and Privacy Collaboration (HISPC) – As part of the U.S. Department of Health and Human Services’ (DHHS) health information technology plan for achieving nationwide health care data exchange, 34 state/territory-level collaborative projects are currently underway to address privacy and security issues related to the exchange of electronic health information. Qualis Health, a not-for-profit health care quality improvement organization based in Seattle, is leading the HISPC in Washington State.

The HISPC project calls for the facilitation of diverse groups of volunteer experts in health information exchange to participate in various working groups tasked to:

- Assess organization-level business policies, practices, and state laws that affect health information exchange;
- Identify and propose practical solutions that protect privacy and security of health information and permit interoperable health information exchange; and
- Develop plans to implement solutions within the state and, if applicable, at the federal level.

Health Information System – An information system (i.e., a system of computer equipment, programs, procedures, and personnel designed, constructed, operated, and maintained to collect, record, process, retrieve, and display information) specific to the health care domain.

Health Information Technology (Health IT) – The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of health care information, data, and knowledge for communication and decision making.

Health Insurance Portability and Accountability Act of 1996 (HIPAA) – An Act to amend the Internal Revenue Code of 1986 to improve portability and continuity of health insurance coverage in the group and individual markets, to combat waste, fraud, and abuse in health insurance and health care delivery, to promote the use of medical savings accounts, to improve access to long-term care services and coverage, to simplify the administration of health insurance, and for other purposes.

Health Insurance Portability and Accountability Act Privacy Rule (HIPAA Privacy Rule) – The Standards for Privacy of Individually Identifiable Health Information. The rule implements the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and addresses the use and disclosure of individuals' health information called "protected health information" by organizations subject to the Privacy Rule called "covered entities." The Privacy Rule also addresses the rights individuals have to understand and control how their health information is used.

The major goal of the Rule is to assure that individuals' health information is properly protected while allowing the flow of health information needed to provide and promote high quality health care and to protect the public's health and well-being.

Health Record Bank (HRB) – A health information repository that maintains consumer-controlled accounts for the deposit, retrieval or withdrawal, and query of health care data. The bank uses standard industry formats to receive and transmit the data including sufficient safeguards to protect the privacy and security of the consumers' health care data.

Interoperability – The ability of disparate health information systems to work together within and across organizational boundaries and readily exchange health information in standard formats with standard representation so that information can be moved from one system to another without loss of detail or meaning.

National Health Information Infrastructure (NHII) – A nationwide electronic health care information system that complies with safety, security, access, and quality standards, is interoperable, manages patient identification, accurately matches patient records, and supports anytime, anywhere access to health care information and decision support. (Not a nationwide database of medical records.)

Personal Health Record (PHR) – An electronic application through which individuals can maintain and manage their health information (and that of others for whom they are authorized) in a private, secure, and confidential environment. There are at least six types of PHRs:

- 1) Off-line Personal Health Records. The use of commercial software on a personal computer or paper system to record and ultimately store health care information.
- 2) Web-based Commercial/Organizational Personal Health Records. Secure Web sites that store health information for a specific population. This service may be offered by commercial organizations, professional organizations, or local, regional, or national health organizations that provide the service to a specified population.

- 3) **Functional/Purpose-based Personal Health Records.** Web sites that store health information as a service in conjunction with others such as legal, emergency assistance, or traveler health services.
- 4) **Provider-based Personal Health Records.** Providers such as hospitals, clinics, and health plans make some of the patients' health information available on their Web site.
- 5) **Partial Personal Health Records.** A way to store disease-specific, pertinent, patient health care information on a Web site. Usually created by the patient to participate in the Web site rather than serve as the patient's "official" health record.
- 6) **Health Record Bank Account.** A consumer-controlled electronic copy of a patient's medical records from all sources along with health information entered by the patient.

Record Locator Service (RLS) – An electronic directory in a health information system that maintains consumer demographic information and a list of locations of information relating to each patient for the purposes of definitively and securely locating the consumer's health record when requested. (Not an Account Locator Service.)

Standard – A definition or format for transmitting information without loss of detail or meaning that has been approved by a recognized standards organization or is accepted as a de facto standard by the industry. Standards exist for programming languages, operating systems, data formats, communications protocols, and electrical interfaces.

Substantive Health Data – The information stored in a consumer-controlled Health Record Bank account, including all important medical information for that consumer.

Washington Health Information Collaborative – A public-private partnership that promotes the use of health information technology to improve the quality of patient care and reduce the cost of care through an annual award program. Collaborative participants are the Washington State Health Care Authority, First Choice Health, Qualis Health, and the Puget Sound Health Alliance.

Washington State Health Information Infrastructure – The Washington State Health Information Infrastructure (WSHII) is an electronic health information system of connectivity among health care providers and health care systems in Washington State that complies with safety, security, access, and quality standards. It is interoperable, manages patient identification, accurately matches patient records, and supports anytime, anywhere access to all substantive health data for each consumer who chooses to voluntarily participate. Each consumer controls access to their information and it is made available in a secure manner to users they authorize.

Sources: Substitute Senate Bill 5064 enacted as Chapter 261, Laws of 2005; *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care*, David J. Brailer, MD, PhD, National Coordinator for Health Information Technology 7/21/04; GAO-05-309R *HHS's Estimate of Savings from Health IT*, David A. Powner, Director, Information Technology Management Issues; Health Insurance Portability and Accountability Act of 1996; *Status Report 2002: Electronic Health Records*, C. Peter Waegemann; Shabo, A. (March, 2006). *A global socio-economic-medico-legal model for the sustainability of longitudinal electronic health records*. *Methods Inf Med*, 45, pp. 240-245; *Health Information Exchange Projects: What hospitals and health systems need to know*. Prepared for the American Hospital Association by Manatt, Phelps, and Phillips, LLC, 2006; *Dictionary of Healthcare Information Technology Terms, Acronyms and Organizations*, Healthcare Information and Management Systems Society (HIMSS), 2006.