Oregon

Theodore R. Kulongoski, Governor

Health Information Technology Oversight Council
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Aug. 23, 2010

David Blumenthal, MD, National Coordinator for Health Information Technology
Office of the National Coordinator for Health Information Technology
Department of Health and Human Services
200 Independence Avenue SW
Washington, DC 20201

Dear Dr. Blumenthal:

I am pleased to deliver Oregon's strategic and operational plans for health information exchange, our response to the Office of National Coordinator's Cooperative Agreement Program for HIE.

These plans reflect our keen attention to the priorities outlined in ONC's communications to state Cooperative Agreement partners. At the same time, they are the unique result of Oregon's robust public policy process and the commitment of its health care system to information technology innovation and adoption. Oregon has a tradition of inclusive citizen input in decision making, starting with the pioneering Medicaid waiver that established the Oregon Health Plan. These documents – Health Information Exchange: Strategic and Operational Plans for Oregon – have been vetted extensively through a series of public meetings throughout our state. They will stand as a critical building block to accelerate Oregon's ambitious health reforms, built on the Triple Aim goals to improve the lifelong health of all Oregonians; increase the quality, reliability and availability of care for all Oregonians; and lower or contain the cost of care so it is affordable to everyone.

Oregon is fortunate to have an active community of HIE innovators, relatively high levels of clinician adoption of HIT and extensive data on the HIT environment in the state. This background is detailed in the strategic plan, which also includes our approach to information exchange, organized by domain with substantial explanation of each point. The operational plan is more focused on specific actions we plan to take over the next several years. It includes a project plan with specific tasks and projected dates for completion.

I'd like to point out some specific areas of ONC interest and where they can be found in the strategic and operational plans:

- Acceleration of key exchange services (e-prescribing, receipt of structured lab results and sharing patient care summaries across unaffiliated organizations): Strategic Plan Pages 37, 40, 46 and Appendix G; Operational Plan Page 10
- Coordination with Medicaid program: SP Pages 55 & 69; OP Page 3
- Measurement and evaluation of participation in exchange services to support stage 1 meaningful use: OP Page 22
- Public and stakeholder participation: SP Page 22; OP Page 8
- Risks and mitigations: SP Page 85 (Appendix E); OP Page 27 (Appendix A)
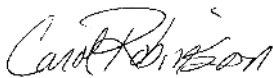- Designation of state designated entity: SP Page 27; OP Page 16

- Sustainable business plan: SP Page 29; OP Pages 3 & 12
- Robust project management plan: OP Appendix B
- Coordination with the HHS Privacy and Security framework: SP Page 58; OP Page 14
- Description of technical architecture and coordination with standards and certification requirements: SP Page 33; OP Page 11

Oregonians appreciate the federal government's support in this essential effort to establish HIT infrastructure throughout the country. We are confident that our phased approach will help ensure a responsible stewardship of the ONC dollars for the advancement of our HIE mission:

Information, when and where it is needed, to improve health and health care.

We look forward to an ongoing dialogue with ONC about the Oregon plans as we move forward with a continuing public process to bring the health and economic benefits of health information exchange to Oregon.

Sincerely,

Carol Robinson
State HIT Coordinator for Oregon

cc: Chris Muir

Oregon

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A Message from HITOC
Health Information Exchange: Strategic and Operational Plans for Oregon

August 5, 2010

To our fellow Oregonians,

We have heard from many of you as we traveled across the state to attend community meetings gathering input on the draft strategic plan on health information exchange (HIE). We also received many written comments from both individuals and organizations. As we have reviewed all of the input, we realized that the structure of the plans doesn't succinctly convey the underlying philosophy behind the work that we are embarking on around health information exchange in Oregon. Our goal is to facilitate the development of a system of HIE across Oregon with the consumer at the hub that ensures the privacy of each individual's personal health information, and allows for information, when and where it is needed, to improve health and health care.

The strategic and operational plans before you are documents developed for submission to the Office of the National Coordinator for Health Information Technology (ONC) and are structured to meet the criteria as set out in ONC's HIE Cooperative Agreement. Those requirements, coupled with the decision to use a phased approach and make many key policy decisions over the next 12 to 18 months, means that many sections of the strategic plan are laying out a general framework for action. Our commitment to you is that the framework's details will be determined only after many hours of research, discussion and deliberation in new workgroups for Technology, Legal and Policy, and Finance to be formed in the coming months. There will also be discussions in our soon-to-be-formed HIO Executive and Consumer advisory panels, continuing HITOC meetings and ongoing stakeholder engagement in a variety of formats. We will continue to operate through an open, transparent process as we move beyond the development of the strategic and operational plans to the development of policy and technology acquisitions.

The Consumer Advisory Panel will ensure that our conversations about health information exchange in Oregon have a strong patient-centric view. Our vision is to have "*Information, when and where it is needed, to improve health and health care,"* and for consumers to have control over their information through an opt-out consent model. We understand that there is much work to be done to ensure that all consumers in Oregon have the education and opportunity to make informed choices.

During Phase 1, we will be working on broad-based outreach and education strategies with both health care providers and consumers. The Consumer Advisory Panel will play a key role in helping us determine the best ways to engage consumers. Outreach is a long-term effort that requires a wide-ranging strategy. It must start early and reach both consumers and health care

providers, because most conversations about the benefits and risks of health information exchange will occur between providers and their patients. Consumer education must also address how personal health records factor into overall health management and the best ways to use those records in a secure environment to empower consumers and improve their health while maintaining the privacy of the information.

Also, under the auspices of the Oregon Health Authority, any policies that HITOC recommends will take into account that health, economic and social welfare policies in the United States and Oregon have, historically, intentionally or inadvertently disadvantaged communities of color and other under-represented communities. These inequities, well documented by race and ethnicity, are avoidable and unjust. In 2010, the Oregon Health Authority and the Oregon Health Policy Board acknowledged health equity as a fundamental value. As such, all Oregon Health Policy Board members, committee members (including HITOC) and Oregon Health Authority staff will strive to avoid creating or maintaining health policies that perpetuate or increase avoidable and unjust health inequities. All members and staff acting on behalf of the Oregon Health Policy Board or the Oregon Health Authority will make every effort to proactively evaluate all recommended policy improvements throughout the policy making process to assure they fully promote and resource health equity and the elimination of related inequities.

While broad-scale efforts will be undertaken, health information exchange will also require clear privacy provisions, support for increased health literacy, administrative simplification, specific and dedicated data management tools and greater coordination of care focused on vulnerable and underserved populations.

Although the majority of the attached plans focus on technology infrastructure, policy frameworks, governance models, business plans and financial modeling, the foundation of those elements is a patient-centric model maintaining the privacy of personal health information as the information is exchanged to be available when and where the patient needs it to receive quality care.

We look forward to working with you as we move into Phase 1 and launch the work of implementing health information exchange across Oregon.

Oregon Health Information Technology Oversight Council

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Vice President and Chief Quality Officer, PeaceHealth

Rick Howard, Vice Chair
Chief Information Officer, Oregon Department of Human Services

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August 23, 2010

Health Information Exchange:

A Strategic Plan for Oregon

Oregon Health Authority and
Health Information Technology Oversight Council

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Executive Summary

➢ Health Information Exchange and the Health of Oregonians

Health information exchange (HIE) is a key building block for health system improvements to enhance population health. The inconsistent and fragmented nature of patient records is a highly visible example of the problems caused by the U.S. health care system's reliance on multiple, disparate players in a complex health system. Sharing patient information in a secure, efficient manner has the potential to substantially reduce costs, waste and consumer heartache. It will support efforts to track patients' medical outcomes, reduce errors and make medical processes more efficient. It can empower consumers to better understand their own health, choose high-quality providers and make healthier choices. And information sharing can vastly improve public health agencies' ability to track disease and combat chronic illness, leading to improved population health.

The transformation of the health system, with health information technology (HIT) at its core, is already underway. The HIE effort will involve broad engagement from the public and private sector, consumers, providers and health plans. And once designed, Oregon's health information exchange approach will require flexibility and ongoing refinement. Oregon's history of strong civic engagement throughout the state will serve this process well.

➢ Oregon Health Reform, Health Information Technology and Health Information Exchange

Oregon has long been in the forefront of innovation in health care delivery, access and technology, dating back to its groundbreaking Medicaid waiver design with the Oregon Health Plan in 1987 and continuing to 2009, when the state Legislature approved an ambitious health reform law (House Bill 2009). Oregon's new law anticipated many of the innovations contained in the federal recovery law (American Reinvestment and Recovery Act) that same year and in national health reform (Patient Protection and Affordable Care Act) a year later. The central role of health information technology in improving access, quality and value in the health care system has been a thread running through Oregon's health reform, with one tangible result being the creation of the Health Information Technology Oversight Council (HITOC) to guide these efforts within Oregon.

One of HITOC's early focuses has been the creation of strategic and operational plans for HIE within Oregon. This opportunity came about after Congress made the acceleration of health information technology an urgent priority in early 2009; it included the HITECH Act as part of its economic recovery legislation. Ultimately this resulted in federal grant funding for the nation's states and territories to lead the planning of health information exchange, and the creation of this strategic plan.

The work of organizing electronic health information exchange in Oregon is advanced by the health system planning processes that have already taken place and in particular by the strong participation by average Oregonians along with health industry stakeholders throughout the state. This plan builds on those efforts over the past several years, along with existing health information infrastructure in both the private sector and within government.

Oregon's leadership has established three main goals for health care system improvement:

- Improve the lifelong health of all Oregonians;
- Increase the quality, reliability and availability of care for all Oregonians; and
- Lower or contain the cost of care so it is affordable to everyone.

Oregon's approach to statewide health information exchange will include nurturing a new and growing marketplace of local and regional health information organizations (HIOs), setting and monitoring standards to ensure the security of personal health information, developing an accreditation program to ensure health information exchange with a common set of rules, providing valued centralized services and filling the gaps in availability to rural providers and other identified stakeholders.

Oregon is using a phased approach to HIE to allow flexibility to adjust over time to new federal rules, marketplace evolution and real-world lessons learned. It will designate a non-profit, public/private state designated entity (SDE) to carry out this work after a sustainable financing plan has been developed and appropriate legislation has been passed.

➢ Vision

The core of this work centers around the Oregon Health Authority's vision of healthy Oregonians and the three key goals: improved patient experience, improved population health and affordable health care.

Oregon Health Authority Vision and Mission:

Healthy Oregonians

Helping people and communities achieve optimum physical, mental and social well-being through partnerships, prevention and access to quality, affordable health care.

HIE Mission:

Information, when and where it is needed, to improve health and health care.

Given the complexity of this effort—which includes a rapidly changing regulatory, economic, political and technical environment—the stakeholders, planning team and HITOC have developed a strategy that includes the following key elements:

- A phased approach to allow for flexibility and to ensure a stable finance plan

- Oregon Health Authority in a role of facilitation, coordination, communication and oversight

- Adherence to federal standards and certifications as they evolve and the development of Oregon-specific standards, accreditation processes and accountabilities

- Collaboration with and support of HIE efforts underway through local and regional health information organizations

➢ Overarching Imperatives

- Establish a governance structure that achieves broad-based stakeholder collaboration with transparency, buy-in and trust.

- Set goals, objectives and success measures for the exchange of health information that reflect consensus among the health care stakeholder groups and that accomplish statewide coverage of all providers for HIE requirements related to meaningful use criteria.

- Ensure the coordination, integration, and alignment of efforts with Medicaid and public health programs.

- Establish mechanisms to provide oversight and accountability of HIE to protect the public interest.

- Account for the flexibility needed to align with emerging nationwide HIE governance that will be specified in the future.

- Incorporate national and state health reform goals.

- Support opportunities to improve health outcomes and equity in all populations.

➢ Goals of Health Information Exchange

- To ensure patients have safe, secure access to their personal health information and the ability to share that information with others involved in their care.

- To engage in an open, inclusive and collaborative public process that supports widespread electronic health record (EHR) adoption and robust, sustainable statewide coverage.

- To improve population health.

- To improve health care outcomes and reduce costs.

- To integrate and synchronize the planning and implementation of HIE and health IT in the public and private sectors, including Medicaid and Medicare provider incentive programs, the Regional Extension Center, local and regional HIOs and other efforts underway.

- To ensure accountability in the expenditure of public funds.

Table 1. Objectives and Deliverables in Achieving HIE Capacity and Use

PHASE	OBJECTIVES	DELIVERABLES
One	1. Provider and HIO education programs are conducted 2. HIE services reviewed, finalized and communicated to stakeholders 3. Services requirements definition process is completed 4. Strategy for meeting the HIE needs of underserved areas is developed, reviewed, and approved 5. Sustainable business plan for SDE developed, reviewed, and approved 6. HIE Participant Accreditation Program designed, announced and implemented 7. HIE Participant Accreditation Pilot Project started 8. At least one intrastate and one interstate data usage and reciprocal sharing agreement (DURSA) are executed 9. One HIE participant exchanges information with another HIE participant 10. Legislative changes necessary to implement consent model are identified and bills drafted 11. Define and begin transition of HIE operations to SDE 12. HIE participation survey/study initiated 13. Strategic and operational plan reviews and adjustments	1. Intrastate and interstate DURSAs created, reviewed and finalized 2. List of Phase 2 business support and technology service offerings and associated sustainable finance plan created, reviewed and made final 3. Requirements documents for Phase 2 services created 4. Meaningful use criteria review process document created 5. Strategy for meeting the HIE needs of underserved areas created, reviewed, and made final 6. Sustainable business plan for SDE created, reviewed, and made final 7. Consumer, provider and HIO education programs defined and documented, including topics and timelines 8. Provider and HIO education program materials made final 9. HIE Participant Accreditation Program defined, documented and operational 10. Standards for HIE Participant Accreditation Program chosen 11. Document detailing laws pertaining to consent, including identification of the law/statute, reconciliation with consent model and necessary changes created, reviewed and made final 12. Transition plan for HITOC-to-SDE developed, reviewed and accepted 13. Measures and benchmarks for HIE participation and impact defined 14. HIE participation study/survey program parameters and deliverables defined and documented 15. Success criteria for HIE participation defined and reviewed 16. Plan to monitor and maintain a targeted degree of participation in HIE-enabled state-level technical services developed
Two and Ongoing	1. Complete transition of HIE services and programs operation to the SDE 2. Consumer education sessions have been conducted 3. Phase 2 services start 4. Success metrics for HIE participation defined	1. Consumer education program materials made final 2. Project plans for Phase 2 services created and published 3. Plan for follow-on services defined and reviewed (offerings, scope and timing) 4. Process to monitor, measure and assess gradual attainment of benchmarks identified in Phase 1 5. Process for assessing use of HIE services defined 6. List of additional services to be offered by SDE defined and reviewed including costs, timelines and financials 7. Process for reviewing costing models, utilization and budgets for additional services to be provided in continuing operation

➤ Highlights of Strategic Plan Details

Environmental Assessment
- Oregon has several large health systems that are actively pursuing health information exchange.
- 65% of Oregon physicians work in practices with EHRs, well ahead of the national average.
- There are a growing number of local HIOs within the state whose work needs to be supported.
- The interstate sharing of electronic health information is supported by the fact that Oregon's health care markets already extend across state borders through consumer choice, large hospital systems, health plans and current data sharing agreements.

Governance
- Oregon Health Authority, guided by HITOC recommendations, is the body that provides oversight for health information technology issues.
- Oregon's HIE approach will be conducted in phases to allow for careful planning, input and strategic adjustment as elements of the plan are carried out.
- Oregon Health Authority, guided by HITOC recommendations, will serve as the governance entity for HIE during the first phase.
- The statewide infrastructure for carrying out the goals of HIE in Oregon will be developed with the core tenets of efficiency and flexibility and will leverage and support existing resources within the state.
- The statewide infrastructure for carrying out the goals of HIE in Oregon will be as minimal as possible and will leverage and support existing resources within the state.
- Oregon will designate a public/private, non-profit entity to take on statewide HIE governance and operational duties during the second phase.

Finance
- Recent state and federal health reform efforts have created imperatives and some short-term financing sources to accelerate the adoption of EHRs and health information exchange among health care organizations and providers.
- Priorities in designing ways to pay for exchange include maximizing meaningful use for providers, being equitable among stakeholders in costs and benefits, utilizing user fees and ensuring those fees have broad benefit.
- State contracts can be modified to provide incentives for providers and payers to participate in exchange.
- Specific financing sources for HIE could include Office of the National Coordinator for Health Information Technology (ONC) Cooperative Agreement funds, Medicaid 90/10 money, philanthropic and stakeholder contributions and revenue from centralized HIE services.

Technical Infrastructure/Business and Operations
- The first phase of operations will have Oregon Health Authority, guided by HITOC recommendations, as the initial governance entity, establishing standards and requirements for statewide HIE and implementing technology needed to enable Oregon providers to meet meaningful use requirements in 2011.
- During the second phase a non-profit entity with a public/private governing board will be designated to operate centralized services for exchange implemented in Phase 1.
- During Phase 2 the state designated entity (SDE) will identify additional services and ensure that all centralized services are reaching unserved and underserved areas.
- This work will take place in concert with Oregon's neighbors: Washington, Idaho, Nevada and California.
- It will coordinate with administrative simplification efforts already under way.
- HIE standards will be based on technical standards, criteria and frameworks that are nationally recognized and/or adopted by the U.S. Department of Health and Human Services.
- The Oregon HIE effort will align with the National Health Information Network (NHIN), including NHIN Direct, by adopting technology standards and business processes that are interoperable, either directly or by proxy, with NHIN-adopted processes and frameworks.

Legal and Policy

- An "opt-out with exceptions" consent model for the use and disclosure of protected health information will support the initial phase of electronic exchange of information while excluding specially protected health information from HIE without express patient consent, as current Oregon law specifies.

- A Legal and Policy Workgroup will convene in Phase 1 of operations to examine state laws that define specially protected health information.

- Proposed revisions of current Oregon statute to allow for a full opt-out consent model will be considered and may be presented to the Oregon Legislature.

- This strategy addresses all eight of HHS' principles in its Privacy and Security Framework.

- Oregon's HIOs will be held to national standards, federal and state law.

- Oregon Health Authority, with guiding recommendations from HITOC, may act as an accrediting body for regional and local HIOs in Phase 1, or may contract with another organization to serve in that function.

HIT Adoption Strategies

- O-HITEC, Oregon's Regional Extension Center, is working to support providers' adoption of electronic health records and achievement of meaningful use and is an important adjunct to health information exchange.

- Work is also under way to bring broadband capabilities to more providers and particularly to those in rural and other underserved areas through the work of Oregon Health Network and the Oregon Public Utility Commission.

- Efforts for HIE through local, regional and statewide entities will support EHR connectivity to data sharing between unaffiliated organizations, beginning with three priority services: electronic prescription transmission, clinical summaries of care and receipt of structured laboratory data.

Role of Consumers

- Security and privacy are important to Oregon consumers.

- The strategy takes into account the development of personal health records.

- A core HIE goal is to ensure patients have safe, secure access to their personal health information and the ability to share that information with others involved in their care.

- Access to accurate health information will help consumers make better decisions about their health care and lifestyle choices.

Coordination

- The Oregon Medicaid program's comprehensive planning work to develop a State Medicaid HIT Plan (SMHP) will be a natural coordination point with the statewide HIE effort.

- A wide variety of other state and federal programs touch on electronic health information exchange and will be part of a coordinated plan, including focused coordination with O-HITEC, Oregon's Regional Extension Center.

- HITOC and eventually the state designated entity will work with Oregon HIT workforce development programs.

- Oregon's health care markets extend across state borders so continued coordination with neighboring states will be a priority of this strategic plan.

Introduction and Background to Oregon Health Reform

Section Overview

- Oregon has a history of health care system innovation.
- The state has laid the groundwork for health information exchange through planning processes and comprehensive health reform legislation.
- Oregon will build on existing private electronic health information infrastructure and sharing efforts, leveraging capacity within state government as well.

Oregon has long been in the forefront of innovation in health care delivery, access and technology, dating back to its groundbreaking Medicaid waiver design with the Oregon Health Plan in 1987, and continuing to 2009, when the state legislature approved an ambitious health reform law (House Bill 2009). Oregon's new law anticipated many of the innovations contained in the federal recovery law (American Reinvestment and Recovery Act) that same year and in national health reform (Patient Protection and Affordable Care Act) a year later. The central role of health information technology (HIT) in improving access, quality and value in the health care system has been a thread running through Oregon's health reform, with one tangible result being the creation of the Health Information Technology Oversight Council (HITOC) to guide these efforts within Oregon.

One of HITOC's early focuses has been the creation of strategic and operational plans for health information exchange (HIE) within Oregon. This opportunity came about after Congress made the acceleration of health information technology an urgent priority in early 2009; it included the HITECH Act as part of its economic recovery legislation. Ultimately this resulted in federal grant funding for the nation's states and territories to lead the planning of health information exchange, and the creation of this strategic plan.

➢ Health Reform in Oregon

ARRA and the HITECH Act were game changers for states across the country, which were at various stages of promoting health information technology within the health care system to allow for interoperable health information exchange. Through its work approving forward-looking health reform, Oregon had a solid foundation for HIE planning when the federal ARRA legislation was passed.

Oregon's history of innovation in health care delivery, starting with the Oregon Health Plan (OHP), puts Oregon in a position of strength to use HIE as a tool to advance broader health reform efforts. The OHP was developed in the 1980s as a thoughtful solution to prioritizing services to the Medicaid population, and expanding access to a basic level of coverage for many more people. The development and maintenance of the OHP have involved the entire state, from the governor, legislature and state staff, through the health provider community, insurers, employers and a large number of concerned Oregonians. With that experience as backdrop, Oregon's leaders, health care community and citizenry recognized in the late 1990s the serious structural problems of the entire health care system, from issues of quality and efficiency, to lack of coverage.

From this concern emerged the Healthy Oregon Act, approved by the Oregon Legislature in June 2007; it established the Oregon Health Fund Board, a citizen board of seven individuals supported by hundreds of volunteers, serving on six committees and two workgroups, with a charge to create a comprehensive plan to reform Oregon's health care system. The board's comprehensive action plan, "Aim High: Building a Healthy Oregon," lays out a blueprint for that reform effort.

Building a Healthy Oregon: The 7 Essential Building Blocks

1. Bring Everyone Under the Tent

The Vision
- Affordable Health Care for all Oregonians
- An Essential Benefit Package

Stage I: 2009 Expansion Objectives
- Children <200%FPL
- Adults <100% FPL
- (< 185% with appropriate waiver)

Stage I: 2009 Financing Plan
- Alternate Provider Taxes

Stage II: 2011-2015 Expansions
- Premium Assistance Plan: Linked to cost containment & available funding

2. Set High Standards – Measure and Report

Trusted Information
- Uniform, Statewide data (Quality, Clinical, Financial)

Set High Standards
- Clinical Quality Measures
- Clinical Guidelines
- Population Health Targets
- Insurance Administration Practices

Measure & Report
- Public Reporting to: Consumers, Providers, Purchasers, Insurers, Policy Makers

3. Unify Purchasing Power

Coordinated Purchasing
- State & Local Governments
- Common Contract Standards Purchasing Cooperative

Oregon Health Insurance Exchange
- Begin with current Individual Market
- Stage II, Individual Market: Guaranteed Issue, Premium Assistance

Regulatory Options
- Review & Approve Insurer Administrative Expense Increases
- Set Ceilings on Provider Price Increases

4. Stimulate System Innovation & Improvement

New Models of Care
- Integrated Health Homes
- Behavioral Health Integration
- End-of-Life Care

Community-Based Innovation
- Community Collaboratives
- Community Safety Net
- Accountable Care Communities

The Public's Health
- Healthy Oregon Action Plan
- Community-Centered Health Initiatve
- Tobacco and Alcohol Taxes

Medical Liability
- Medical Liability Reform Council

Health Information Technology
- Widespread adoption of electronic health records
- Clinical decision support tools
- Statewide health information exchange
- Privacy and security of personal data

5. Ensure Health Equity for All
- Outreach and Education
- Translation Services
- Culturally Appropriate Disease Management
- Provider Recruitment and Training

6. Train a New Health Care Workforce
- Reliable Data
- Resources for Training
- Licensing
- Long Term Needs
- Recruit, Retain
- New Models
- Practice at "Top of License"

7. Advocate for Federal Changes
- Federal Laws Committee Recommendations
- Seek Opportunities under Federal Reforms

Health Information Infrastructure Advisory Committee (HIIAC)

In parallel to the work of the Oregon Health Fund Board (OHFB), the Health Information Infrastructure Advisory Committee was established in May 2008 by Executive Order 08-09. It was tasked with making policy recommendations to: reduce barriers to health information exchange, while maintaining privacy and security of individuals' health information; establish an appropriate role for the state in maintaining and building health information infrastructure; facilitate the adoption of infrastructure standards and interoperability requirements; facilitate collaboration between statewide partners; and develop evaluation metrics to measure the implementation of health information technology and the efficiency of health information exchange in Oregon.

In November 2008, the HIIAC produced a report to the governor and the OHFB exploring challenges in the current health care system, opportunities to transform the system through wider adoption and utilization of HIT and recommendations to facilitate and accelerate this transformation. Those recommendations were adopted into the OHFB plan for health reform and incorporated into legislative proposals for consideration by the 2009 Oregon Legislature.

Health Information Security and Privacy Collaboration (HISPC)

Even prior to these health reform actions, Oregon was active in a national effort to further health information exchange policy. Oregon was involved with the Health Information Security and Privacy Collaboration (HISPC) from 2006 to 2009. Oregon participated in the HISPC Consumer Education and Engagement Collaborative. Working with seven other HISPC states (Colorado, Georgia, Kansas, Massachusetts, New York, Washington and West Virginia), Oregon contributed to the development of an educational resource toolkit for general use by other states and organizations to educate and engage consumers about health information technology and health information exchange. When HIIAC was formed it took over this health information exchange policy work.

HB2009

The Oregon Health Fund's report, "Aim High: Building a Healthy Oregon," including the work of HIIAC, was the foundation for major legislation before the 2009 Oregon Legislature. In June 2009, the Oregon Legislature passed HB2009 establishing the Oregon Health Authority (OHA) and Oregon Health Policy Board (OHPB), which are leading the work to improve the affordability and quality of health care for all Oregonians. The Oregon Health Authority is charged with focusing on quality, costs and the health of the population, using seven strategic building blocks for change (see illustration above). This comprehensive health reform package incorporated specific elements around health information technology and health information exchange.

Health Information Technology Oversight Council (HITOC)

HB2009 also established the Health Information Technology Oversight Council (HITOC) to coordinate Oregon's public and private statewide efforts in health information technology, including electronic health records adoption, developing a strategic plan for a statewide system for electronic health information exchange, setting technology standards, ensuring privacy and security controls and developing a sustainable business plan to support meaningful use of HIT to lower costs and improve quality of care. HITOC will also consider options to encourage provider adoption of EHR, and will work to support the Medicaid Transformation Grant and its health profile effort. HITOC will also help Oregon meet federal requirements so that providers may be eligible for millions of federal health information technology stimulus dollars. With the establishment of HITOC, the HIIAC concluded its work at its August 20, 2009, meeting.

The legislature included a 2009-2011 budget of $300,000 for the staffing and meeting costs of HITOC, allowing for early planning of health information exchange in Oregon to begin. The ONC cooperative agreement funds also supported the HIE planning efforts. In addition, key stakeholders including the Northwest Health Foundation, Oregon Association of Hospitals and Health Systems and other health care stakeholders provided seed money. In addition to the $8.58 million ONC cooperative agreement funds, more funding for implementation will be needed to ensure that statewide HIE is implemented and its full potential realized.

Because of both the critical role HIE can play in advancing health reform efforts, and because of the private, state and federal dollars available for HIE planning efforts, HITOC's initial focus has been on the development of Oregon's statewide strategic and operational HIE plans.

The approach envisioned by Oregon's leaders is to begin by building on the many investments in the building blocks of statewide HIE: the burgeoning local and regional HIOs, the vertically-integrated HIE within health systems, the investments in EHRs by Oregon hospitals and many clinicians and the myriad public health information systems, from the Medicaid Management Information System (MMIS) to Oregon's immunization and communicable disease registries, in addition to numerous others. Oregon's strategic and operational plans seek to protect these investments while working to ensure interoperability. HITOC, in collaboration with O-HITEC, the Regional Extension Center (REC), will employ a staged approach to working with HIE stakeholders to bring their systems into compliance with meaningful use requirements, as these rules become more stringent over time. For providers not connected to a regional or local HIO or a health system, HITOC will develop a strategy for broader adoption—to fill in geographic gaps and support providers serving vulnerable populations to ensure that these populations benefit from HIE.

The planning and implementation activities to be funded by this cooperative agreement are expected to have a substantial positive impact on health, health care quality, costs and coordinated care. The strategies set forth in this plan would use ONC funding to support the Oregon Health Authority's efforts to develop and advance private, secure, standards-based statewide HIE and to support Oregon's health reform goals.

Goals and Strategies

Section Overview

- Oregon's leadership has established three main goals for health care system improvement: population health, patient experience with care and lowering costs.

- Oregon's approach to statewide health information exchange will include nurturing a new and growing marketplace of HIOs, setting and monitoring standards to ensure the security of personal health information, developing an accreditation program to ensure health information exchange across geographic and institutional boundaries with a common set of rules, providing valued centralized services and filling in the gaps in availability to rural providers and other identified stakeholders.

- Oregon is using a phased approach to HIE to allow flexibility to adjust over time for new federal rules, marketplace evolution and real-world lessons learned.

- The state HIE effort will leverage and support existing capabilities both within existing agencies and organizations and in the marketplace.

- It will designate a non-profit, public/private entity to carry out this work after a sustainable financing plan has been developed and appropriate legislation has been passed.

➢ Health Status, Consumer Empowerment, Lowering Costs

Health information exchange (HIE) is a key building block for health care system improvement to enhance population health. The inconsistent and fragmented nature of patient records is a highly visible example of the problems caused by the U.S. health care system's reliance on multiple, disparate players in a complex health system. Sharing patient information in a secure, efficient manner has the potential to substantially reduce costs, waste and consumer heartache. It will support efforts to track patients' medical outcomes, reduce errors and make medical processes more efficient. It can empower consumers to better understand their own health, choose high-quality providers and make healthier choices. Information sharing can also vastly improve public health agencies' ability to track disease and combat chronic illness, leading to improved population health.

The transformation of the health system, with health information technology (HIT) at its core, is already underway. The HIE effort will involve broad engagement from the public and private sector, consumers, providers and health plans. And once designed, Oregon's health information exchange approach will require flexibility and ongoing refinement. Oregon's history of strong civic engagement throughout the state will serve this process well.

Statewide HIE fits well into the goals Oregon's leaders have established for health policy, specifically:

- Improve the lifelong health of all Oregonians;

- Increase the quality, reliability and availability of care for all Oregonians; and

- Lower or contain the cost of care so it is affordable to everyone.

Oregon Health Authority Triple Aim Goal

Improved Patient Experience
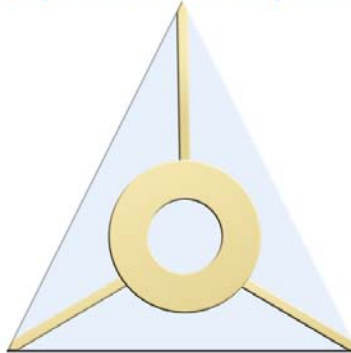
Improved Population Health   Lower or Contain the Cost of Care

1. Improve the lifelong health of all Oregonians
2. Increase the quality, reliability, and availability of care for all Oregonians
3. Lower or contain the cost of care so it is affordable to everyone

Exchange of health information will improve population health by supporting initiatives to improve the quality of care, such as coordinating the care of a growing population of people with chronic diseases that must be closely followed. It will improve the patient experience by reducing the need for consumers to fill out duplicative medical forms and giving their new providers a head start with their medical histories. And HIE is particularly promising with respect to the dollar savings it could offer to stakeholders across the board, from consumers avoiding unnecessary duplicative tests to emergency departments providing more efficient care with information from previous patient histories. Overall, the financial savings from the widespread adoption of HIT could be substantial: net savings of $1 billion to $1.3 billion per year within a dozen years in Oregon alone.[1]

This plan rests on several key choices that reflect Oregon's approach to improving health care and the unique HIT community that already exists in this state:

- Oregon has a vibrant and innovative community of health information exchange entrepreneurs, as reflected in the large turnout at our health information organization (HIO) stakeholder summit (about 60 attendees) and the strong response by Oregon organizations to the federal Beacon Communities Program grant opportunity to support investments in health information infrastructure (there were six applications from Oregon-based groups in the first round and four in the second round).

- Any effort by the Oregon Health Authority to further HIE should support this developing marketplace rather than impose a new structure from above that may stifle or compete with existing and potential local HIOs. Any organization growing from this state-level HIE initiative should provide services that support existing HIOs and fill any gaps in service, particularly for target populations.

- Because the HIE environment is complex and dynamic, Oregon's plan should be nimble enough to change with local and national conditions. It must also be able to adjust to changing federal rules, many of which are not yet written. To allow for such flexibility, this plan envisions a phased planning and implementation process that will allow for adjustments at each stage should conditions warrant.

[1] Witter DM, Ricciardi T. Potential Impact of Widespread Adoption of Advanced Health Information Technologies on Oregon Health Expenditures. Prepared for the Oregon Health Care Quality Corporation and the Office of Oregon Health Policy and Research. September 2007.

Strategic Intent

Vision
Healthy Oregonians

OHA Mission
Helping people and communities
achieve optimal physical, mental and
social well-being through partnerships,
prevention and access to quality, affordable health care.

HIE Vision
Information, when and where it is needed, to improve health and health care.

Value Proposition

Improve experience of care

Lower or contain the cost of care

Improve Population Health

Goals

Care Goals

Cost Goals

Population Health Goals

The core of this work centers around the Oregon Health Authority's vision of healthy Oregonians and the three key goals: improved patient experience, improved population health, affordable health care.

Oregon Health Authority Vision and Mission:
Healthy Oregonians

Helping people and communities achieve optimum physical, mental and social well being through partnerships, prevention and access to quality, affordable health care.

HIE Mission:
Information, when and where it is needed, to improve health and health care.

Given the complexity of this effort—which includes a rapidly changing regulatory, economic, political and technical environment—the stakeholders, planning team and HITOC have developed a strategy that includes the following key elements:

- A phased approach to allow for flexibility and to ensure a stable finance plan.

- Oregon Health Authority in a role of facilitation, coordination, communication and oversight.

- Adherence to federal standards and certifications as they evolve and the development of Oregon-specific standards, accreditation processes and accountabilities.

- Collaboration and support of HIE efforts underway through local and regional health information organizations.

➢ Overarching Imperatives

- Establish a governance structure that achieves broad-based stakeholder collaboration with transparency, buy-in and trust.

- Set goals, objectives and success measures for the exchange of health information that reflect consensus among the health care stakeholder groups and that accomplish statewide coverage of all providers for HIE requirements related to meaningful use criteria.

- Ensure the coordination, integration and alignment of efforts with Medicaid and public health programs.

- Establish mechanisms to provide oversight and accountability of HIE to protect the public interest.

- Account for the flexibility needed to align with emerging nationwide HIE governance that will be specified in the future.

- Incorporate national and state health reform goals.

- Support opportunities to improve health outcomes and equity in all populations.

➤ Goals of Health Information Exchange

- To ensure patients have safe, secure access to their personal health information and the ability to share that information with others involved in their care.

- To engage in an open, inclusive and collaborative public process that supports widespread EHR adoption and robust, sustainable statewide coverage.

- To improve population health.

- To improve health care outcomes and reduce costs.

- To integrate and synchronize the planning and implementation of HIE and health IT in the public and private sectors, including Medicaid and Medicare provider incentive programs, the Regional Extension Center, local and regional HIOs and other efforts underway.

- To ensure accountability in the expenditure of public funds.

Phase 1

Phase 1 anticipates building on and supporting efforts underway to strengthen the foundation for ubiquitous use of electronic health information exchange. During Phase 1, the stage will be set for a robust process to develop and implement standards, accountabilities and services that will provide the ability for providers to achieve meaningful use and improve the health of Oregonians.

Oregon Health Authority, with guiding recommendations from HITOC, will provide governance during this phase. Technical elements in this phase include selection and adoption of standards for HIE participant information exchange and planning, implementation and rolling out of technology and support services. This phase also includes a rollout of an accreditation program for HIE participants based on the selected standards. The development of a privacy and security framework for HIE and a sustainable financial model are priorities in Phase 1.

Workgroups will be formed to develop policy recommendations, evaluate finance options and establish measurable outcomes for key activities. Potential workgroups include, but are not limited to, Technology, Legal and Policy and Finance. Continued and ongoing stakeholder engagement is a core value and will be a priority during this phase. Ongoing coordination will take place with: regional and local HIOs; Oregon Health Authority efforts such as Medicaid, public health and other grant activities in process; and O-HITEC (the Oregon Regional Extension Center), workforce, broadband and other grant activities supporting HIT and HIE.

Phase 2

Phase 2 supports rapid expansion of HIE throughout the state by supporting existing HIOs with the development and support of operational capacity to address gaps, both geographic and within vulnerable populations. Phase 2 would include the designation of a non-profit entity (known as the state designated entity, or SDE) to serve in a governing capacity for operations; this will also require an approved financial sustainability plan and legislative approval. Operation of centralized services will transition to the SDE during Phase 2. Additional technology services and technical support services may be offered as needed, depending on the success and the stability of the regional approach. Privacy and security efforts will be enhanced as determined in Phase 1.

Ongoing

Phase 2 will be evaluated and the non-profit will be expanded as needed to support robust HIE in the state. Additional services may be offered to cover gaps and underserved areas, depending on the success and the stability of the regional approach.

Continuous improvement

It is important to provide measurable success outcomes and indicators of progress. The HIE effort has the potential to accelerate reform. This will occur through technology innovation, market disruption, and regulatory and cultural change. To understand if the effort is successful, rigorous and ongoing evaluation must occur so course corrections can be made. Beginning in Phase 1 health outcome targets will be defined. Using the data available, an assessment and evaluation process will be created.

Table 1. Objectives and Deliverables in Achieving HIE Capacity and Use

PHASE	OBJECTIVES	DELIVERABLES
One	1. Provider and HIO education programs are conducted 2. HIE services reviewed, finalized and communicated to stakeholders 3. Services requirements definition process is completed 4. Strategy for meeting the HIE needs of underserved areas is developed, reviewed, and approved 5. Sustainable business plan for SDE developed, reviewed, and approved 6. HIE Participant Accreditation Program designed, announced and implemented 7. HIE Participant Accreditation Pilot Project started 8. At least one intrastate and one interstate data usage and reciprocal sharing agreement (DURSA) are executed 9. One HIE participant exchanges information with another HIE participant 10. Legislative changes necessary to implement consent model are identified and bills drafted 11. Define and begin transition of HIE operations to SDE 12. HIE participation survey/study initiated 13. Strategic and operational plan reviews and adjustments	1. Intrastate and interstate DURSAs created, reviewed and finalized 2. List of Phase 2 business support and technology service offerings and associated sustainable finance plan created, reviewed and made final 3. Requirements documents for Phase 2 services created 4. Meaningful use criteria review process document created 5. Strategy for meeting the HIE needs of underserved areas created, reviewed, and made final 6. Sustainable business plan for SDE created, reviewed, and made final 7. Consumer, provider and HIO education programs defined and documented, including topics and timelines 8. Provider and HIO education program materials made final 9. HIE Participant Accreditation Program defined, documented and operational 10. Standards for HIE Participant Accreditation Program chosen 11. Document detailing laws pertaining to consent, including identification of the law/statute, reconciliation with consent model and necessary changes created, reviewed and made final 12. Transition plan for HITOC-to-SDE developed, reviewed and accepted 13. Measures and benchmarks for HIE participation and impact defined 14. HIE participation study/survey program parameters and deliverables defined and documented 15. Success criteria for HIE participation defined and reviewed 16. Plan to monitor and maintain a targeted degree of participation in HIE-enabled state-level technical services developed
Two and Ongoing	1. Complete transition of HIE services and programs operation to the SDE 2. Consumer education sessions have been conducted 3. Phase 2 services start 4. Success metrics for HIE participation defined	1. Consumer education program materials made final 2. Project plans for Phase 2 services created and published 3. Plan for follow-on services defined and reviewed (offerings, scope and timing) 4. Process to monitor, measure and assess gradual attainment of benchmarks identified in Phase 1 5. Process for assessing use of HIE services defined 6. List of additional services to be offered by SDE defined and reviewed including costs, timelines and financials 7. Process for reviewing costing models, utilization and budgets for additional services to be provided in continuing operation

➢ Needs of Target Populations

Health information exchange cannot be focused only on easy-to-reach and easy-to-serve populations. In fact, certain groups have an even greater need for coordinated care than others. Oregon's HIE strategy will keep these groups in mind at each stage of planning and implementation. These include:

- Medically underserved
- People covered under Medicaid
- Newborns and children
- The elderly and disabled
- Those with mental and substance abuse disorders
- Native Americans
- Inmates in Oregon's correctional facilities and parolees

Environmental Scan of Oregon's HIE Readiness

Section Overview

- Oregon has several large health systems that are actively pursuing health information exchange.

- 65% of Oregon physicians work in practices with electronic health records, well ahead of the national average.

- There are a growing number of local HIOs within the state whose work needs to be supported.

- The interstate sharing of electronic health information is supported by the fact that Oregon's health care markets already extend across state borders through consumer choice, large hospital systems, health plans and current data sharing agreements.

As a recognized leader in health information technology adoption and reform of its health care delivery system, Oregon has a robust foundation upon which to build comprehensive statewide health information exchange (HIE). Supported by the rapid adoption of HIT among Oregon's health systems, hospitals and ambulatory care providers, a promising opportunity has emerged to advance intra- and interstate HIE. Given Oregon's history as an innovative state for its health reform policies and a recognized national leader for a number of its health IT initiatives, the state was well-positioned when the federal HITECH Act became public law in 2009 as part of the federal stimulus package, the American Reinvestment and Recovery Act (ARRA).

➢ Oregon Landscape

Oregon is the ninth largest state, geographically; has the 27th largest population, with approximately 3.8 million residents; ranks 39th in population density; and is bordered by four states: Washington, California, Nevada and Idaho. Oregon has significant geographic diversity, including highly urban, rural and remote areas, each with highly varying degrees of HIT capabilities.

Oregon population trends and demographics

- Oregon's population is 3.8 million (July 2009) and has grown an average of 1.9% each year since 1990.

- Total health care spending in the state for all payers—public, private and individuals—was about $19 billion in 2008.

- Hospital care spending growth has averaged 8.2% annually from 2000 to 2009.

- On a per-capita basis, Oregon state budget health expenditures have increased 55% overall from 1998 to 2003, compared with 48% nationally.

- Between 1999 and 2007, employer-sponsored health insurance premiums increased 114%, while household earnings increased 27%.

- Although the cost of health care is increasing, the quality of care delivered is inconsistent and demonstrates increased spending does not equal improved quality of care. The Commonwealth Fund State Scorecard ranked Oregon health care quality 36th in the U.S.

- Oregon ranks 45th in the U.S. in access to care, which includes measures of uninsurance, access to primary care and lack of access due to cost.

- With the median income of Oregonians just above 250% of the federal poverty level, more than half of Oregonians do not have adequate income beyond basic living expenses to pay for health care.

Oregon's health care facilities

- 23 federally qualified health centers (FQHCs) with 155 sites.

- 53 rural health clinics.

- 58 general acute care hospitals (ACHs). In 2009, they accounted for more than 347,000 inpatient discharges and more than 8.4 million outpatient and emergency visits.

- 25 critical access hospitals (CAHs) out of a total of 58 acute care hospitals in the state.

- 9 multiple-hospital systems representing 35 hospitals from the subset of 58 ACHs.

- 7 health systems, which include hospital operations and medical group practices or employed physicians and other clinicians.
- In 2007, Medicare and commercial/other were the two largest payers at Oregon hospitals.
  Medicaid accounts for 11% of total charges in Oregon hospitals.
- Since 2000, there has been a more than twofold increase in the number of ambulatory surgery centers licensed in Oregon (from 32 in 2000 to 80 in 2008).
- In the past 10 years, the number of licensed beds in nursing facilities has decreased by 12%.
  The number of licensed beds per 1,000 adults 75 years of age and older decreased by 24%.

Table 2. Oregon Hospital Inpatient Discharges, Outpatient Visits and ER Visits: CY2009

	TOTAL	OTHER PLAN PAYERS	KAISER	MEDICARE	MEDICAID	UNINSURED
Inpatient Discharges	347,116	121,936	10,067	138,284	55,684	21,145
Discharges with an ER Service	171,617	57,120	9,067	72,985	23,488	8,957
Outpatient ER Visits	1,082,383	479,572	34,368	376,761	119,369	72,313
Total ER Encounters	1,254,000	536,692	43,435	449,746	142,857	81,270
Outpatient Visits	7,184,863	3,285,460	5,100	2,581,125	817,775	495,404

Source: Total data for the 58 Oregon hospitals from Hospital DataBank CY2009 data, courtesy of the Oregon Association of Hospitals and Health Systems.

Oregon's intrastate and interstate hospital referral regions

Oregon is bordered by Washington to the north, Idaho to the east and by California and Nevada to the south. The Dartmouth Atlas of Health Care (http://dartmouthatlas.org) has done extensive analysis of Medicare data and developed the concept of Hospital Referral Regions (HRR). Dartmouth defines HRRs to "represent regional health care markets for tertiary medical care that generally requires the services of a major referral center. The regions were defined by determining where patients were referred for major cardiovascular surgical procedures and for neurosurgery. Each hospital service area (HSA) was examined to determine where most of its residents went for these services. The result was the aggregation of the 3,436 hospital service areas into 306 HRRs. Each HRR has at least one city where both major cardiovascular surgical procedures and neurosurgery are performed." HRRs help depict the flow of patients within particular geographic areas. Five Oregon HRRs are centered around the largest urban areas, including:

HRR 341 – Bend	HRR 344 – Portland
HRR 342 – Eugene	HRR 345 - Salem
HRR 343 – Medford	

Parts of eastern Oregon are in HRRs in adjacent states. Wallowa County in northeast Oregon is part of the Spokane, Washington HRR 440. Baker and Harney Counties are part of the Boise, Idaho HRR 151.

Two Oregon HRRs include areas from other states. The Portland HRR covers parts or all of sixteen counties in northern Oregon and seven counties in southwest Washington. The Medford HRR covers parts or all of six counties in southern Oregon and three counties in northern California. While adjacent to the southeastern Oregon border, the areas of northeastern California and northern Nevada are parts of HRRs related to Nevada. The following figure shows the HRRs for Oregon and immediate adjacent areas.

Oregon-related Hospital Referral Regions

Office for Oregon Health Policy and Research
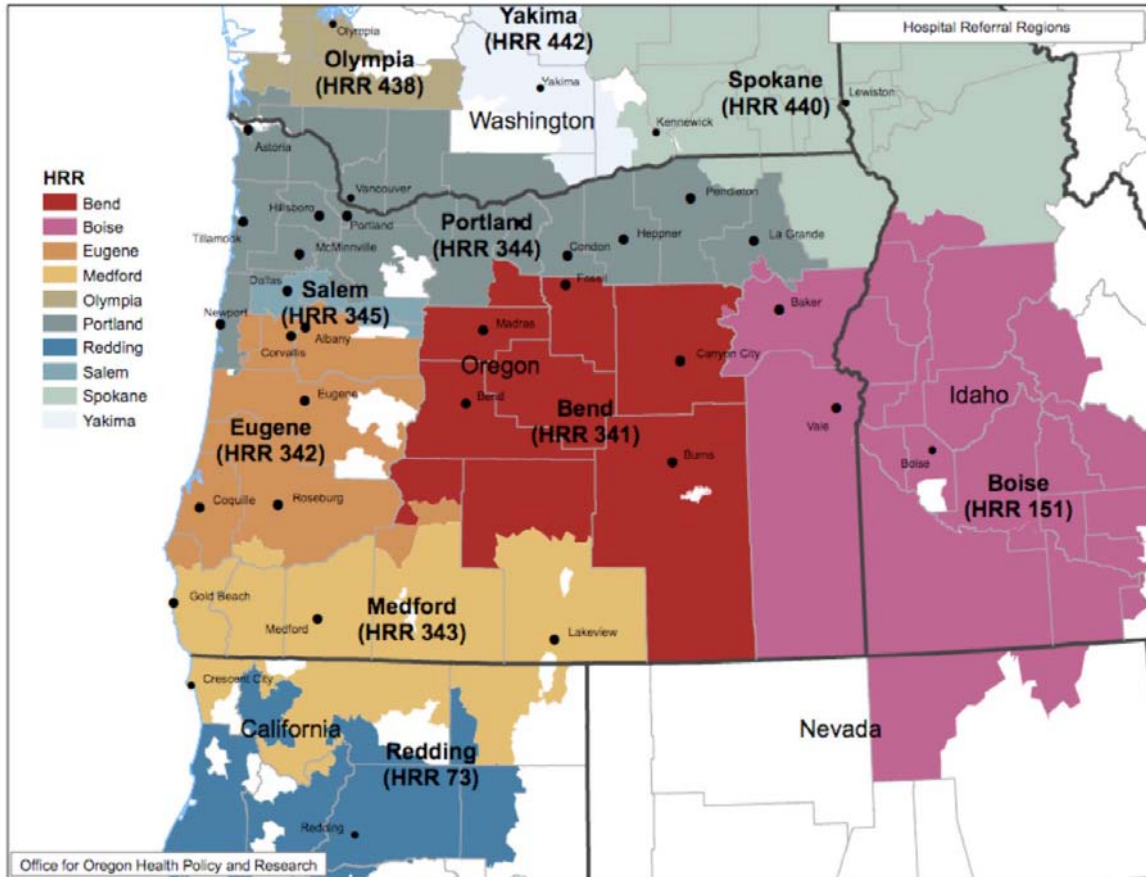
Health insurance marketplace

Approximately 1.44 million or 38.1% of Oregonians are covered by commercial/state regulated health insurance plans. Approximately 499,000 or 13.2% of Oregonians are covered by large group self-insured health plans. Medicare and Medicaid cover about 902,000 or 16.4% of Oregonians. The Office for Oregon Health Policy and Research estimates that in 2008 there were 637,000 or 16.8% of Oregonians without health insurance. That leaves a residual of about 213,000 or 5.5% of Oregonians with some unknown form of health plan coverage. The 2008 data include about 118,000 children without health insurance. The Healthy Kids program, part of HB 2116 passed by the 2009 Legislature, should lower the number of uninsured children dramatically. Table 3 shows Oregon health insurance enrollment data for 2008 as reported by the Oregon Insurance Division, Department of Consumer and Business Services.[2]

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[2] Health Insurance in Oregon, January 2010, Department of Consumer and Business Services, January 2010, Data from Figure 2-1.
    Available at http://insurance.oregon.gov/health_report/3458-health_report-2010.pdf.

Table 3. Oregon Health Insurance Enrollment, 2008

	POPULATION	OTHER PLAN PAYERS
	Population	**% of Population**
Oregon population, 2008	**3,791,000**	**100.0%**
Commercial/state regulated insurance	**Enrollment**	**% of Population**
Individual	201,000	5.3%
Portability	21,000	0.6%
Small group (2-50)	254,000	6.7%
Oregon Medical Insurance Pool	15,000	0.4%
Large group	727,000	19.2%
Associations and trusts	222,000	5.9%
Subtotal covered under state regulation	**1,440,000**	**38.1%**
Large group self-insured	**499,000**	**13.2%**
Subtotal commercial and self-insured	**1,939,000**	**51.3%**
Federal health care programs		
Medicare	584,000	15.4%
Medicaid	418,000	11.0%
Subtotal covered under federal regulation	**1,002,000**	**26.4%**
Uninsured	**637,000**	**16.8%**
Subtotal – identified categories	**3,578,000**	**94.5%**
Residual – unspecified – unknown coverage	**213,000**	**5.5%**
Total Oregon Population	**3,791,000**	**100.0%**

➢ Health Care Market Readiness Assessment

The 2009 Oregon Ambulatory EHR Survey Report indicates 65% of Oregon clinicians work in practices or clinics where electronic health records (EHRs) are present, compared with 44% nationally. Overall, many health systems and provider groups have already demonstrated interest in, adoption and use of EHRs; they have collaborated with providers and community organizations around HIE and supported a range of health IT applications intended to improve care coordination, quality and patient safety.

Oregon's current HIE efforts fall broadly into two categories: (1) those carried out by large health systems, affiliated providers and hospitals, and (2) local or regionally driven efforts that aim to ensure availability within particularly densely populated regions in Oregon. Within both of these categories is the recognition that a number of Oregonians and health care providers who reside and work in the rural regions of the state must not be left behind. Also critical for the state's successful implementation of statewide HIE is coordination with adjacent states to ensure connectivity and interoperability.

HIE capacity and resources: ONC priority areas
Over the past decade, a number of efforts around electronic health information exchange have emerged, referred to as state, local and/or regional health information organization (HIO) initiatives. These initiatives have been focused on particular HIE services in particular geographic areas. As of 2010, a number of HIO initiatives, in varying stages of development, were exchanging some clinical information in Oregon. However, these initiatives are focused primarily on development, organization, and pilot testing of programs and services. There are additional planned HIOs in Oregon but because of their widely varying size, type and approach, this plan will refer to them as a group in general terms.

The Office of the National Coordinator for Health Information Technology (ONC) has identified seven key priority areas of HIT intended to promote its meaningful use. Prior to passage of the HITECH Act, Oregon was already actively working on developing a number of these key functions, partially reflected in passage of Oregon House Bill 2009.

These functions are noted briefly here and expanded upon in the technology infrastructure section.

Electronic Eligibility & Claims Transactions
The 2009 Ambulatory EHR survey indicated that 80% of clinicians covered by the survey were in practices with an electronic practice management (EPM) system. Nearly all EPM systems have electronic claims submission capabilities. Oregon plans to create a comprehensive data collection program of all claims paid by all health care payers.

Electronic Prescribing & Refill Requests
As of December 2008, 4.4% of prescriptions in Oregon were routed electronically and approximately 15% of physicians were identified as routing e-prescriptions.

Prescription Fill Status and/or Medication History
According to SureScripts 2009 State Progress Report, Oregon ranks favorably against national statistics. Recent trends indicate significant numbers of physicians and providers have initiated electronic prescribing. For example, growth in prescriptions routed electronically between 2007 and 2008 was 180%.

Electronic Clinical Laboratory Ordering & Results Delivery
The majority of Oregon's health care providers can but do not necessarily send and receive clinical laboratory results electronically. Surveys have shown that this capability tends to be more with medical practices owned or operated by multi-hospital health systems and among all commercial laboratories.

Electronic Public Health Reporting
Approximately 80% of communicable disease reporting occurs electronically to local health departments from 12 clinical laboratories and the Oregon State Public Health Laboratory. These reports flow into the recently upgraded Oregon Public Health Epi-User Systems (ORPHEUS) and are the basis of reporting to the Centers for Disease Control and Prevention (CDC).

Quality Reporting Capabilities
Several organizations in Oregon are involved in quality reporting. The Oregon Health Care Quality Corporation (Q-Corp), a non-profit organization and a federally-designated Chartered Value Exchange, is a significant contributor to the state's quality reporting capacity and efforts. Since 2005, the Oregon Rural Healthcare Quality Network (ORHQN) has operated as a non-profit collaborative of 25 small rural hospitals and rural health care community stakeholders. Also, Acumentra Health is the state's federally-designated Medicare Quality Improvement Organization (QIO), as well as the External Quality Review Organization for Medicaid (for both Oregon and Washington).

Clinical Summary Exchange for Care Coordination & Patient Engagement
Electronic exchange of clinical information for coordination and care currently occurs primarily within a limited few health care systems (e.g. Kaiser Permanente NW, PeaceHealth, Providence). A key component for clinical summary exchange involves promoting the necessary technical requirements required for supporting the evolving national CCD, CCR and XML exchange standards. These goals can be achieved by assisting statewide HIE efforts, including implementing NHIN Exchange and NHIN Direct connectivity, as such functionality becomes more available.

EHR adoption
Oregon is able to report detailed information about the status of EHR adoption because of its investment in recent surveys of various types of providers. The following details some of these findings.

Health system and hospital adoption
The highest penetration or rate of adoption in the state is found in hospitals, and large health systems. In 2009, there were nine multi-hospital health systems with 35 hospitals. Among these 35 hospitals, 30 have implemented EHR systems. By early 2010, seven health systems had robust deployment of EHRs that are certified by the Certification Commission for Health Information Technology (CCHIT) covering 27 of the 35 hospitals. Among five of the remaining hospitals without an EHR, three of these hospitals have formal plans to implement within the next 24 months. The remaining two hospitals plan to implement within the next two to five years. It is expected that all five of these hospitals will accelerate their implementation timelines due to recent changes in federal policy.

The majority of Oregon's 58 acute care hospitals, including the 25 critical access hospitals use EHRs. Forty-seven of Oregon's 58 ACHs either already have in place or plan to implement an EHR in 2010. These hospitals represent 95% of Oregon ACH discharges (2008 figures). EHRs operated by ACHs are provided by nine vendors, whose products are CCHIT-certified. Of the remaining 11 acute care hospitals without EHRs, all have indicated plans to implement within the next one to five years. Seventeen of Oregon's 25 CAHs operate an EHR. These hospitals represented 76% of Oregon CAH discharges (2008 figures). Among EHRs operated by the CAHs, not all of the vendor products/versions are certified. Of the eight remaining critical access facilities without EHRs, all eight indicated being less than two years away from implementation.

Ambulatory care providers

A considerable number of Oregon's ambulatory practices actively use EHRs, remaining well ahead of the national ambulatory rate for EHR adoption. As of 2009, 65% of Oregon clinicians (physicians, nurse practitioners and physician assistants) worked in practices or clinics where EHRs were present, compared with 44% nationally (CDC-2009).[3] Higher EHR adoption rates occur in large ambulatory practices, practices with multiple locations and multi-specialty or mixed primary care practices. As found in a number of other states, adoption rate varies widely depending on the size and ownership of the practice, as well as geographic location.

Table 4: EHR Adoption in Oregon by Ambulatory Practice Type

Private practices owned by physicians:	38% of the physician-owned/operated practices, serving 54% of clinicians, are using an EHR, ranging from 26% for solo practices to 68% for practices with ten or more clinicians.
IHS/Tribal clinics	Among Oregon's 11 tribal and Indian Health Service (IHS) Clinics, five tribal clinics use the IHS Electronic Health Record graphical user interface (GUI) application in providing patient care.
Community health centers	Approximately 60% of Oregon's federally qualified health centers/safety net clinics operate an EHR.
School-based health centers	Approximately 23% of the 44 school-based health centers use EHRs.
Behavioral health	Rate of adoption is assumed to be low (< 20%).
Long-term care	Rate of adoption in nursing homes and long-term care facilities is relatively low compared to the state average for EHR adoption among ambulatory care providers.
County health departments	Four county health departments in Oregon operate EHR systems.

Hospitals and ambulatory providers with EHRs

Higher rates of EHR adoption in Oregon are found among the following hospitals and non-hospital providers:

Table 5. Higher Rates of EHR Adoption in Oregon

PROVIDER TYPE	
Acute Care Hospitals	47 of Oregon's 58 acute care hospitals (ACHs) either have or are implementing EHRs by mid-2010, representing 95% of Oregon ACH discharges in 2008.
Critical Access Hospitals	17 of Oregon's 25 critical access hospitals (CAH) operate an EHR, representing 76% of 2008 Oregon CAH discharges.
# of Clinic Sites	Practices with more than one location have higher rates of EHR adoption (range of 40% for two locations to 69% for five or more locations).
Larger Practices	Practices with 50 or more clinicians (79% adoption rate) and practices with 5-9 clinicians (50% adoption rate) have higher rates of EHR adoption.
Specialty Care Providers	Multispecialty and mixed primary care practices have higher EHR adoption rates.

Hospitals and ambulatory facilities with certified EHRs

An important aspect of the environmental assessment is determining the percentage of EHR systems in Oregon that are CCHIT-certified. As of 2009, there were 81 vendors in Oregon providing EHR systems. Among these 81 vendors, 16 vendors provide EHRs for 90% of clinicians in Oregon that actively use an EHR. The majority of these vendors operate CCHIT-certified systems. Findings from the 2009 Oregon Electronic Health Record Survey of Ambulatory Practices and Clinics indicate that 87.6% of the 5,139 clinicians surveyed work in organizations using EHR products that are part of certified product lines. A number of reported EHR system replacement projects are currently underway, substantially increasing the use of certified EHRs. The number of Oregon hospitals and ambulatory providers using non-certified EHRs is relatively low. The 2009 EHR survey indicated that only 250 out of 2,265 clinician practices with EHRs potentially will need to replace or upgrade existing EHR systems in order to qualify for ARRA incentive payments.

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[3] Hsaio CJ, Beatty PC, Hing ES, Woodwell DA, Rechtsteiner EA, & Sisk JE. Electronic medical record/electronic health records use by office-based physicians: United States, 2008 and preliminary 2009. Health E-Stat. National Center for Health Statistics, December 2009. http://www.cdc.gov/nchs/data/hestat/emr_ehr/emr_ehr.pdf.

Summary of hospitals and non-hospital providers in Oregon currently using CCHIT-certified EHR vendor/products:

- 81 commercial vendor/product lines in use in Oregon.
- Eight vendor/products are used by 83% of clinicians.
- All 47 Oregon hospitals with EHRs use a range of CCHIT products.

81% of practices and clinics with EHRs (88% of clinicians) use a product where one or more versions in the product line have received certification from CCHIT.

Basic and fully functional EHRs
Levels of EHR functionality provide one tool to assess the state's potential ability to demonstrate meaningful use and qualify for Medicare or Medicaid incentive payments. The overall rate of EHR adoption among all surveyed respondents in 2009 by level of functionality is shown in the table below.

Table 6. Oregon and National Adoption Rates in Ambulatory or Office Based Settings

	ANY EHR SYSTEM[4]		"BASIC" EHR SYSTEM	"FULLY – FUNCTIONAL" EHR SYSTEM
Ambulatory or Office Based Practices	**2006**	**2009**	**2009**	**2009**
Oregon Clinicians	52.8%	65.5%	48.3%	32.2%
National Physicians	29.2%	43.9%	20.5%	6.3%
Oregon to National Ratio	1.81	1.34	2.36	5.11

Source: Office for Oregon Health Policy & Research, Oregon Electronic Health Record Survey of Ambulatory Practices and Clinics, 2006 and 2009. Hsaio CJ, Beatty PC, Hing ES, Woodwell DA, Rechtsteiner EA, Sisk JE. Electronic medical record/EHR use by office-based physicians: United States, 2008 and preliminary 2009. Health E-Stat. National Center for Health Statistics, December 2009.

Table 7. Overall EHR Adoption Rates by Organizational Type and Functionality

ORGANIZATIONAL TYPE (# OF CLINICIANS)	TYPE OF EHR				
	ANY	**HAVE AT LEAST NEARLY BASIC**	**HAVE AT LEAST BASIC**	**HAVE AT LEAST NEARLY FULLY FUNCTIONAL**	**HAVE FULLY FUNCTIONAL**
Clinician organizations (4,177)	54.2%	40.9%	30.9%	24.9%	8.8%
All organizations (7,845)	65.5%	55.4%	49.4%	45.6%	32.5%

Approximately 89% of organizations with an EHR report their system providing "basic capabilities" (i.e. to support basic functions of reviewing chart information, notes and lists; updating and reviewing medication lists; and update and review problem lists). About two-thirds of Oregon medical practices, representing between 70% and 90% of clinicians actively using an EHR, report their systems providing "full functionalities." Finally, 97% of practices/clinics with an EHR also have an electronic practice management system. Of interest is that EPM systems are present in practices/clinics serving more than 80% of clinicians.

Nursing and long-term care facilities
A variety of licensed nursing and long-term care facilities operate in Oregon, providing care and assistance for individuals needing help with activities of daily living, medication administration and personal care. The Department of Human Services' Seniors and People with Disabilities Division (SPD) identify the following types of long-term care facilities: nursing facilities (NF), residential care facilities (RCF), assisted living facilities (ALF), adult foster homes for the aged and physically disabled and developmental disability residential providers.

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[4] Electronic practice management system capabilities include patient scheduling, registration, eligibility, coverage, contracts, billing, electronic claims submission, claims tracking, accounts receivable, workflow management tools and reports.

According to official licensing data from the SPD Division, Oregon had 140 nursing facilities with a licensed capacity of 12,403 beds at the end of 2008. Sixty-three percent of nursing facilities have fewer than 100 licensed beds and the average number of licensed beds is 89. Official licensing data listed 205 ALFs and 227 RCFs, as of December 31, 2008, with 105 endorsed Alzheimer's care units (ACUs) within ALFs and RCFs. The total licensed bed capacity in ALFs and RCFs was 13,816 and 8,607, respectively, with 3,673 beds endorsed for Alzheimer's care. Facility size varies greatly, with most having fewer than 100 licensed beds; more than two-thirds of ALFs had a capacity between 50 and 99; and most RCFs and ACUs had a capacity between 20 and 49. Adult foster homes licensed by SPD for the aged and physical disabilities (APD) community programs are licensed for five or fewer residents. As of June 30, 2010, the licensing data total is 1,917 licensed homes with a total of 8,121 licensed beds; of those providers 174 are private-pay providers (do not accept Medicaid residents) with a capacity of 786 beds. In addition there are 1,857 licensed relative adult foster home providers with 1,978 beds.

Developmental disability (DD) residential providers supporting people with development disabilities are critical members of health care teams. They are not the direct health care providers and won't need to participate in shared information between general physicians and specialists, but they are important facilitators of communication. They are often tracking and reporting behaviors that represent health care needs, attend appointments with individuals and may be delegated to provide direct health care. The residential programs that should be included are: 261 children's foster care providers, 31 children's residential care homes (24-hour group homes), 800 adult foster homes of which 645 are licensed by SPD and 155 licensed by Multnomah County Adult Care Program, 619 24-hour adult residential group homes and 88 agencies that provide adult supported-living care.

Although technology adoption is widespread throughout these facilities, their readiness for EHR adoption is uncertain at best, particularly in the foster home provider community. The NFs currently use computers to support billing for Medicaid and Medicare through the MMIS system. But this does not necessarily indicate a clear readiness for EHR implementation. A national survey of nursing homes across the United States indicated that approximately 20% have electronic capabilities. An informal assessment in Oregon, however, indicates less than 10% to 15% of the state's long-term care facilities use EHRs. Currently, no state-specific data are available to accurately assess EHR adoption rates among long-term care facilities in Oregon. During Phase 1 and within the coordinated planning for a State Medicaid Plan, additional surveying will take place within the long-term care sector.

➤ Existing and Planned Local HIOs

In Oregon, a number of HIO activities are supported by private, non-profit and public sector organizations. As of February 2010, there were several HIOs considered as operational or soon-to-be operational. Concurrently, there are eight health systems in Oregon currently offering limited HIE services among hospitals, affiliated clinics and/or providers. These efforts are at different stages of maturity and focus on a range of exchange activities. Although several HIOs are operational and have started to provide value-added services, only a couple of these organizations are close to providing comprehensive exchange services. However, the six Beacon Community Grant applications submitted from Oregon in the first round of funding demonstrate there is a strong culture within the state for community collaboration and a growing commitment within several Oregon regions to invest significant resources toward HIE.

As Oregon's providers continue to focus their efforts on achieving meaningful use (MU) objectives, it seems reasonable to anticipate that local HIOs within the state will both increase services and expand geographically, primarily driven by designated medical service area(s). The technologies and exchange connections already in use may serve as models and offer solutions for HIE for other HIOs to build upon. At present, however, only a small percentage of eligible providers in Oregon have access to HIE services offered through a regional or local HIO.

The following is a working list of operational and/or planned HIOs in Oregon (for a more complete analysis see Appendix D):

- Bay Area Community Informatics Agency (BACIA)
- St. Charles Health System
- Douglas County Independent Practice Association (DCIPA)
- Gorge Connect
- Jefferson HIE
- OCHIN
- PeaceHealth
- Portland-Vancouver Metro HIE
- Salem Area Community Health Information Exchange (SACHIE)

Within the public sector, Oregon's Department of Human Services operates and maintains dozens of information systems. Efforts are underway to integrate many IT systems, supported in part by a State Medicaid Health Information Technology (HIT) Plan. The purpose of this plan is to build a Shared Services Architecture (SSA) health IT infrastructure that will support meaningful use by both providers and consumers (please see the Oregon Medicaid HIT Planning Advance Planning Document, 2010).[5] Major state IT systems include but are not limited to: Medicaid Management Information System (MMIS), Data Reporting Program (also known as all payer all claims [APAC] – under development) and various public health IT systems such as the Immunization Information System (Alert), Oregon Electronic Laboratory Report (ELR) project, and communicable disease reporting system. There are also 34 county health departments, all of which have some level of IT capacity and information exchange capability.[6] Leadership, vision, oversight, coordination, and finally integration of existing and planned IT systems within and across state agencies is critical.

All-payer health care claims data reporting program (APAC)
Under HB2009, the Oregon Legislature established a health care data reporting program by the Office for Oregon Health Policy and Research to create a comprehensive data collection program of all claims paid by all health care payers. The All-Payer Data Reporting Program (also known as all payer all claims, or APAC) will provide information for policy and analytical purposes covering services across all health care settings. Once fully implemented and operational, Oregon's APAC will provide utilization data, outcome information and cost/payment information on a statewide basis. APAC also represents an important data resource with significant implications for HIE planning and development, as well as monitoring eligibility for Medicaid incentive payments. APAC data could potentially represent a relatively low-cost approach for developing an HIE registry as well as patient record locator and look-up services to support statewide HIE services and local HIOs. Determination of eligibility for Medicaid incentive payments for the meaningful use of certified EHRs also requires information about the percentage of Medicaid beneficiaries under care by the eligible professional. The APAC could provide data for the numbers of Medicaid and total patients for monitoring achievement of the eligibility thresholds.

HIO capacity
Each year, the number of active and planned HIOs in the state increases. Developing a strategy for how best to support and expand existing resources to accelerate intrastate and interstate HIE connectivity is vital. Summarized below is information on existing and/or future planned HIO efforts within Oregon.

Oregon's existing HIOs are noteworthy for a number of reasons, including geographic coverage, types of services offered and level of support by community stakeholders. Many of these efforts are predominantly overseen by boards of directors or advisory groups comprised of local stakeholders, health care leaders and representatives of organizations who are involved or plan to participate in intrastate HIE. By and large, HIOs have organized with the mission to improve health care in each of their communities achieved through increased health IT adoption and HIE. Moreover, although these efforts share a common mission, they do vary in community history, selected technology, design and infrastructure, stage of development and demonstrated ability to exchange clinical data. They exhibit the following characteristics as well: high-levels of community engagement and stakeholder buy-in, shared commitment to interoperability and enabling value from widespread HIT adoption,and pursuit to develop a sustainable business model.

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[5] State of Oregon, Department of Human Services (2010). Oregon Medicaid HIT Planning Advance Planning Document (HIT P-APD). Submitted to and Approved by the Centers for Medicare and Medicaid Services.
[6] HITOC (2010). Public Health and Health Information Exchange: A Survey of Oregon's Local Health Departments. Prepared by the Office for Oregon Health Policy and Research.

Office for Oregon Health Policy and Research
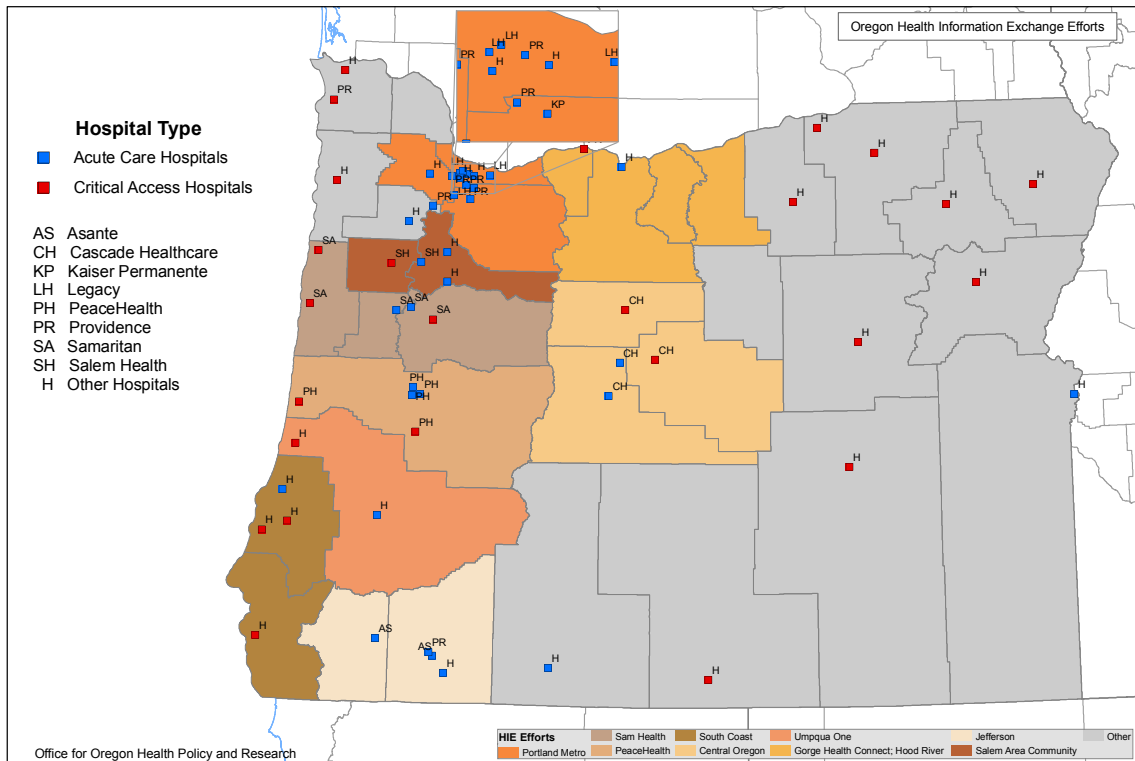
Implementation efforts

As of February 2010, there were several operational or soon-to-be operational HIOs in Oregon. The range of supported health IT applications and coverage areas include urban and rural portions of the state (for a detailed assessment of each HIO, please refer to Appendix D). Types of organizations actively committed to supporting HIOs include health systems and hospitals, IPAs, county health departments and community health centers, among others. The majority of Oregon's HIOs are hospital systems and affiliated practices; a few have established connectivity with local providers and community-based practices.

Future planned HIO connectivity includes hospitals, tribal clinics, federally qualified health centers, rural health centers, the Veterans Administration Medical Center in Portland and VA satellite clinics.

Beacon Community Program

A relatively large number of lead organizations, six in all, submitted proposals for the initial Beacon Community Grant Program. Although none were selected in the highly competitive national field of 130 applications, all six applicants provided a rigorous assessment and detailed plans on how each of these initiatives could improve and enhance HIE efforts within their respective communities, and that work will be useful in the continuing evolution of HIE in Oregon. The range of initiatives proposed were outstanding and if implemented would significantly enhance Oregon's capacity around information exchange and help advance state health care reform goals. The state's Beacon Community applicants were:

- St. Charles Health System (formerly Cascade Health Care Community)*
- Community Health Alliance*
- PeaceHealth Oregon Region
- Asante Health System: Jefferson HIE*
- Portland-Vancouver HIE
- Physicians Choice Foundation: Salem Area Community Health Information Exchange (SACHIE)*

*Reapplied in the second round

These applications and other promising initiatives in Oregon offer a picture of the kinds of issues data exchange entrepreneurs are working on:

- Closing many of the existing gaps around EHR adoption found in the diverse community settings in Oregon;

- Expanding use of EHRs to achieve improved patient care coordination within and across community providers, hospitals and health systems;

- Commitment to strengthening and fostering high rates of participation in local HIOs;

- Leveraging HIE to reduce health disparities experienced by rural and vulnerable Oregonians, often through enhanced use of telehealth and telemedicine, disease registries and other health IT applications;

- Establishing HIE networks in rural counties that currently have very limited HIE capability; and

- Supporting and broadening patient-centered medical home models and primary care access through new and expanded HIE activities.

Health systems, integrated delivery networks and hospitals
The movement toward sharing health information is most prevalent within the networks of hospitals and providers established by health systems (or IDNs) in the state. A number of Oregon's health systems operate one or more hospitals, system-owned medical groups, affiliated medical groups, home health agencies and skilled nursing facilities, among others. These health systems support the use of health IT applications across the various settings in which they operate, working to improve the interoperability and exchange of information within existing service delivery centers and across multiple care settings. These organizations are already well integrated and achieve HIE within their enterprises. Larger health systems will likely set the benchmark for participation by the smaller hospitals and provider groups.

A number of IDNs have developed HIE capacities, providing their constituent physicians, hospitals and ancillary service providers the ability to exchange health information electronically. It is important to recognize, however, that a limited number of these IDNs could potentially support all meaningful use criteria for stage 1. A few loosely affiliated, community-based provider organizations have also begun to develop some HIE capacity. It is recognized that IDNs are essential to participation in statewide HIE activities, within and across the state.

Table 8: Oregon's Integrated Health Systems

Asante Health System	Operates two hospitals in Jackson and Josephine Counties.
St. Charles Health System	Operates four hospitals in central Oregon.
Kaiser Permanente	Operates one hospital in Portland and clinics in the Portland metro area, Salem and southwest Washington. Kaiser also has facilities in California, Colorado, Georgia, Hawaii, Maryland, Virginia, Washington DC and Ohio.
Legacy Health System	Operates four hospitals in the Portland metro area, one hospital in Clark County, Washington, and clinics in the Portland metro area, Woodburn and southwest Washington.
PeaceHealth	Operates four hospitals and medical group practices in Lane County. PeaceHealth also has facilities in Alaska and Washington.
Providence Health and Services	Operates eight hospitals across the state of Oregon and medical groups in the Portland area, north coast and southern Oregon. Also has facilities in Alaska, California, Montana and Washington.
Salem Health	Operates two hospitals in Marion and Polk Counties.
Samaritan Health Services	Operates five hospitals and medical group practices in Linn, Benton and Lincoln Counties.

Imaging collaborations and exchange (PACS)

A number of hospital and imaging centers are collaborating to facilitate the availability and electronic exchange of medical images in Oregon. The following organizations represent imaging collaborations and exchange initiatives in the state:

Table 9. Oregon's Imaging – PACS Collaborations

Asante Health System PACS Collaboration	Provides PACS services for hospitals in Grants Pass and Medford and Oregon Advanced Imaging.
Cascade Medical Imaging	Provides imaging and PACS services for central and eastern Oregon, covering 33,000 square miles and serving more than 300,000 people.
Oregon Community Imaging	A cooperative arrangement between an imaging center and local hospital to facilitate the access and exchange of medical images with an imaging repository for participating practices in Salem, Oregon.
Samaritan Health PACS	A system used as a common imaging repository by five Samaritan Health Services, including five hospitals and their affiliate practices and clinics located in three counties.
South Coast	A community PACS serving three different hospitals in southern Oregon.

Beyond the capacity that health systems, IDNs, hospitals and PACS collaborations have established around specific HIE efforts, other organizations are also actively pursuing and developing HIE capabilities.

Governance

Section Overview

- Oregon Health Authority, guided by recommendations of the Health Information Technology Oversight Council, is the body that provides oversight for health information technology issues.

- Oregon's HIE approach will be conducted in phases to allow for careful planning, input and strategic adjustment as elements of the plan are carried out.

- Oregon Health Authority, with guiding recommendations from HITOC, will serve as the governance entity for HIE during the first phase.

- The statewide infrastructure for carrying out the goals of HIE in Oregon will be as minimal as possible and will leverage and support existing resources within the state.

- Oregon will designate a public/private, non-profit entity to take on statewide HIE governance and operational duties during the second phase.

The state of Oregon has been laying the groundwork for statewide health information exchange (HIE) governance for many years. In May 2008, Governor Theodore R. Kulongoski signed Executive Order 08-09 establishing the Health Information Infrastructure Advisory Committee (HIIAC).[7] HIIAC was created to make recommendations that leverage health information technology (HIT) investments across the state of Oregon to:

- Reduce barriers to health information exchange, while maintaining privacy and security of individuals' health information;

- Establish an appropriate role for the state in maintaining and building health information infrastructure;

- Facilitate the adoption of health information infrastructure standards and interoperability requirements;

- Facilitate collaboration between statewide partners; and

- Develop evaluation metrics to measure the implementation of health information technology and the efficiency of health information exchange in Oregon.

In October 2008, HIIAC produced a report to the governor and the Oregon Health Fund Board (OHFB) exploring challenges in the current health care system, opportunities to transform the system through wider adoption and use of HIT and recommendations to speed this transformation. Those recommendations were adopted into the OHFB plan for health reform and incorporated into legislative proposals.[8]

In June 2009, the Oregon Legislature passed a sweeping health reform bill – House Bill 2009. This bill incorporated the vision of HIE in Oregon laid out by HIIAC, as well as a broadly developed, coordinated and streamlined approach to health care delivery in Oregon (see the background section on page 2 for further detail on HB2009).

➤ Oregon Health Authority (OHA) Established

HB2009 established the Oregon Health Authority (OHA) and the Oregon Health Policy Board (OHPB) as the governance bodies for all health-related activities in Oregon. The nine-member, citizen-led Oregon Health Policy Board is appointed by the governor and confirmed by the state Senate.

The OHA is being set up as an umbrella health agency with direct authority over those state agencies focusing on health, including the Division of Medical Assistance Programs, Office for Oregon Health Policy and Research (OHPR), Public Health Division, Addictions and Mental Health and a number of others. The new Department of Human Services (DHS) will include the Children, Adults and Families Division (CAF) and Seniors and People with Disabilities Division (SPD).

Initially, the director of the Oregon Department of Human Services (DHS) is simultaneously serving as the leader of both DHS and the new OHA during the transition period of one biennium. The OHA is set to officially become separate from DHS in early

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[7] Executive Order No. 08-09: http://www.oregon.gov/OHPPR/HIIAC/ExecutiveOrder2008.pdf

[8] Health Information Infrastructure Advisory Committee Report to the Oregon Health Fund Board, October 2008.
    http://www.oregon.gov/OHPPR/HIIAC/Final_HIIAC_Report.pdf

July 2011, but shared services between the two agencies, including information technology, are underway. As part of the shared services plan, the Chief Information Officer will oversee technology functions in both OHA and DHS and, in September 2010, a new Office of Health Information Technology (OHIT) is slated to become fully operational.

HB2009 also created the Health Information Technology Oversight Council (HITOC) to coordinate Oregon's public and private statewide efforts in health information technology, including electronic health record (EHR) adoption and the development of statewide electronic health information exchange (HIE) capacity and operations. The council is comprised of 11 voting members appointed by the governor and confirmed by the state Senate, representing the public and private sectors, specifically reflecting the geographic diversity of Oregon, including health care consumers, providers and privacy and information technology experts. Current council members come from across Oregon: from Portland, Oregon's largest city, as well as from Sublimity, a town with just over 2,000 residents. This broad geographic representation ensures that the interests of every region of Oregon, a large and mostly rural state, are taken into account in HITOC's decision-making process.

➢ HITOC

HITOC is an advisory body to the director of OHA and provides regular updates to OHPB to ensure the coordination with other health reform initiatives. HITOC is staffed by OHIT, and their initial responsibilities, as described in HB2009, include:

- Setting specific goals for the state related to HIT use and developing a strategic plan to meet these goals;
- Monitoring statewide progress in achieving these goals and providing oversight for the implementation of the strategic plan;
- Maximizing the distribution of HIT resources across the state;
- Creating and overseeing a public/private purchasing collaborative to help providers identify high-quality electronic health record products and support services and obtain more affordable rates for these products and services. This collaborative would include primary care providers, practices serving a large percent of Oregon Health Plan patients and small and rural practices;
- Identifying and selecting industry standards for HIT products and services promoted by the purchasing collaborative;
- Developing strategies to leverage community resources to further expand HIT adoption;
- Educating the public and providers about the risks and benefits of HIT investments;
- Coordinating health care sector activities that promote adoption of HIT and achieve HIT interoperability;
- Supporting and overseeing the implementation of a personal health records bank for Oregon Health Plan recipients and assessing its potential to serve as a building block for a statewide health information exchange, ensuring that patients' health information is available and accessible, that the exchange would apply only to patients who choose to participate, and providing meaningful remedies if security or privacy policies are violated;
- Determining a fair and appropriate method for reimbursing providers who utilize HIT; and
- Exploring the option of establishing an HIT loan program and possibly implementing such a program.

Some of HITOC's original responsibilities will be tasked to other entities; for example, Oregon's Regional Extension Center will work to create and oversee a public/private purchasing collaborative to help providers identify high-quality electronic health record products and support services and obtain more affordable rates for these products and services. Other responsibilities are evolving due to the dynamic and evolving HIE marketplace.

A director was appointed to oversee the work of HITOC and guide the council. Carol Robinson was named as the HITOC director. Prior to her appointment, Ms. Robinson served as the interim director of the Oregon Health Fund Board managing the efforts to enact HB2009 during the 2009 Oregon Legislature. Previously she was the executive director of the Oregon Health Forum and publisher of Oregon Health News, where she worked closely with OHFB to solicit public input on the health care reform plan resulting in HB2009. Prior to that position, Ms. Robinson served as the director of public relations and development for the Oregon Business Association and as legislative coordinator for the Coalition for School Funding Now. Due to the significant responsibilities placed on the HITOC director and the recognition of the critical importance of integrating planning efforts across both public and private sectors, Ms. Robinson was also named as the state coordinator for health IT for Oregon. Until September 2010, the position resides within OHPR, but upon the establishment of OHIT in September, Ms. Robinson will report directly to Rick Howard, the CIO of Oregon Health Authority and the Department of Human Services.

HITOC held its inaugural meeting in October 2009. At this meeting the council was provided an overview on the current state of HIT and HIE in Oregon (including the past work of HIIAC), the significant investments being made by the federal government

in HIT/HIE and the opportunities they represented for the state. During this meeting HITOC developed and refined its bylaws and policies and was briefed on its and any sub-workgroups' public meeting requirements.[9]

Because of the short timing of the HIE Cooperative Agreement and the recognition by HITOC that the HIE strategic and operational plans required by ONC need to serve as the foundation for all HIT and HIE activities within Oregon, HITOC took on oversight of the strategic and operational planning process as its first order of business. The council is building on the previous efforts of HIIAC and the Health Information Security and Privacy Collaboration (HISPC).[10] Since October, HITOC has been publicly meeting monthly with a primary focus on assuring a structured and representative development of the state's HIT/HIE strategic and operational plans. The figure below shows the framework by which HITOC and staff have been developing the HIT/HIE strategic and operational plans.
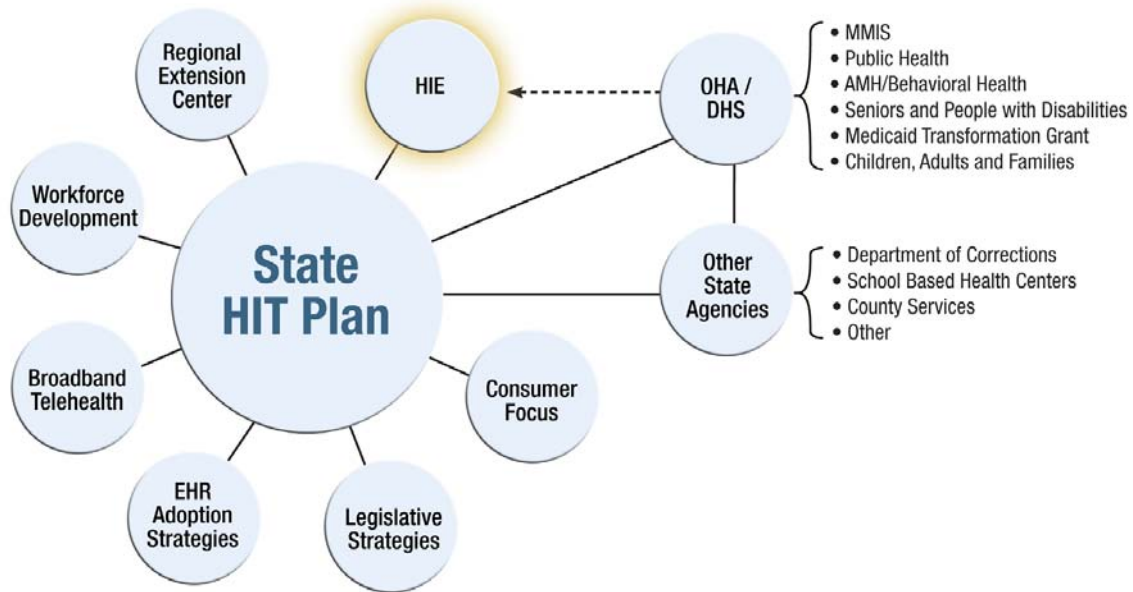
Office of Health Information Technology (OHIT): Responsibilities, objectives, initiatives

The newly formed OHIT is intended to support the shared services vision, linking OHA and DHS strategies for expanded enterprise capabilities and shared services architecture within current and future technology plans. The creation of OHIT, reporting to Rick Howard, Chief Information Officer, will accelerate the necessary planning, communication, coordination and policy changes needed to advance current and future health and human service reform goals through enabling the use of information technology. This coordination will take place across the agencies within OHA and DHS, as well as with local government entities and private sector stakeholders, leading to more efficient use of public and private sector funds, better use of health data for policy decisions and ultimately, improved health outcomes.

OHIT will help accelerate the work currently being done through HITOC, working with both internal state and external IT stakeholders to provide the strategic, communication and coordination functions needed to ensure that health information technology is an integral tool that can be effectively deployed through all state programs to advance the Triple Aim goals for health reform.

Convening and coordinating HIT Efforts in Oregon

Specifically, OHIT will play an integral role in HIT efforts in Oregon, including convening and coordinating with the following internal and external efforts to encourage better planning strategies, to build and strengthen links between organizations and to prevent duplication of efforts and redundant purchases.

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[9] Note all HITOC and HITOC workgroup meetings are public meetings subject to all public meeting and notice laws and regulations under Oregon statute.

[10] With the establishment of the HITOC, the HIIAC concluded its work at its August 20, 2009 meeting. For more information on the Oregon HISPC activities, see: http://www.oregon.gov/OHPPR/HISPC.shtml

The Office of Health Information Technology will serve to:
• Accelerate state and federal health reform goals through organized support for adoption, implementation and integration of health information technologies; • Increase and convert Health IT funding opportunities from federal agencies, philanthropic organizations and the private sector into results; and • Increase collaboration and communication between state agencies and across programs for enhanced planning and shared decision-making, leveraged IT purchases and coordination of service delivery.

INTERNAL TO OHA/DHS	EXTERNAL
Convening: • HITOC • Workgroups as needed from both OHA and DHS departments Coordinating with and sharing staff support with: • Medicaid HIT Planning • Medicaid Transformation Grant Developing new processes for planning and decision-making of HIT purchases and integration of HIT into new grant opportunities	Convening: • HITOC Leading: • Oregon statewide health information exchange (HIE) project

Coordinating with federally-funded HIT planning efforts:
• Medicaid HIT Planning
• Shared Services Architecture Planning
• Behavioral Health Integration Project
• Public Health and Long Term Care HIT planning
• Medicaid Transformation Grant
	Coordinating with federally-funded HIT efforts in Oregon:
	• O-HITEC the HIT Regional Extension Center (OCHIN)
	• Broadband (Oregon Health Network)
	• HIT workforce (Oregon Health & Science University, Portland Community College, Oregon Workforce Investment Board and the Healthcare Workforce Committee of the Policy Board)
	• Telehealth
	• Federal health care delivery systems including:
	  o Indian Health Service
	  o Veterans Administration

Coordinating and communicating with state entities: • Information Technology Governance Council (ITGC) • OIS, OHPR, other OHA/DHS agencies • Governor's Office • Legislature • Congressional delegation staff	Coordinating with external HIE-related entities: • Local health information exchange organizations (HIOs) • County and local health departments • Health systems • Neighboring states
Coordinating with state and federal health reform efforts with HIT components: • Administrative simplification • All Payer Data Reporting Program • Patient-centered Primary Care Home pilots • CHIPRA pilot programs • Eligibility system streamlining • Health Insurance Exchange	Coordinating with private stakeholders and private HIT efforts in Oregon: • Providers and their associations • Consumers and advocacy organizations • Public and private sector quality initiatives such as Quality Corp., Acumentra and the Oregon Patient Safety Commission • Business associations and their members

Ultimately, through the combined efforts of these initiatives, Oregon envisions a strong, integrated state government HIT and statewide HIE infrastructure to support efficient, coordinated service delivery by state agencies and meaningful use of electronic health records (EHRs) within the provider community, thereby improving quality and health care outcomes and reducing overall health care costs.

➢ Strategic Workgroup

To assure that the strategic and operational plans have the appropriate level of detail and are truly representative of the complex set of stakeholders involved in HIT and HIE across Oregon, HITOC created the Strategic Workgroup in December 2009. The charge for this workgroup was to make recommendations and provide expert advice to HITOC on the content of its state HIT/HIE strategic and operational plans.

Phased approach to HIE Governance

Convening in January 2010, the HITOC Strategic Workgroup agreed that the governance structure for statewide HIE operations in Oregon should build upon the current oversight and advisory structures already in place and codified in HB2009. Workgroup members recognized that Oregon should not immediately pursue the creation of a statewide health information organization because of the strong local HIE planning efforts underway, the rapidly changing regulatory, economic, political and technical environment and the lack of a sustainable business model for HIE. Instead, the state will begin by implementing a governance model that builds directly on the HIE organizations that are already in place. In time, after a business model that allows for a sustainable oversight mechanism is developed, a transition between governance models will occur.

Thus, Oregon's governance model will include two distinct phases that will build the foundation for ongoing work. The timing of the transitions between phases will be dependent on a number of factors currently under review, including the development of a financial sustainability plan and necessary legislative approvals. The phases of operational HIE governance are described in Table 10.

Table 10. The Three Phases of Oregon Statewide HIE Governance and Operations

Phase 1	The state will develop and set HIE policies, requirements, standards and agreements through the existing HITOC and OHA mechanisms. Specific policies could include: • Privacy and security requirements for appropriate exchange and use of health information • Appropriate standards for data exchange • Operational requirements for HIE that will allow providers to report on and receive payment for meaningful use • Architecture, business and sustainability requirements • Public health reporting • Other data and reporting requirements deemed necessary by HITOC and OHA These policies, requirements and data standards will be used to hold regional and local HIOs accountable through accreditation for appropriate implementation of HIE. Oregon is taking a federated approach to statewide HIE, building upon, bolstering and enhancing existing efforts across the state. State HIE participants will use a common set of adopted standards for connectivity to one another, with HIE between participants facilitated by a number of central HIE services operated by the HIE governance entity. Rollout of standards and services will occur progressively, starting in Phase 1 and continuing into Phase 2. Regional and local HIOs identified in Oregon will maintain their own and separate governance structures but will take on additional responsibility to implement HIE in the state of Oregon for: • Striving to achieve statewide HIE coverage • Demonstrating operations and interoperable connectivity to state government and the Nationwide Health Information Network (NHIN) • Other requirements as appropriate to be determined as part of Phase 1

Phase 2	A non-profit state designated entity (SDE) will be designated and will serve as a central contracting point for data use and business associate agreements with regional and local HIOs and data providers. The SDE will implement the policies and requirements developed during Phase 1 and will be responsible for ongoing governance. Once the state designated entity (SDE) has been contracted, operational responsibilities will transition to the SDE.
	Specific roles of the SDE will include:
	• Convening and coordinating with regional and local HIOs
	• Implementing statewide standards and policies developed during Phase 1
	• Advising and providing support to regional and local HIOs on HIE architecture
	• Establishing privacy and security requirements, standards, and procedures; operations; sustainability and other functional needs of HIOs
	• Assuring statewide HIE coverage through two possible mechanisms:
	   o Internal HIE operations, and/or
	   o Local/community HIO compliance
	
	Regional and local HIOs will be held accountable for appropriate implementation of HIE through accreditation. These local and regional HIOs will serve as local governance entities responsible for:
	• Convening and coordinating with local HIE stakeholders
	• Interfacing with and providing connectivity to all data providers in the regions covered
	• Demonstrated operations and connectivity to the SDE, state government agencies, statewide HIE operations and the Nationwide Health Information Network (NHIN)
	• Requirements for business and operations, sustainability, local governance, privacy and security individually required of HIOs

Ongoing	If regional and local HIOs are not able to cover geographic gaps in statewide HIE coverage, the SDE may develop "heavier" operations to provide clinical and administrative HIE support that covers these geographic gaps.

The first phase of governance will use the existing HIE policymaking apparatus of HITOC and OHA. HITOC will continue to review and make recommendations on the breadth of policies encompassing the five domains cited by the ONC to OHA, which has ultimate authority for approval. The implementation of HIE will occur primarily at the local level, executed by the existing HIOs in Oregon and others should they emerge. Accountability will be set through the public sector policy and rule-making authority of the OHA as well as the contractual requirements set forth by the governance entity, which will be OHA/HITOC at the start and in Phase 2 a public/private non-profit state designated entity (SDE). It is critical that all stakeholders have a place at the table in shaping HIE policy in Oregon and therefore that data providers and HIOs are provided an opportunity to provide public input to the HITOC at each monthly meeting and through ongoing workgroups that will be established in Phase 1.
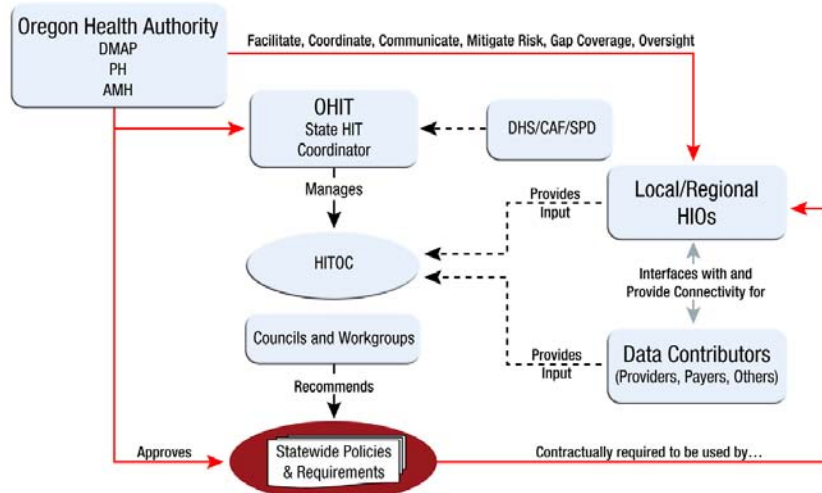
In Phase 2 the SDE will be designated and will serve as a central contracting point for data use and business associate agreements with regional and local HIOs and data providers. The SDE will implement the policies and requirements developed during Phase 1 and will be responsible for ongoing operational governance. The SDE may enter into a contract with OHA with funds from the HIE Cooperative Agreement. Regional and local HIOs will be held accountable for appropriate implementation of HIE through accreditation policies of the governance entity.
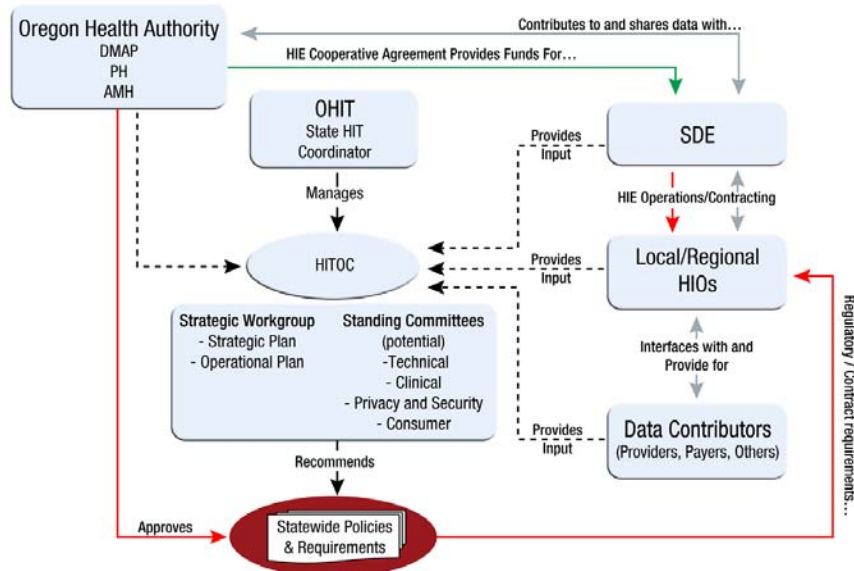
HITOC and OHIT staff will continuously monitor the progress of all HIE efforts in Oregon. One of the critical interdependencies recognized by HITOC is the challenge of developing a sustainable business model for statewide HIE operations. As a result, HITOC is pursuing a phased-in approach to statewide HIE governance and operations with contingency planning to address the evolving relationships and sustainable operational needs of the HIE stakeholders participating. Should the Phase 2

governance model not develop in a manner that incentivizes participation and full statewide HIE capacity (i.e. HIE is not accessible in all regions of Oregon), then the SDE could develop a "heavier" operational capacity to support the full scope of HIE operations within the geographic regions not covered by regional and local HIOs.

Accountability/Transparency

One of HITOC's core values is working in an open, transparent manner and that will continue as Oregon implements statewide HIE. In Phase 1 Oregon Health Authority, with guiding recommendations from HITOC, will continue as the governing body and there will be an assessment of HITOC's membership to assure adequate representation of all stakeholder sectors. Regular communication and coordination with stakeholders have been a key element of the work around HIE planning, even before the establishment of HITOC, and that will continue. At each governance phase, there is a commitment to representative membership from public and private stakeholders on all governance bodies and committees with regular open meetings. HITOC's monthly meetings are open to the public and bound by Oregon's public meeting laws. All public meetings have notices posted with an agenda ahead of time. In addition, an email notification is sent out to more than 900 stakeholders. Any workgroups convened by HITOC, including the Strategic Workgroup that operated during the development of the HIE strategic and operational plans, are also bound by public meeting laws and follow the same procedures as HITOC.

Over the past year, HITOC has convened multiple stakeholder in-person meetings, all of which have been open to the public and posted on the website; also, invitations have been emailed to more than 900 stakeholders.

Stakeholder Endorsement

Throughout the development of the HIE strategic and operational plans there have been regular opportunities for stakeholder input. Multiple stakeholder webinars were held between late February and early June, attended by approximately 140 people. These webinars provided updates on the planning process and solicited input on the recommendations of the Strategic Workgroup through questions, comments and exit surveys. Responses consistently indicated that the recommendations of the workgroup were directionally correct.

In April 2010, HITOC convened representatives from all organizations involved in local HIOs in Oregon. More than 60 people from 40 organizations attended, and provided input to the strategic and operational plans. This group met again via webinar in June to review the strategic plan and, in general, agreed that the recommendations of the Strategic Workgroup were directionally correct. This group also had an opportunity to weigh in a second time before the final draft plan was released by HITOC for broader stakeholder input.

Additionally, six open public meetings were held from mid-June through mid-July to gather comments to incorporate into the final plans, including a HITOC public meeting on June 17 and five sessions in communities around the state. The HIE planning team received more than 150 comments from more than 100 individuals and organizations during the public comment period. The planning team compiled them into a public document. The comments were reviewed and the resulting analysis (a public document) was used by the planning team to adjust language in the plan and is being referred to the workgroups and panels that will be created starting in September 2010. Another public meeting, focused on privacy and security issues, was held in May and drew more than 150 people, who provided helpful input on the topic and were generally supportive of the plan's approach. More information about that meeting is in the Legal and Policy section of this document.

Potential Risks in Plan

A number of issues have been identified as "potential risks" to Oregon's strategic plan for achieving statewide HIE. These issues are partially the result of factors whose outcomes are difficult to predict, including pending federal regulations, the role and impact of the National Health Information Network (NHIN), a maturing HIO marketplace and unresolved financial factors and models around sustainable HIOs in Oregon and nationally. The potential or pending risks will be closely monitored in the phased approach, particularly early on.

Some of these risks could involve:

- Continued evolution of NHIN Exchange's role and NHIN Direct's architecture; intra - and/or

- Unidentified and unresolved legal statutes that potentially hinder and/or restrict interstate data exchange;

- Continued fragmentation of the health care market, resulting in limited HIE and interoperability among regional providers; and

- Sustainability and longevity of an emerging yet underdeveloped HIO marketplace.

Subsequent project phases will address these issues and develop appropriate solutions to resolve these issues and any others that emerge during Phases 1 and 2. See Appendix E for a list of potential risks and mitigation strategies.

Finance

Section Overview

- Recent state and federal health reform efforts have created imperatives and some short-term financing sources to accelerate the adoption of EHRs and health information exchange among health care organizations and providers.

- Priorities in designing ways to pay for exchange include maximizing meaningful use for providers, being equitable among stakeholders in costs and benefits, utilizing user fees and ensuring those fees have broad benefit.

- State contracts can be modified to provide incentives for providers and payers to participate in exchange.

- Specific financing sources for HIE could include Office of the National Coordinator for Health Information Technology (ONC) Cooperative Agreement funds, Medicaid 90/10 money, philanthropic and stakeholder contributions and revenue from centralized HIE services.

➢ HIE Financing Issues

Financing is a major issue in achieving the widespread adoption and use of health information exchange services in Oregon and other states, and difficulties with it have waylaid many previous attempts at organizing HIE around the country.

Traditionally, community and state efforts to develop HIE services have faced financing issues related to both startup financing and paying for sustainable ongoing operations. There is general agreement about the potential economic benefits of HIE, such as:

- Improved coordination, continuity and quality of care;

- Reduced costs from unnecessary/avoidable services due to missing information; and

- Improved efficiencies for physicians, hospitals, health plans and patients.

Nevertheless, translating these benefits into startup and ongoing financing has proved difficult. Indeed, efforts to develop the Metropolitan Portland HIE (MPHIE) in 2007 and 2008 did not move forward in part due to difficulties in developing a balanced and sustainable financing plan. As demonstrated in the original MPHIE planning effort there is often a fundamental misalignment of costs to develop and operate HIE services versus the distribution of the savings and benefits that result from robust HIE services.

Starting in 2009, the federal stimulus law (American Reinvestment and Recovery Act, ARRA), Oregon health reform efforts and federal health reform efforts have been significantly modifying the dynamics related to financing HIE services. Those efforts include:

- ARRA-funded HIE cooperative agreements to states for HIE and health information technology planning and development

- Expected roles for states or state designated entities (SDEs) in developing or facilitating HIE services

- Medicare and Medicaid incentive payments for the meaningful use of certified electronic health records (EHRs) including phased-in expectations regarding HIE capabilities and use

- ARRA-funded Regional Extension Center Cooperative Agreements to encourage and support the adoption of certified EHRs and the demonstration of meaningful use by providers, including health information exchange

- Adoption of House Bill 2009 by the 2009 Oregon Legislature to establish the Oregon Health Authority to advance Oregon's health reform efforts

- Federal health reform under the Patient Protection and Affordable Care Act (PPACA)

These collective efforts create imperatives and some short-term financing sources to accelerate the adoption of EHRs and health information exchange among health care organizations and providers.

The short-term financing through ARRA is particularly helpful. The funding lends itself to addressing financing needs for start-up capital and short-term operations. However, the funding levels are not sufficient to address the full scope of start-up financing or short-term operations. Additionally, financing sources need to be identified for ongoing sustainability.

➢ Financing Plan Goals

Paying for health information exchange has been a topic for conversation among members of Oregon's Health Information Technology Oversight Council (HITOC) and its Strategic Workgroup from the beginning of the strategic plan's development. Central to the discussion is the difficulty of developing sustainable financing that is equitable to all parties.

The goals in developing an Oregon HIE financing plan are to:

1. Design financing mechanisms that incentivize and accelerate the adoption of EHR and HIE services that maximize the attainment of meaningful use by Oregon providers and broader health reform goals.

2. Design financing mechanisms that recognize the equitable distribution of costs and benefits among various stakeholders, including past and planned investments required to achieve the widespread adoption and use of EHR and HIE services.

3. Design financing mechanisms that are sustainable into the future that recognize the financing of the wide spectrum of service needs including connectivity and services to other states and nationally.

4. Use service fees (e.g., transaction fees, subscriptions and/or participation fees) to the maximum extent possible that are related to the value propositions for the HIE services.

5. Use broad-based assessments to finance HIE services that broadly benefit the community (i.e. utility services) only to the extent that services fee mechanisms are not feasible or equitable.

Consideration of these goals must also recognize two realities. First, Oregon's strategy to encourage the development of HIE services through regional and local HIOs means that each local HIO will need to develop sustainable financing sources within each local market. Statewide services can facilitate local efforts and potentially minimize some operational costs for local HIOs. Second, there are a number of efforts competing for the same pool of resources. In addition to local and statewide developments, these efforts include Oregon's Regional Extension Center (O-HITEC), broadband infrastructure deployment through Oregon Health Network and workforce training and development. As each component seeks both start-up and sustainable resources, they will to some extent be drawing from the same finite pool of available resources. HITOC will have an important role in overseeing the most effective use of resources for achieving Oregon's health reform goals.

➢ Creating Revenue Streams from Value Propositions

Health information exchange services are typically a mix of two service types:

See Appendix F for full list of value propositions by stakeholder.

- Service components that offer a strong direct value proposition to one or more segments of participants. These services are able to support revenue streams through transactions fees, service subscriptions and similar mechanisms.

- Service components that offer indirect or broad-based value propositions to the community as a whole. These services often do not directly lend themselves to financing from fees and subscription revenue streams. Other financing mechanisms such as grants, stakeholder contributions or assessments and tax revenues may be needed to meet these financing needs.

➢ Enhancing Demand for Care Coordination and Information Exchange

The creation of the Oregon Health Authority by HB2009 by the 2009 Legislature was, in part, aimed at improving the alignment and leveraging of the purchasing power of state-financed health care programs in order to achieve Oregon's health reform goals. State-managed or financed health care programs exist in:

- Public Employee Benefit Board (PEBB) contracts and manages health and related benefit plans for state employees and dependents. Approximately 127,000 individuals receive benefits through PEBB plans.

- Oregon Educators Benefit Board (OEBB) contracts and manages health and related benefit plans for most Oregon school district employees and dependents. About 153,000 people receive health benefits through OEBB plans as of March 2010.

- Oregon Health Plan (OHP) covering Medicaid includes fee-for-service coverage and coverage through managed care organizations (MCOs). About 525,000 individuals were covered by OHP in April 2010.

- Public Employees Retirement System (PERS) Health Insurance Program offers health insurance coverage for PERS retirees, spouses and eligible dependents.

- Oregon Medical Insurance Pool (OMIP) is the high-risk health insurance pool for the state to cover adults and children who are unable to obtain medical insurance because of health conditions. About 14,500 individuals received coverage through OMIP as of December 2009.

- Family Health Insurance Assistance Program (FHIAP) is a state program that helps uninsured Oregonians buy health insurance and provides subsidies to help pay the cost of health insurance premiums. About 6,600 individuals received coverage through FHIAP as of April 2010.

- Oregon Health Insurance Exchange: Under HB2009 the Oregon Health Authority is charged with developing a plan for creating a Health Insurance Exchange approach for presentation to the Oregon Health Policy Board and submission of legislation to the 2011 Legislature.

Each of these programs involves contractual arrangements with health plans and provider organizations that can be used to further participation in health information exchange within local communities, regions and the state. As the Oregon Health Authority addresses state health services procurement, specifications for contracts can be modified to create the expectation that health plans and providers will participate in HIE activities to improve the coordination of care. New state contract language could enhance the sustainability of the HIE market in Oregon.

During the implementation phase, OHIT staff will work with the programs under OHA to identify requirements to be built into the procurement process. The goal for implementation timelines for HIE-related requirements in the procurement process is to align them with the timelines for demonstration of meaningful use by providers.

OHIT staff and OHA will work with business groups, third-party administrators and the Oregon Coalition of Health Care Purchasers (OCHCP) to encourage their members to understand and adopt the health information exchange and continuity of care specifications in health plan purchasing arrangements. OCHCP is a non-profit organization of public and private sector organizations with a mission to improve purchasers' ability to contract for high quality and cost-effective health care for their employees or members.

➤ Potential HIE Financing Sources

A number of financing sources are potentially available for financing HIE development in Oregon, including:

- Oregon's ARRA HIE Cooperative Agreement for $8.58 million over four years. This strategic plan and subsequent plan updates address priorities for the use of those funds to maximize the widespread adoption and use of HIE services in Oregon at both the local HIO and state levels.

- Medicaid funding related to ARRA with 90% federal funds, 10% other funds is providing $3.53 million for Oregon Medicaid planning related to EHR adoption, Medicaid incentive payment program development and HIE participation. Medicaid funding (90/10) is expected for implementation and operational financing that will include resources to support ongoing HIE participation related to Medicaid beneficiaries.

- Stakeholder financing from health plans (e.g., commercial plans, self-insured plans, Medicaid managed care organizations and Medicaid fee-for service), employers and other purchasers and providers (e.g., hospitals, health systems, physicians and other practitioners and practices).

- Participation and service revenues related to state-level services and operations are anticipated that may include fees such as HIE participant accreditation fees, transaction fees, subscriber fees and connection and/or connectivity service fees.

- Development of HIE-related services that generate add-on revenues beyond the core services to support health information exchange.

- Other financing mechanisms such as grants, stakeholder contributions or assessments and tax revenues may be needed.

It is likely that the short- and long-term financing of Oregon HIE services will require the use of all of these potential financing mechanisms. The challenge will be in the mix and balance of all these sources.

➢ Financing Sustainability Plan Update

The annual update to the Oregon strategic and operational plans due in February 2011 will include an expanded and updated HIE sustainability plan. The sustainability plan will include the results of the Phase 1 developmental activities to:

- Refine the statewide HIE services plan, technical architecture and expected operating costs.

- Identify the financing mechanisms for the planned statewide HIE services including:

  – start-up financing from ARRA and other sources.

  – initial operations financing that will likely be a blend of funding from ARRA and other non-recurring sources as well as initial operational revenues.

  – ongoing operations financing that will likely be a blend of operating revenues and some level of assessments among stakeholder beneficiaries .

- Identify the HIE services and costs that can support value-based pricing via fees for specific services, transactions fees and service subscriptions.

- Identify the broad-based value/utility HIE services and costs that do not lend themselves to the pricing of specific services.

- Identify options and recommendations for financing the utility HIE services, including consideration of:

  – cross-subsidies generated from specific service fees, transaction fees and service subscriptions .

  – voluntary contributions from various stakeholder groups such as payers, purchasers and providers.

  – assessments (non-voluntary) to various stakeholder groups such as payers, purchasers and providers.

  – other direct or indirect subsidy mechanisms to support the cost of HIE services.

- Assess the willingness of stakeholders to provide contributions and pay for HIE services through the governance entity and local HIOs.

- Specify the planned pricing models for statewide HIE services and the projected revenues to support a sustainable financing plan.

Technical Infrastructure

Section Overview

- The first phase of operations will have the Oregon Health Authority, with guiding recommendations from the Health Information Technology Oversight Council (HITOC), as the initial governance entity, establishing standards and requirements for statewide health information exchange (HIE) and implementing the technology needed to enable Oregon providers to meet meaningful use requirements in 2011.

- During the second phase a non-profit entity with a public/private governing board will be designated to operate the centralized services for exchange implemented in Phase 1.

- During Phase 2 the state designated entity (SDE) will identify additional services and ensure that all centralized services are reaching unserved and underserved areas

- This work will take place in concert with Oregon's neighbors: Washington, Idaho, Nevada and California.

- The work will also coordinate with administrative simplification efforts already under way.

- HIE standards will be based on technical standards, criteria and frameworks that are nationally recognized and/or adopted by the U.S. Department of Health and Human Services.

- The Oregon HIE effort will align with the National Health Information Network (NHIN), including NHIN Direct, by adopting technology standards and business processes that are interoperable, either directly or by proxy, with NHIN-adopted processes and frameworks.

An important question in the designation of a governance entity for health information exchange is how it would interact with existing data sharing entities in Oregon. One approach was a "light touch" statewide entity and the other a highly centralized statewide health information organization (HIO). In the planning process there was consensus on a third or hybrid model that would better fit the needs of Oregon, which has a vibrant and growing local HIO community that should not be stifled, but which could use the support of certain specific statewide services. The proposal features point-to-point connectivity, with the governance entity providing centralized services required for health information exchange (HIE) (participant and provider registries, trust services, etc). The planning process concluded that a centralized service should be provided to the local HIOs to more easily allow for the reporting of public health and quality measures. A phased approach to accreditation was chosen to allow existing and planned HIOs time to adapt their solutions, as needed, to meet the accreditation criteria:

- Phase 1 – Selection and adoption of standards and requirements, implementation of centralized, core services
- Phase 2 – Operation of centralized services and expansion to cover unserved and underserved areas

➤ Statewide Approach

The governance entity will implement services in a phased approach. Initially, the services offered will be in support of aligning the existing and planned local and regional activities within the state of Oregon and in partnership with our border states: Washington, Idaho, Nevada and California. The first phase will be one of standardization and alignment of existing HIE efforts within the state (regional and local HIE efforts and efforts within health information organizations) and implementation and rollout of high priority core HIE services (e-prescribing, receipt of structured laboratory data and exchange of clinical summaries between unaffiliated organizations). Additional work in this phase will include the examination of additional services to be offered by the governance entity in order to achieve financial stability and/or fill gaps in geographic participation or technological service offerings. Ongoing operation will involve the implementation of additional services and support as defined in Phase 2.

High-priority HIE services
High-priority HIE services were identified by the Strategic Workgroup through a process of presentation and feedback. These high-priority services are grouped by phases.

In Phase 1, these services will include: definition of standards and processes to ensure the communication and format of health care information will be consistent across and between HIOs in the state. OHA, with guiding recommendations from HITOC, will choose nationally recognized standards and processes. Once these standards and processes have been determined, HITOC will develop an accreditation program by which HIE participants in the state of Oregon will be accredited. The local HIOs will have a defined period of time in which to achieve this accreditation once the parameters of the program have been defined and the accreditation program has been launched.

During the initial planning process, the Strategic Workgroup identified high-priority HIE services as those that would facilitate and support health information exchange activities within the state of Oregon. These services were reviewed and approved by HITOC. During the next phase of this program, HITOC or its Technology Workgroup will define the requirements for these high-priority technology services to be implemented and operated by the governance entity.

The planning and Phase 1 efforts will give special consideration to HIE services that support the ability of eligible professionals and eligible hospitals to demonstrate achievement of the Stage 1 meaningful use objectives. Appendix G provides a summary of the Stage 1 meaningful use objectives and measures in the final rule from CMS announced on July 13, 2010. Appendix G; categorizes the objectives in terms of their relationship to HIE functionalities; and indicates Oregon's approach to each objective.

Medium-priority HIE services
While Phase 1 activities will define in detail technical services and their implementation priorities, a set of services have been identified for potential implementation alongside or subsequent to the high-priority HIE services. These services focus on additional facilitation of HIE within the state but are not required to enable HIE.

➤ Electronic Eligibility and Claims

Approach
The OHPR Administrative Simplification Work Group (http://www.ohpr.state.or.us/OHPPR/HEALTHREFORM/AdminSimplification/AdministativeSimplificationWorkgroup.shtml) was convened in early 2010 and developed a strategy for the standardization of electronic transactions by administrative rule and consistent with emerging national standards.

The workgroup goal and strategy recommendations adopted on May 11 and June 1, 2010 are to:

Goal: Reduce system costs and provider resources devoted to administrative transactions between payers and providers of care.

Strategy:

- Standardize electronic transactions by administrative rule, using multi-stakeholder developed products that are being used elsewhere already and are likely to be consistent with an emerging national standard. *(Rationale: There is significant risk in waiting for federal operating rules because they are phased in over a very long time period and it is unclear the federal operating rules will achieve the simplification necessary to reduce cost.)*

- Phase in requirements for both providers and payers to do business electronically. *(Rationale: Experience in the Medicare program suggests this can be done by providers when tools are provided and change required.)*

- Time the transition to fully electronic transactions to:
    – Realize savings for providers, payers and purchasers in the short term.
    – Coordinate with provider, payer and clearinghouse work to retool systems to comply with the HIPAA 5010 transaction standards that become effective January 1, 2012.
    – Coincide with the timing of Medicare requirements to go all-electronic.
    – Ensure that by complying with Oregon requirements, providers will increase opportunities for Medicare and Medicaid incentives for achieving meaningful use of health information technology.

- Encourage and support private sector collaborative innovation in other areas of administrative simplification.

- Provide for an ongoing public sector role to ensure that efforts to reduce administrative costs continue and are effective.

Work Group Recommendations:

1. Oregon should adopt the Minnesota approach to standardization and automation.

2. Oregon requirements for standardization and automation should be phased in.

3. Oregon should lead and not wait for the federal government to standardize HIPAA transactions.

4. Technical assistance to providers will be important to help providers take full advantage of administrative simplification opportunities.

5. Ongoing public-private partnerships should continue to identify success, challenges and opportunity for future administrative simplification.

As part of O-HITECs role in EHR adoption and facilitating achievement of meaningful use, O-HITEC may have a significant role in providing technical assistance to providers in supporting administrative simplification efforts.

Key Implementation Elements

1. Standardization and automation of insurance transactions

   - The Department of Consumer & Business Services (DCBS) should adopt by administrative rule uniform companion guides for eligibility verification and claims submission in 2011 and payment remittance advice in 2012 and require insurers to use them for their electronic transactions beginning in 2012.

   - DCBS's rule should require insurers to process eligibility inquiry (270/271), claims (837) and payment remittance advice (835) transactions electronically on a phased-in basis—setting the dates for each transaction to "go all-electronic" about a year after a uniform companion guide is adopted in Oregon. Funds transfer and claims status inquiry (276/277) transactions should go all-electronic in January 2014, after uniform rules have been adopted by US HHS.

2. Application of the standardization and automation requirements to all payers

   - The Oregon Legislature should enact legislation in 2011 giving DCBS authority to establish uniform standards for health care administrative transactions to all payers, including third party administrators and self-insured plans and to collect data from them to monitor progress and identify future opportunities.

   - DCBS should extend the rules adopted in Phase 1 to all payers.

   - The Oregon Health Authority as a payer should align with the rules established for insurers in Phase 1 by DCBS and implement these standards in its contracts with Medicaid managed care organizations, Medicaid providers and others as applicable.

3. Ongoing public/private collaboration on administrative simplification efforts

   - The industry should bring forward its recommendation to develop a single sign-on to health plan web portals and a single source for information used in physician credentialing. In addition, the industry should identify and develop additional opportunities for standardization.

   - The Insurance Commissioner and the director of the Oregon Health Authority should take joint responsibility for continued progress toward greater administrative simplification. They should carry out these responsibilities in collaboration with providers and payers, collecting data to evaluate progress; establishing priorities, goals, benchmarks and timelines; and using rulemaking authority as necessary.

Table 11. Proposed Oregon Timeline for Standardizing HIPAA Electronic Transactions and Going All-Electronic

	ELIGIBILITY INQUIRY AND RESPONSE (270/271)	CLAIMS (837)	REMITTANCE ADVICE (835)	ELECTRONIC FUNDS TRANSFER
Period for industry review of Minnesota companion guides ends	1/1/2011 (end of Q4 2010)	7/1/2011 (end of Q2 2011)	1/1/2012 (end of Q4, 2011)	Not applicable
DCBS rule-making to adopt uniform companion guide completed	4/1/2011 (end of Q1 2011)	10/1/2011 (end of Q3 2011)	7/1/2012 (end of Q2 2012)	Not applicable
Date that uniform guide standards must be followed for electronic transaction	1/1/2012 (end of Q4 2011)	10/1/2012 (end of Q32012)	7/1/2013 (end of Q2 2013)	Not applicable
Date when all transactions must be processed electronically	7/1/2012 (end of Q2 2012)	1/1/2013 (end of Q4 2012)	10/1/2013 (end of Q3 2013)	1/1/2014 (end of Q4 2013)

On August 10, 2010, the Oregon Health Policy Board (OHPB) approved the Administrative Simplification Work Group recommendations augmented with several additions:

   - Future administrative simplification work groups should include the broad participation of providers, health plans and other stakeholders.

   - The next stage for further administrative simplification activities should include prior authorization, referrals and plain language billing for consumers.

- Metrics to measure cost savings from administrative simplification efforts should be developed and implemented.

- Efforts should explore/develop mechanisms to capture savings for the benefit of consumers.

- The Office of HIT shall develop an implementation plan that addresses issues particular to small medical practices.

- Quarterly reports on implementation progress will be made to the OHPB.

Background

Almost all of Oregon's hospitals have patient accounting and billing systems that generate electronic claims from their internal systems or contract with a billing services provider or clearinghouse. The 2009 Ambulatory EHR survey indicated that 80% of clinicians covered by the survey were in practices with an electronic practice management (EPM) system. Nearly all EPM systems have electronic claims submission capabilities. An unknown number of practices contract with a commercial billing service or clearinghouse that generates electronic claims.

Two major efforts are underway regarding the administrative simplification of health care administrative transactions. Both initiatives are aimed at increasing adoption and use of electronic eligibility and claims transactions, standardization of forms and processes, simplification efforts and best practice standardization—all directed toward improving efficiencies for providers and health plans.

In May 2008, the Oregon Association of Hospitals and Health Systems, the Oregon Medical Association and Regence Blue Cross/Blue Shield of Oregon convened an administrative simplification summit of hospitals, physician practices and health plans to determine the level of interest by providers and health plans in working collaboratively to address administrative simplification efforts. Following a series of meetings, administrative simplification was formalized as one of four key areas of focus for the Health Leadership Task Force (www.HealthLeadershipTaskForce.com). The HLTF was commissioned in summer 2008 at the request of the business community (Oregon Business Council, Associated Oregon Industries, Oregon Business Association and the Oregon Coalition of Health Care Purchasers) to develop ways to keep increases in health care costs and premiums closer to the Consumer Price Index. Since fall 2008, three administrative simplification subgroups (claims, eligibility and credentialing) have been working to identify improvements that will result in more efficient use of health care administrative resources. The current status of these efforts is:

- Increased use of websites for eligibility and claims information: Eight Oregon insurers are moving forward with offering a single sign-on capacity to providers by late 2010/early 2011. This single point of entry will allow physicians and hospitals to log in once and access these health plans. This approach is consistent with the single sign-on portal (OneHealthPort) service in Washington State that several of the health plans are already participating in.

- Enhanced health plan website functionality: The claims/eligibility subgroup has recommended additional capabilities be added or modified to allow greater use and increased efficiencies based on best practice statements developed for each of 75 elements. Health plans are reviewing the recommendations for implementation.

- Common credentialing: The credentialing subgroup has recommended a single source responsible for maintaining documents and obtaining primary source verification that would be used by all credentialing entities for each type of licensed provider. A small group is evaluating implementation options.

- Participation in OHPR Administrative Simplification Work Group: Representatives of the HLTF Administrative Simplification committee are participating in the OHPR Administrative Simplification Work Group that was created under House Bill 2009 of the 2009 Legislature.

HB2009 included provisions that:

- Authorize the Oregon Department of Consumer and Business Services (DCBS) to establish administrative rules applicable to health insurers licensed by DCBS that incorporate standards developed by the Office for Oregon Health Policy and Research (OHPR). This rulemaking authority will establish uniform standards for insurers around standards for eligibility verification, claims processing and payment and remittance advice transactions.

- Require OHPR to convene a stakeholder workgroup to develop uniform standards for health insurers licensed in the state, including but not limited to eligibility verification, health care claims processes and payment and remittance advice.

The OHPR Administrative Simplification Work Group was convened in early 2010 and developed a strategy for the standardization of electronic transactions by administrative rule and consistent with emerging national standards.

The Administrative Simplification Work Group collected data from a number of health plans and provider organizations and developed current usage estimates of various administrative transactions.

Table 12. Estimated Use of Electronic Administrative Transactions, Spring 2010

TRANSACTION TYPES	HOSPITALS	PHYSICIAN PRACTICES	PAYERS
Eligibility Verification			
Estimated % electronic	40%	10%	71% combined
Estimated % web	40%	60%	
Estimated % phone	20%	30%	29%
Claims Submission			
Estimated electronic	90%	77%	80%
Claims Status Inquiry and Response			
Estimated electronic	0%	0%	37% combined
Estimated % web	50%	33%	
Estimated % phone	50%	67%	63%
Remittance Advice			
Estimated electronic	80%	20%	15%

At the request of the OHPB, additional information was collected on the impacts of administrative simplification efforts on small physician practices. Targeted conversations with a number of small practices in June/July 2010 confirmed support for the Work Group recommendations. Additionally, practices emphasized the importance of applying requirements to third party administrators, clearinghouses, payers and vendors, and the importance to providers of access to high speed internet services in rural areas. Further administrative simplification efforts are needed to address credentialing, standardized drug formularies, and standardized prior authorization systems and requirements.

Related State Laws

HB2009 (2009 Legislative Session), Section 1192 and 1194 regarding Uniform Standards for Health Insurers

SECTION 1192. The Director of the Department of Consumer and Business Services may establish by rule uniform standards applicable to health insurers licensed by the Department of Consumer and Business Services that incorporate the standards developed by the Office for Oregon Health Policy and Research pursuant to section 1193 of this 2009 Act.

SECTION 1193. (1) The Office for Oregon Health Policy and Research shall convene a stakeholder workgroup to develop uniform standards for health insurers licensed in this state, including but not limited to standards for:

(a) Eligibility verification.

(b) Health care claims processes.

(c) Payment and remittance advice.

(2) The Office for Oregon Health Policy and Research shall report on progress toward the development of uniform standards under subsection (1) of this section to the appropriate interim committee of the Legislative Assembly no later than October 1, 2009.

➤ Electronic Prescribing and Refill Requests

Approach

Electronic prescribing (eRx) in Oregon is widely handled through providers' EHRs and standalone modules. Oregon's high level of EHR adoption and the increased use of eRx in the last two years support continued reliance on the direct interactions between prescribers and pharmacies. Meaningful use criteria for eligible professionals establish the expectation that certified EHR systems have the capability for electronic prescribing. Provision of eRx application services and infrastructure through local HIOs or the governance entity is not currently considered a priority that would accelerate eRx adoption and use. However, the HIOs will need to interoperate with electronic prescribing and fulfillment related to compilation of medication histories. Progress in eRx adoption will be closely monitored as part of Oregon's HIT and HIE overall efforts, including the potential that HIO services may provide services to further eRx adoption and use. HITOC and, later, the state designated entity (SDE), will support and facilitate adherence to transaction and data standards for electronic prescribing.

Table 13. Surescripts State Progress Report on Electronic Prescribing

	OREGON 2006	OREGON 2007	OREGON 2008	OREGON 2009	U.S. 2009
Physicians routing e-prescriptions at year end	1.04%	5.71% (381)	15.43% (1,030) Rank = 11	36.93% (2,464)	About 25% of all office-based prescribers
Community pharmacies activated for e-prescribing	65.41%	70.88% (426)	76.86% (475) Rank = 27	87.85% (528)	About 85%
Prescriptions routed electronically	0.10% Rank = 38	1.65% Rank = 18	4.39% Rank = 15	16.22%	Almost tripled over 2008
Patient visits with a prescription benefits request	2.00%	1.96%	7.86%	34.09%	More than tripled over 2008
Patient visits with a prescription benefit response	0.29%	0.87%	4.37% Rank = 19		
Patients with available prescription information available from payers	0.00%	48.45%	55.83% Rank = 36	58.56%	
Prescription history information delivered to prescribers	State-level data not available	State-level data not available	State-level data not available	1.88%	Increased 5-fold over 2008 to 81 million

Source: Surescripts State Progress Reports for 2007, 2008 and 2009, and 2009, National Progress Report on E-Prescribing available at http://www.surescripts.com/media/515306/2009_national-progress-report.pdf.

Background

In a statewide environmental assessment of HIT capabilities, the overall adoption rates of eRx in Oregon were outlined.[11] The Surescripts State Progress Report on Electronic Prescribing[12] report as of December 31, 2009, shows that Oregon ranks favorably against national statistics. Anecdotal information from providers and pharmacies notes that substantial numbers of physicians and providers have initiated electronic prescribing in 2009.

The 2009 Oregon Ambulatory EHR Survey highlights:

- 65.5% of clinicians covered by the survey work in practices with an EHR system.

- 76% of surveyed ambulatory practices and clinics with EHRs (87% of clinicians) are able to generate printed prescriptions from their EHR systems.

- 57% of surveyed ambulatory practices and clinics with EHRs (74% of clinicians) are able to electronically transmit an electronic prescription to a pharmacy.

- 64% of surveyed ambulatory practices and clinics with EHRs (83% of clinicians) have an electronic interface to pharmacies.

State Law Status

"Oregon Pharmacy law permits electronically transmitted prescriptions for non-controlled substances by practitioners licensed within the state. OR. Rev. Stat. Ann. § 689.005(31) (2007); OR. Admin. R. 855-006-0015(1) (2009); OR. Admin. R. 855-019-0210(6) (2009). Electronically transmitted prescriptions for controlled substances are not allowed, unless they are permitted by federal regulations. OR Pharmacy law generally adopts federal regulations with respect to requirements for controlled substance prescriptions. In addition, OR uses the federal schedules of controlled substances. OR. Admin. R. 855-080-0085 (2009); OR. Admin. R. 855-080-0020 (2009). Prescriptions received electronically may be retained electronically. OR. Rev. Stat. Ann. § 689.508 (2007); see also OR. Admin. R. 855-041-0060(1)(a) (2009)"

HB2009

SECTION 297. ORS 414.327 is amended to read:

414.327. [*(1) The Department of Human Services shall seek a waiver from the federal Centers for Medicare and Medicaid Services to allow the department to communicate prescription drug orders by electronic means from a practitioner authorized to prescribe drugs directly to the dispensing pharmacist.*]

[(2)] The [*Department of Human Services*] **Oregon Health Authority** shall adopt rules permitting [*the department*] **a practitioner** to communicate prescription drug orders by electronic means [*from a practitioner authorized to prescribe drugs*] directly to the dispensing pharmacist.

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[11] Oregon Health Information Technology Environmental Assessment, Feb. 2010.
     Accessed at http://www.oregon.gov/OHPPR/HITOC/docs/Oregon_HIT_EnvirnomentAssessment20100209.pdf.
[12] The Surescripts reports are available at http://www.surescripts.net/e-prescribing-statistics.html.

➤ Prescription Fill Status

Approach

Prescription fill status is primarily an interaction between the provider's EHR and the pharmacy. Most pharmacies currently do not provide fill status back to prescribing providers. Some providers have expressed concern that discontinued medications with remaining refills may continue to be filled and they have no way of catching the possibility that a patient could be taking multiple medications for the same purpose. The most reasonable approach to keep prescribers informed about the fill status of prescriptions would seem to be some type of electronic notification confirming that prescriptions were filled and picked up by the patient and/or notification that prescriptions were not picked up after some period of time. The role for HIOs in this feedback loop from pharmacies to prescribers is unclear. Progress in developing a mechanism to provide fill status feedback will be monitored as part of Oregon's HIT and HIE overall efforts to include the potential that HIO services may provide services to fill status. HITOC and the SDE will support and facilitate adherence to transaction and data standards for electronic prescribing and fill status notifications.

➤ Medication Fill History

Approach

Medication history information is primary information used by clinicians in the assessment and treatment of patients. The reconciliation of current medications is an integral part of most clinical service encounters. The first source for medication history information is the patient medical record and information supplied by the patient.

Information may also be available in the medical records of other health care providers and in databases of pharmacy benefit managers, health plans and others. Retrieval of medication history information from multiple providers and data sources is a health information exchange service that will need to be developed to assure that complete medication history information can be available to clinicians.

Compilation of medication fill histories from multiple sources of data is a service that would include access to information through local HIOs and the governance entity. In Phase I, further planning will consider strategies for retrieving medication history data from multiple EHRs, the All Payer Data Reporting Program, the Medicaid Management Information System and other available sources.

Background
The 2009 Oregon Ambulatory EHR Survey highlights:

- 65.5% of clinicians covered by the survey work in practices with an EHR system.

- 93% of surveyed ambulatory practices and clinics with EHRs (95% of clinicians) included functionality in the EHR systems to review and update medication lists.

Oregon capabilities
The 2009 Legislature enacted Senate Bill 355 that establishes a Prescription Drug Monitoring Program (PDMP) to address prevention of prescription drug diversion by providing a tracking system that tracks dispensing of Schedule II-IV prescription drugs.

➤ Electronic Clinical Laboratory Ordering and Results Delivery

Approach

The workflow and transactions involved in laboratory ordering and results delivery are primarily handled through direct relationships between providers and commercial or hospital laboratories as well as the Oregon State Public Health Laboratory. These transactions are increasingly brokered electronically by the provider EHR and its lab interface. Oregon's high level of EHR adoption and willingness of commercial and hospital laboratories to electronically process orders and reports support continued reliance on these health information exchange functionalities. Provision of laboratory ordering and reporting services and infrastructure through a local HIO or the governance entity are not currently considered a priority that would accelerate the electronic laboratory transaction adoption and use in most communities. Progress in clinical laboratory electronic transactions adoption will be closely monitored as part of Oregon's overall HIT and HIE efforts. During Phase 1, HIO roles in provision of electronic laboratory ordering and reporting for small hospitals and rural providers will be evaluated. Phase 1 will also consider coordination strategies involving the local HIOs, Oregon Electronic Laboratory Reporting (ELR) of the Oregon Public Health Division and the Oregon State Public Health Laboratory. HITOC and the SDE will support and facilitate adherence to transaction and data standards for lab ordering and reporting.

Background

The majority of Oregon's ambulatory providers can send and receive clinical laboratory results electronically. The following is a summary of provider groups able to send and/or receive electronic laboratory orders and reports as of early 2009. As EHR adoption continues to rise, the number of electronic laboratory orders and reports will continue to go up.

The 2009 Oregon Ambulatory EHR Survey highlights:

- 65.5% of clinicians covered by the survey work in practices with an EHR system.
- 75% of surveyed ambulatory practices and clinics with EHRs (87% of clinicians) are able to enter and review lab orders.
- 48% of surveyed ambulatory practices and clinics with EHRs (69% of clinicians) are able to electronically place lab orders.
- 72% of surveyed ambulatory practices and clinics with EHRs (91% of clinicians) have an electronic EHR – laboratory interface.

The Oregon State Public Health Laboratory (OSPHL) provides laboratory testing services related to communicable diseases and newborn metabolic screening. In addition to supporting local health departments and agencies, OSPHL provides testing services to several other states, including:

- Newborn metabolic screening: Alaska, Hawaii, Idaho, New Mexico and Nevada.
- Communicable disease testing: Hawaii, Montana, Washington and a mutual assistance agreement with Alaska.

The OSPHL existing Laboratory Information and Tracking System (LITS) supports basic electronic ordering and reporting but lacks critical features required to support high volume laboratory operations and Centers for Disease Control and Prevention (CDC) requirements. OSPHL has issued a request for proposal for a replacement Laboratory Information Management System (LIMS) capable of expansion and integration with the Electronic Laboratory Reporting program, CDC and community partners using HL7 interfaces furthering broad-based user access and providing additional functionality to meet OSPHL needs. The replacement LIMS system should be operational in early 2011.

Oregon capabilities

Currently, the capabilities for the state of Oregon include:

- As of July 2010, Oregon has 175 laboratories accredited by a recognized accrediting organization, 268 laboratories that operate under a certificate of compliance through a laboratory inspection program and 13 that operate under a registration certificate. These 456 laboratories include commercial, hospital and physician laboratories offering moderate to high complexity laboratory testing that are the highest priority for use of electronic ordering and reporting transactions.

- Commercial and most hospital laboratories providing services to ambulatory practices are able to receive electronic laboratory orders and provide electronic reports based on industry standards. Labs have implemented standard interfaces to/from most EHR vendor systems used by practices referring specimens. Commercial labs provide secure website access for submission of orders and retrieval of lab results that can be used by practices with and without EHRs.

- Of the 47 hospitals in Oregon with EHRs, 43 hospitals have electronic laboratory results included in their EHR systems and/or either fully or partially implemented CPOE for laboratory services.

- Laboratories express high interest in electronic information exchange to/from physician EHRs. The major issue is protracted EHR adoption in physician practices.

- Medical practices owned or operated by multi-hospital health systems in Oregon have electronic ordering and results report through health system EHRs. Many affiliated practices have comparable access. The major health system laboratories provide secure website access for submission of orders and retrieval of lab results comparable to commercial laboratories. Several hospital labs have implemented standard electronic interfaces to/from a number of EHR systems.

- The Oregon Electronic Laboratory Reporting (ELR) project is a long-term effort of the Oregon Public Health Division to convert major labs, county health departments and the state health department to electronic data interchange. In this system, the ELR functions as an electronic hub to accept, translate, process and route electronic HL7 messages containing lab and clinical data[13] The ELR system currently receives data daily from 14 clinical labs in addition to the Oregon State Public Health Laboratory (OSPHL).

[13] For a comprehensive assessment of Oregon's Department of Human Services (DHS) Health Information Technology, please refer to the Oregon DHS HIT Scan Report 2009.

➢ Electronic Public Health Reporting – Reportable Conditions

Approach

All Oregon physicians, other health care providers and laboratories are required by Oregon law (statutes and administrative rules) to report certain diseases and conditions to local health departments that in turn provide reports to the State Public Health Division. Information on reportable conditions from laboratories is increasingly being submitted electronically to the Oregon Public Health Division's Electronic Laboratory Report (ELR) system and into Oregon Public Health Epi-User Systems (ORPHEUS). As of September 2009, the Oregon State Public Health Laboratory and 13 commercial and hospital laboratories departments electronically submit information on reportable conditions to the ELR system. The goal is to electronically interface all Oregon laboratories to the ELR within the next several years. In essence the ELR system already has statewide HIE functionality serving laboratories and county health departments that could be extended to physician practices, clinics and other providers.

Submission of information on reportable conditions by physician practices, clinics, hospitals and other providers utilizes a paper-based Confidential Oregon Morbidity Report that is submitted by mail or fax to local health departments. Oregon's high level of EHR adoption and the meaningful use criteria to electronically submit public health reports creates the opportunity to develop an electronic transaction process between providers and local health departments and/or the Public Health Division. The goal is to encourage providers to submit reports directly from certified EHR systems from physician practices, clinics, other eligible professionals and hospitals. Simplification of the workflow and submission process for providers is expected to increase the completeness and timely submission of reports. The Public Health Division is developing plans for submission of provider reports as electronic transaction into ORPHEUS.

Submission of communicable disease reports through local HIOs may be a useful service to community providers depending on how the local HIOs evolve. Progress in public health electronic transactions adoption will be closely monitored as part of Oregon's HIT and HIE overall efforts. During Phase 1, HIO roles in supporting electronic reportable condition transactions will be evaluated. During Phase 1 strategies will be considered to maximize the use of the ELR system for laboratories. HITOC and the SDE will support and facilitate adherence to transaction and data standards for public health reporting.

Background

ORHPEUS is a joint database development and integration effort co-sponsored by the Acute and Communicable Disease Prevention (ACDP) and HIV, Sexually Transmitted Disease and Tuberculosis (HST) programs within the Office of Disease Prevention and Epidemiology (ODPE) in the Oregon Public Health Division. ORPHEUS is an integrated electronic surveillance system intended for local and state public health epidemiologists and disease investigators to efficiently manage communicable disease reports. ORPHEUS receives communicable disease data from laboratories through the Electronic Laboratory Reporting (ELR) system and from local health departments. It provides communicable disease reporting to the CDC via Public Health Information Network (PHIN) Messaging System.

The Electronic Laboratory Reporting (ELR) project is a long term effort of ODPE/ACDP to convert reporting from major labs, county health departments and OSPHL to secure electronic data interchange. The ELR functions as a secure electronic hub to accept and process HL7 messages containing laboratory and clinical data, and route the transformed data to state program area systems, including ORPHEUS, and to local health departments. The ELR system currently receives laboratory results of interest from the OSPHL LITS and commercial and hospital laboratories. Implementation of the OSPHL LIMS in early 2011 will further enhance the HIE functionality of OSPHL interfaces to the ELR, ORPHEUS and other systems.

Oregon capabilities

The ELR system receives laboratory results (as of late 2009) from the following:

- OSPHL
- 13 in production status
- 4 laboratories in testing or review

The ELR system supports a number of electronic data interchange projects including multiple disease registries and the Communicable Disease (CD) Database System, a distributed database system used by 22 of the largest population counties. The local health departments transmit data extracts that the ELR system automatically collects and processes.

➢ Electronic Public Health Reporting – Immunizations

Approach

Oregon Immunization ALERT, a statewide immunization information system developed to achieve complete and timely immunization of all Oregonians, was implemented in 1996. County health departments submit immunization information electronically through the Immunization Registry Information System (IRIS). An upgraded ALERT Immunization Information System (ALERT IIS) will be available in mid-2010 that combines ALERT and IRIS into an integrated system with web-based online data entry, additional electronic data transaction capabilities, expanded data management and reporting capabilities to support a lifelong immunization record. Using Medicaid Transformation Grant (MTG) funds, additional bi-directional interfaces within ALERT IIS are being implemented to facilitate the increased use of electronic transactions in the system. The Medicaid Transformation Grant project is also being used to support the development, deployment and operations of interfaces in several provider EHR systems serving Oregon Medicaid recipients, specifically foster children.

ALERT IIS functions are being developed to support bi-directional electronic transactions with many provider EHR systems, especially larger provider organizations and health systems. The potential roles of local HIOs in supporting transactions and queries between providers and ALERT IIS are yet to be considered. Such services through local HIOs may be useful to community providers depending on how the local HIOs evolve. Progress in electronic transaction adoption will be closely monitored as part of Oregon's HIT and HIE efforts. During Phase 1, HIO roles in supporting electronic immunization data submission and retrieval will be evaluated. HITOC and the SDE will support and facilitate adherence to transaction and data standards for immunization reporting.

Background

Oregon Immunization ALERT is a statewide population-based immunization registry system developed to achieve complete and timely immunization data of all Oregonians. ALERT originally focused on ages 0 – 18 years but has been expanded up to age 23. While ALERT is accepting data for all ages, full functionality for all ages is dependent on future funding. ALERT receives data from both private and public health care sectors. Private providers submit immunization information to ALERT through the electronic transfer of records or submitting hard copy/bar code data. County health departments submit immunization information electronically through the Immunization Registry Information System. ALERT continually merges all of the data to create a complete immunization record.

An upgraded ALERT Immunization Information System will be available in mid-2010. The upgraded system:

- Merges the IRIS tracking records at local health departments with the original ALERT system implemented in 1996 into the new ALERT IIS,
- Provides web-based online data entry to replace paper submission of data, and
- Enables users to enter historical immunization for patients of any age, update demographic and vaccination information, order state-supplied vaccine, track and balance inventory, run reports and generate reminder or recall letters.

ALERT is available to many types of providers as "authorized users". Under the enabling legislation for ALERT (ORS 433.080) "provider" means a health care provider licensed to provide health care services in Oregon, managed health care system, health maintenance organization, health service contractor, insurance carrier and the Division of Medical Assistance Programs (DMAP).

Oregon capabilities

As of September 2009, ALERT was receiving data from approximately 550 primary and secondary sources across Oregon. Approximately 80% of immunization data is submitted electronically from EHR or claims systems. ALERT also exchanges data with several large health systems. ALERT's secure website averages more than 25,000 successful searches per month from over 6,400 users. The vast majority of queries occur online, although phone and fax services are used by many providers, schools and child care centers.

➢ Quality Improvement (QI) Measurement & Reporting

Approach

The reporting of quality metrics as part of demonstrating Stage 1 meaningful use will be a responsibility of eligible professionals and eligible hospitals. In Phase 1, further planning will consider strategies for supporting eligible providers in their reporting of quality metrics including coordination or reporting related to Medicaid incentive payments. The planning will consider both the attestation process to be used in 2011 and the electronic submission process that begins in 2012 that may be facilitated by local and statewide HIE functionalities.

The widespread adoption of EHRs enhanced by improved access to information through robust HIE is expected to impact and improve the quality of care. Reporting of quality metrics is an important and necessary part of furthering quality improvements. However, the full realization of potential improvements envisioned for federal and Oregon health reform efforts is critically dependent on empowering providers with timely, actionable and clinically relevant metrics about their performance compared with national and local standards of care. Oregon's approach is to build upon Oregon's existing state-of-the-art quality measurement and improvement initiatives based on encounter and medication data from claims. Clinical data and quality metrics from provider EHRs will be integrated into a robust system for enabling provider improvement activities. Developing capabilities for quality metrics and improvement activities expected for MU in Stages 2 and 3 requires that pilots and other developmental efforts begin in MU Stage 1. Oregon's Phase 1 planning includes conducting pilot projects expanding the pooling and reporting of quality metrics to include EHR-based data.

Background

Oregon has extensive experience managing and coordinating multi-stakeholder quality reporting activities, including addressing issues related to patient privacy and competition between business entities. This takes place within state government, such as the Oregon Health Policy and Research Office's hospital quality metrics and the Oregon Patient Safety Commission's medical errors reporting. It also occurs across deliverers of a single setting of care, such as the Oregon Association of Hospitals and Health Systems quality metrics website and the Portland Independent Provider Association's (IPA) quality reporting system. There is also coordination across diverse settings using a single source of information such as Medicare data aggregated by Acumentra and commercial insurers' claims aggregated by the Oregon Health Care Quality Corporation (Q-Corp).

Experience has demonstrated that public-private, multi-stakeholder quality reporting is especially effective in addressing two key areas. The first area is the process of determining who and what should be measured and reported. Many decisions must be made, such as measure definitions, minimum denominator sizes, statistical reliability and setting of benchmarks. These decisions must balance the public and purchasers' right to know with the health care providers' right to fairness. The second area is the technical effort needed to get information out of diverse data sets in a standardized way and delivered with appropriate protections of privacy and security to an entity that can aggregate and report the data.

Oregon is already aggressively pursuing improvements in quality reporting. An Oregon Quality Improvement Pilot Project, will assure that we make progress toward three compelling imperatives encompassed by Oregon's quality reporting initiatives: 1) Improving health care services that lead to healthy populations; 2) Reducing waste and improving the efficiency and value of care delivered to patients; and 3) Translating quality information to patients in order to engage them in managing their own health and health care. The main thrusts for health care reporting in Oregon are public accountability and clinical quality improvement. Measurement and reporting activities come together to support the Oregon Health Authority's "triple aims" of lifelong health, quality of care and lowering costs.

Whereas insurance claims and billing information have been available for the creation of metrics, these primarily reflect the *processes* of health care as opposed to measuring the *outcomes* of care delivered to patient populations. The administrative information obtained for quality measurement is also not as current as desired.

Oregon intends to leverage and augment existing quality measurement efforts based on claims data, with a planned effort to include clinical quality measures drawn from provider EHR systems. One significant barrier is that physicians do not have time to attend to a variety of new initiatives; technical infrastructure is needed to facilitate data transfer from prospective participants to the quality initiatives.

It is also desirable that physician quality measures be delivered by one standard and/or source. During Phase 1, a clinical quality measurement pilot will leverage claims and EHR-based data to provide integrated quality metrics tools for providers' quality improvement. Subsequent planning will then determine the best approach for large-scale implementation of clinical quality measures and reporting from EHR, local HIOs and/or the governance entity.

The pilot project will be constructed to begin the transition from purely administrative and process measures data to outcomes using clinical information from physician EHRs. An estimated 12 medical groups will initially participate. An additional 18 measures are planned from clinical EHR data. The clinical metrics will include the three measures from the Core Set for Eligible Professions of the Clinical Quality Measures (CQM) specified in the final rule announced July 13, 2010, one metric from the Alternate Core Set, ten metrics from the Additional Set and four other non-CQM metrics. In total, 22 of 44 CQM measures for eligible professionals (3 from the Core Set, 1 from the Alternate Core Set and 18 from the Additional Set) are planned from the use of administrative and/or clinical data. Oregon intends to incorporate clinical data into the pilot project in 2011 via summary statistics from practice clinical data, which will be widely available in 2012 for broader QI efforts.

By incorporating clinical information from physician EHRs into the quality management workflow, and creating the means for physicians, patients and purchasers to easily access metrics based on clinical guidelines, Oregon will have moved its health care QI capabilities to the next level. Physicians will be able to assess and manage their own patient populations more easily. Patients will have better information about care they are receiving, become more informed and active participants in their own care, and will have indicators of which providers are meeting QI goals. Purchasers will have better information about the value and quality equation, helping to drive care to the better providers. Oregon is well positioned to capitalize on federal initiatives to drive quality in health care.

Oregon capabilities

Oregon's existing QI measurement pilot project
The Oregon Health Care Quality Corporation (Q-Corp), a non-profit organization and a federally-designated Chartered Value Exchange, is a significant contributor to the state's quality reporting capacity and efforts. With support from 11 participating health plans and the Aligning Forces for Quality Care collaborative of the Robert Wood Johnson Foundation, the Partner for Quality Care initiative is in the third round of collection of encounter and medications (claims) data cumulatively covering the period January 2005 through March 2010. Data from the first two rounds include 96 million claims for 1.6 million unique individuals from 10 participating health plans including Oregon's largest Medicaid managed care plan. The data are pooled to measure and report quality metrics for 2,200 adult primary care physicians in 120 medical groups with 308 clinic sites. About two-thirds of the medical groups are registered for the secure website that allows them to access and review the data and quality metrics on their patients. To our knowledge, Oregon is the only state with a web-based interactive process with medical providers to effect quality improvements based on quality measures. The selected quality measures are based on national standards including those from the National Quality Forum (NQF). The measures were further adapted to Oregon's environment and vetted by stakeholders to ensure more complete and open collaboration. Currently 16 metrics are available from claims information. The measures include 14 of the 38 Additional Set of CQM specified in the final rule.

In February 2010, the Q-Corp launched an online resource for consumers that allows Oregonians to compare the quality of primary care provided in about 300 doctors' offices across the state. The publicly available data consist of national and local comparisons on nine primary care measures. Patients and purchasers can use the site to determine if their doctors' offices perform better than average, average, or below average, in comparison with other practices in the state. Doctors can use the site to help assess what is working in their own practices, as well as how they compare to their peers.

Oregon Patient Safety Commission:
The Oregon Patient Safety Commission was created by the 2003 Legislature to improve patient safety by reducing the risks of serious adverse events occurring in Oregon's health care system and encouraging a culture of patient safety in Oregon. The Commission is a Patient Safety Organization (PSO) as recognized by the federal Agency for Healthcare Research and Quality. The Commission has created a web-based confidential, voluntary adverse event reporting programs that includes reporting from 56 of Oregon's 58 hospitals, 25 community/retail pharmacies, 43 ambulatory surgery centers and 109 nursing home participants.

Children's Health Improvement Consortium:

The Tri-state Children's Health Improvement Consortium (T-CHIC) is an alliance between the Medicaid/CHIP programs of Alaska, Oregon and West Virginia formed with the goal of markedly improving children's health care quality. The Oregon-led consortium is working on a Children's Health Insurance Program Reauthorization Act (CHIPRA) Quality Demonstration to demonstrate the unique and combined impact of patient-centered care delivery models and health information technology (HIT) on the quality of children's healthcare, as measured by a variety of indicators.

Specifically related to HIT, the project aims to determine the level of feasibility for providers to report on CMS' recommended set of pediatric core measures through data captured in EHRs, as well as to determine the impact that these systems have on children's health outcomes. Alignment of T-CHIC activities with both national and state HIT development will be ensured through coordination of efforts with HITOC and the state Medicaid HIT Planning Advance Planning Document (HIT P-APD). As development of these programs moves forward, they will be integrated with quality measurement and reporting efforts to the greatest extent possible.

State Law Status: Oregon Patient Safety Commission
- Oregon Revised Statutes 442.819 through 422.851
- Administrative Rules regarding Oregon Public Safety Reporting Programs
    - Hospitals: 325-010-0001 through 325-010-0060
    - Pharmacies: 325-015-0001 through 325-015-0060
    - Long Term Care Facilities: 325-020-0001 through 325-020-0055
    - Ambulatory Surgery Centers: 325-025-0001 through 325-025-0060

Also see:
- Q-Corp: http://q-corp.org, http://q-corp.org/programs/partner-for-quality-care-initiative
- Oregon Patient Safety Commission: http://www.oregonpatientsafety.org/

➢ Clinical Summary Exchange for Care Coordination and Patient Engagement

Approach

Care Coordination: Care summaries from provider EHR systems will be accessible through the direct exchange between provider organizations via clinical messaging, and accessible via local HIOs and the governance entity on an as-needed basis. Patient engagement will be addressed by ensuring that provider EHR systems can provide care summaries to patients on a routine basis.

During Phase 1, per the guidance from the ONC regarding clinical summaries as a high-priority service, the requirements for the core services necessary for the exchange of clinical summaries will be defined and the services implemented and rolled out to HIE participants within the state of Oregon. Long-term operation of these services will transfer to the SDE during Phase 2.

Background

In a statewide environmental assessment of HIT capabilities, clinical summaries in Oregon were outlined.[14]

Electronic exchange of clinical information for coordination of care currently occurs primarily within a limited few health care systems (e.g. Kaiser Permanente NW, PeaceHealth, Providence). A key component for clinical summary exchange involves promoting the necessary technical requirements required for supporting the evolving national CCD, CCR and other XML exchange standards. These standards will help enable secure, timely and reliable exchange of electronic health information in the state. Use of certified EHRs and state accreditation of HIOs will allow for a flexible system to meet the needs of Oregon residents by facilitating exchange of clinical summary information, enhancing care coordination and increasing patient engagement. These goals can be achieved by assisting statewide HIE efforts, including implementing National Health Information Network (NHIN) and NHIN Direct connectivity, as such functionality becomes more available. Widespread exchange of clinical information for care coordination is understood as an important component in this strategic plan.

Oregon capabilities

Portland-Vancouver Health Information Exchange: The eight health systems (Providence, Kaiser Permanente, Southwest Washington Medical Center, Oregon Health and Science University, OCHIN, Legacy Health, Adventist Health NW and Tuality Healthcare) in the Portland-Vancouver metropolitan area are partnering to create a federated health information exchange.

Building on standard XDS.b functionality being deployed in or as an adjunct to their EHR deployments, the partners have agreed on a point-of-care "pull" model for exchange of patient clinical records. This is expected to go live in phases, with the first data exchange occurring between the Epic customers in mid-2010 and with Providence's HIE by the end of 2010.

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[14] Oregon Health Information Technology Environmental Assessment, Feb. 2010.
Accessed at http://www.oregon.gov/OHPPR/HITOC/docs/Oregon_HIT_EnvirnomentAssessment20100209.pdf.

➢ Approach for Leveraging Existing Regional and State Efforts

Assessing HIE capacity

To assess existing and planned HIE efforts within Oregon, an environmental survey was commissioned by HITOC in fall 2009. This survey yielded a wealth of information that was used to inform HITOC of what type and where HIE was occurring or planned, and where gaps existed in HIE coverage. [See Appendix D for a list of current and planned HIOs and Appendix H for details on the environmental scan.]

Also, in April 2010, a statewide HIE summit was held in which HIOs were invited to present information about their plans and progress to date. HITOC and later the SDE will work in coordination with efforts underway; administrative simplification, All Payer Data Reporting Program and the Oregon Health Authority and DHS Shared Services Architecture to leverage and avoid duplication of efforts and services offered.

Assessment of future HIO activities in Oregon

Oregon has a number of additional proposed HIO initiatives; all in various stages of planning and/or development, primarily in the initial exploration and/or planning stages. Some of the proposed initiatives have the potential to serve as pilots for how best to achieve interstate HIE.

The success of these initiatives is likely to depend on their ability to address a number of complex and interdependent problems, concurrently, including developing interoperability, building public trust, assuring stakeholder cooperation and developing a sustainable financial model. Lessons from unsuccessful HIO efforts in other states will be used to help guide Oregon's multiple HIO initiatives. The effort will also glean best practices from Oregon's own regional and local HIOs and share them. Long-term and sustainable revenue will be of keen interest as this issue represents one of the most salient barriers around HIO development. Of concern is that while these planned HIOs show considerable promise, some lack the necessary funding to develop economies of scale and create necessary revenue streams.

Coverage gaps by region

Partially as a result of Oregon's geographic size and distribution of health care market service areas, there are a number of gaps in HIE coverage. Identified gaps are reported by regions and counties in the following groupings based on health care market areas. Specific regions in Oregon identified as not actively part of existing or planned HIE and/or HIO initiatives include:

Table 14. Underserved and Unserved Counties (with population numbers)

REGION	
Eastern Oregon	Baker (16,455), Grant (7,530), Morrow (12,485), Umatilla (72,380), Union (25,360), and Wallowa (7,115)
Southern/Central Oregon	Klamath (66,180), Lake (7,585), Harney (7,705), and Malheur (31,675)
Northwest Coastal Communities	Clatsop (37,695) and Tillamook (26,060)

HIO participation, stability and sustainability

The level of participation in HIE among health systems and HIOs has steadily increased. Larger integrated delivery systems and hospitals have begun to establish cooperative arrangements and/or operational agreements around the electronic exchange of patient information. As the number of these arrangements increase, the level of regional connectivity will potentially increase as well. Likewise, as the number of ambulatory providers with EHRs increases, so will the ability to exchange clinical information electronically. The critical issues of stability and sustainability, however, are difficult factors to assess. As the number of local and regional HIOs grows, it will be important for HITOC to closely monitor the financial sustainability of these entities. This oversight capacity will be achieved through the state's HIE Participant Accreditation Process.

Results of the environmental scan illustrated that there is a vibrant community of local and enterprise HIOs that are currently providing HIE services to their members. Also, the high rate of adoption of EHRs among providers across the state has helped shape the statewide approach to leverage existing capacity. The governance entity's approach to providing services capitalizes on these efforts by supporting their growth and expansion to include more participants and by providing support and services to facilitate HIE between these organizations rather than replacing them with a single, monolithic state-run organization with mandatory participation by all.

Involving stakeholders

HITOC's Strategic Workgroup was used to engage HIE stakeholders and participants (among others) in the exploration and information gathering process for developing these strategic and operational plans. This stakeholder engagement process will continue throughout subsequent phases including the planning and rollout of services.

Approach

To capitalize on existing investments of money and resources, Oregon will adopt a flexible, phased approach to the implementation of statewide HIE services. These services will facilitate HIE within and outside the state of Oregon and fill functional gaps within existing HIE efforts.

In Phase 1, HITOC will complete the definition of the HIE Participant Accreditation Program. This program will be developed around a standards process also conducted in Phase 1. The standards process will involve the selection and adoption of statewide HIE interoperability standards, with nationally created and recognized technology and security standards as baselines. The accreditation program will also define parameters around assessing the privacy policies of the HIE participants, the security processes and practices of the HIE participants, in addition to other aspects of the HIE participant business practices as deemed necessary by the governance entity to insure uniform communication and data transport between HIE participants.

During Phase 1, HITOC and OHA will plan and implement shared services that will facilitate HIE among participants. The planning process will establish requirements and definitions of these services and create an implementation and rollout timeline. The OHIT staff and consultants will consult with HIE participants to assist in prioritizing the services to be offered by the state designated entity and to develop the business and technical requirements of each service. HITOC will communicate progress of the development of these services to the HIE participants during the implementation and rollout phases. HIE participants are considered the key stakeholders and primary customer base for the HIE shared services offered. Other stakeholders who will be included through outreach efforts and progress updates include consumers and consumer groups, privacy advocates and health care providers that are not eligible for meaningful use incentive payments.

> *The goal of any core services offered by the governance entity will be to facilitate and enhance the capabilities of Oregon HIOs and other HIE participants to perform HIE.*

The governance entity will also further assess the capabilities of HIE participants and define any functional gaps that the governance entity may offer in future phases. A continual process of "monitoring and adapting" the service offerings to be provided by the governance entity, to ensure that all areas of the state have ready access to the critical services needed for HIE.

HIE standards

Selecting and adopting standards for statewide HIE will be a primary goal of Phase 1. These standards will focus on:

1. "Push" capabilities to rapidly and maximally enable providers and hospitals eligible for meaningful use incentives to meet high-priority meaningful use objectives around receiving laboratory test results and sharing clinical summary information, and

2. Additional services and capabilities to enhance interoperability among state HIE participants, such as hospitals and local, enterprise and state agency HIOs within the state; standards governing interactions between parties within a particular HIO is the bailiwick of that HIO.

Alignment of "push" capabilities with NHIN Direct standards will be a strong architectural consideration. Baselines for interoperability standards will include HHS-adopted and nationally recognized technical standards, criteria and frameworks, such as NHIN Exchange and NHIN Direct, with adjustments as necessary to accommodate for modifications or new developments in pertinent areas like meaningful use requirements.

HIE technical standards

In conjunction with standards from the final rule on meaningful use, NHIN Direct standards outlined in the NHIN Direct Consensus Proposal (as of version 1.1.2) potentially will be used to enable "push" capabilities between providers:

> *Transport*
- SMTP over TLS
- POP3 over TLS or IMAP4 over TLS

> *Content Packaging*
- Simple content
- Mixed Multipart MIME
- XDS Metadata (XDM zipped files)

> *Content*
- Simple content
- Unstructured content such as graphics, PDF and other such documents
- Structured content standards as specified in the final rule:
    - HL7 Continuity of Care Document (CCD), Level 2 or higher, with potential further refinement as defined in HITSP C32
    - ASTM Continuity of Care Record as defined by E2369 (CCR)

> *Vocabulary*

Vocabulary standards as specified in the final rule, such as:

- ICD-9-CM
- SNOMED-CT
- RxNorm
- LOINC

> *Security*
- TLS
- X.509 PKI

In addition to "push," additional services and capabilities to enhance interoperability between state HIE participants will be developed. Potential baselines for these additional statewide HIE interoperability standards include but are not limited to those required for NHIN Exchange, NHIN Direct and the final rule for meaningful use. In Phase 1, the potential set of interoperability standards will be assessed against HIE participant needs, selected and adopted.

HIE accreditation

Technical criteria within the HIE Participant Accreditation Program developed in Phase 1 will be derived using the standards selected in Phase 1. Electronic Health Network Accreditation Commission (EHNAC) technical HIE criteria as applicable will be used as a basis for development of the HIE Participant Accreditation Program.

In Phase 1 the state will develop and set HIE policies, requirements, standards and agreements through the existing HITOC and OHA mechanisms. Specific policies could include:

- Privacy and security requirements for appropriate exchange and use of health information
- Appropriate standards for data exchange
- Operational requirements for HIE that will allow providers to report on and receive payment for meaningful use
- Architecture, business and sustainability requirements
- Public health reporting
- Other data and reporting requirements deemed necessary by HITOC and OHA
- These policies, requirements, and data standards, will be used to hold regional and local HIOs accountable through accreditation for appropriate implementation of HIE.

➢ Technical Architecture for Exchange of Health Information

Overview

Oregon enjoys both a high adoption rate of EHRs by providers and a thriving and growing community of HIOs. These factors enable Oregon to propose a technical architecture model for statewide HIE that builds upon, bolsters and enhances existing efforts as opposed to a top-down approach to building HIE.

Definitions of key terms used below:

Health information exchange (HIE) — The electronic movement of health information between HIE participants.

HIE participant — Party that is the sender or recipient of exchanged health information (i.e., party that initiates a transaction or the party to which the transaction is directed). The party may be an organization (e.g., provider, diagnostic laboratory testing company, health plan, HIO) or part of an organization.

Health Information Organization (HIO) — Organization providing oversight and governance of HIE between its members. Such organizations include regional or local HIOs, enterprise HIOs, state agency HIOs, and in Phase 2, the state designated entity (SDE).

HIE Service — A software mechanism provided by an HIO, vendor, or other entity facilitating HIE by enabling access to one or more capabilities, along with its prescribed access interfaces, constraints, policies and processes as specified by a service description.
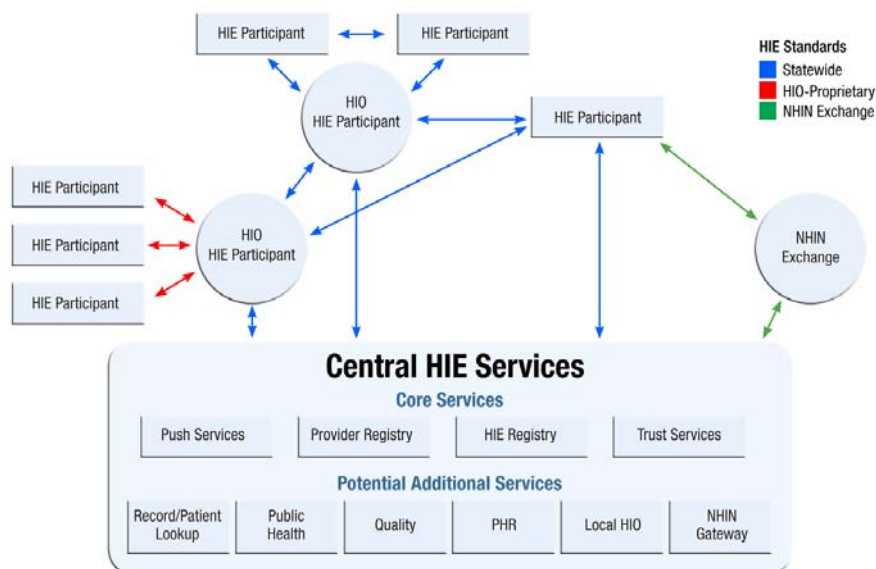
This architectural model features a federated approach to statewide HIE, with HIE participants using a common set of agreed-upon standards to connect with one another and HIE between participants facilitated and enhanced by a number of central HIE services. This approach accommodates three likely scenarios:

Scenario 1

Due to the developing community of HIOs within the state of Oregon, it is anticipated that many HIE participants will engage in HIE through participation in local and enterprise HIOs. As a result of internal adoption of HIO-proprietary HIE standards, some of these HIOs may choose to act as gateways for their constituents to statewide HIE.

Scenario 2

HIE participants may choose to participate in HIOs that adopt statewide standards for HIE (it should be noted that these HIOs may offer additional services utilizing standards outside those adopted statewide). In this case, these HIE participants could engage in HIE using statewide standards and the central HIE services, either through a gateway offered by their HIOs or directly.

Scenario 3

While many HIE participants may participate in local or enterprise HIOs, HIE participants are not required to do so. In this case, an HIE participant could directly engage in statewide HIE using statewide standards and central HIE services.

Central core HIE services
The governance entity will offer a number of core services that provide lookup, routing and trust mechanisms for information exchange between HIE participants. While detailed scope and specifications for these central core HIE Services will be determined in Phase 1 of statewide HIE, these services are anticipated to include the following:

Push services
These services are required to support "push" capabilities between HIE participants. Alignment with or direct use of NHIN Direct will be a strong architectural consideration. Should risks materialize with NHIN Direct that would prohibit or significantly hinder implementation or rollout of NHIN Direct-based push services, other options enabling similar capabilities will be explored. Assuming an NHIN Direct foundation, the set of push services would potentially include DNS for the statewide NHIN Direct addressing domain, an SMTP gateway for senders, and IMAP4 and/or POP3 for destination capabilities; extensions to support XDR-based transport may be considered according to the evolution of interoperability standards during Phase 1 planning.

HIE registry
The HIE Registry is a directory of all HIE participants. This registry provides the necessary information to initiate routing and delivery of health information from one party within an HIE participant organization to another party within another HIE participant organization. While the registry itself could be comprehensive of all senders and receivers of health information exchange across Oregon, the registry potentially instead could support recursion and delegation to distribute responsibility for delivery and routing resolution to parties closer to recipients.

Provider registry
The provider registry is a comprehensive directory of all providers in the state. This registry enables matching between providers and HIE participants (i.e., it provides a mechanism to determine through which HIE participants information might be routed to a provider). The provider registry potentially could be a subset of the HIE registry.

Trust services
A set of trust services will be offered to support a "circle of trust" among HIE participants. At the core of these trust services will be certificate authority functions that the governance entity will use to issue digital certificates to certified HIE participants, and if necessary, to revoke them. HIE participants will use these services and their issued digital certificates to authenticate to Central Core HIE Services, encrypt communications, sign communications and validate requests.

Potential additional central HIE services
In Phase 1, HITOC will examine the central HIE services the governance entity potentially could offer in addition to the central core services. Any additions would have to enhance statewide HIE and/or aim to support more cost-effective approaches to certain exchanges of information. These could include:

- Record or patient lookup services that, using provided demographics or other search parameters, enables discovery of HIE participants possibly storing pertinent health information.
- Facilitating bidirectional data exchange with public health that supports reporting and alerting.

- Facilitating bidirectional data exchange for quality reporting.
- Implementing personal health record (PHR) services for consumers in the state. Such services could range from providing central gateways that enable common mechanisms for provider EHR systems and/or HIE participants to interact with consumer data repositories (e.g., Google Health, Microsoft HealthVault and others) to providing a central consumer-focused PHR system that ties into the fabric of statewide HIE.
- Providing local HIO-type services to providers or other entities not covered by local or enterprise HIOs. This might be done to address gaps in geographic and/or functional HIE coverage across the state.
- Operating an NHIN CONNECT gateway usable by HIE participants that did not have NHIN Exchange connectivity.

➢ NHIN Alignment

To support final meaningful use objectives involving HIE, "push" capabilities will be offered starting in Phase 1 to providers, hospitals, diagnostic laboratory testing companies and other HIE participants across the state of Oregon. Alignment with or potential use of NHIN Direct as a foundation for these capabilities will be given strong architectural consideration. Beyond "push," additional services enhancing interoperability between HIE participants will be selected, adopted and implemented starting later in Phase 1. Baselines for these standards and services will include HHS-adopted and nationally recognized technical standards and frameworks, such as NHIN Exchange and NHIN Direct; the technical architecture accommodates the presence of either or both, as the central core HIE services proposed for statewide HIE are similar to services specified by both NHIN Exchange and NHIN Direct:

- **HIE Registry** is similar in purpose to NHIN Exchange's Service Registry and NHIN Direct's HISP Address Directory.
- **Trust services** noted provide equivalent functionality to NHIN Exchange's Security Infrastructure and would enable trust relationships per NHIN Direct's Basic Trust Model.

Connectivity to federal agencies and other parties using NHIN Exchange/NHIN Direct
Beyond the use of NHIN Exchange/NHIN Direct as frameworks, in part or in full, for intrastate interoperability, these frameworks will also be used within Oregon's statewide HIE to connect to federal agencies and other parties, including: veterans, Social Security Disability recipients, tribes, public health agencies, emergency preparedness and response agencies and community health network initiatives.

Currently, two of Oregon's HIOs – Douglas County Individual Practice Association (DCIPA) and OCHIN — are implementing NHIN Exchange connectivity to the Social Security Administration; other HIOs are expected to follow. To further facilitate connectivity to federal agencies via NHIN Exchange, the governance entity may offer a central NHIN CONNECT gateway.

Business and Technical Operations

Section Overview

- The statewide infrastructure for carrying out the goals of health information exchange (HIE) in Oregon will be developed with the core tenets of efficiency and flexibility and will leverage and support existing resources within the state.

- It will coordinate with parallel efforts to promote HIE within the Medicaid system.

- Oregon has strong health information workforce training programs in place that will help provide the expertise to carry out the goals of HIE.

- A program management strategy will be developed to ensure the efficient rollout of this strategic plan and resulting operations.

Oregon's approach to designing a governance entity is consciously phased to allow the existing marketplace of regional and local health information organizations (HIOs) to flourish and develop into a sustainable HIE market across the state. However, there are some tasks that the governance entity needs to adopt to respond to federal requirements, provide useful services to local HIOs to enhance their sustainability or fill gaps in the marketplace.

This design assumes that an HIE participant accreditation programs will be developed and operated, first by Oregon's Health Information Technology Oversight Council (HITOC) and later by the state designated entity (SDE), envisioned as a public/private non-profit organization. These efforts will go forward with the leanest possible staffing, leveraging existing resources within the state. They will further leverage existing and planned efforts to facilitate health information exchange in Oregon, such as the All Payer Data Reporting Program and Medicaid Provider Index.

➤ Phase 1 Offerings and Activities

Starting upon submission of the strategic and operational plans to the ONC, OHIT Staff and consultants in coordination with the special-focus workgroups will commence work on Phase 1 activities necessary to meet the goals set forth in this plan. The key activities are listed below:

Offerings:
- Central HIE services to facilitate heath information exchange via "push"
- Accreditation Program of HIE participants for health information exchange
- Legal toolset for HIE participants

Activities:

Select and adopt technical standards for health information exchange (HIE)

Planning, implementation and roll-out of technology required for HIE "push" capabilities, including:
- Push Services
- Sufficient HIE and Provider Registry services
- Sufficient Trust Services

Planning, initial implementation and testing of technology required for HIE "pull" capabilities, including:
- Any necessary extensions to HIE and Provider Registry services
- Any necessary extensions to Trust Services

Assess needs and define requirements for any potential additional central HIE services to be offered in Phase 2 including:
- Query/RLS
- Public health
- Quality data exchange

Develop HIE participant accreditation program

Planning for transition to non-profit SDE

- Legislative frameworks developed and approved
- Sustainable financial and business plan developed, reviewed and approved

Analyze gaps in HIE access for under and unserved areas and develop a plan to fill said gaps

Analyze needs for support services for HIOs

Develop additional legal agreements necessary for health information exchange

Develop consumer and provider education and outreach programs

➤ Phase 2 State Designated Entity

During the latter part of Phase 1, OHIT staff will select a State Designated Entity that will assume responsibility for the HIE services and offerings developed in Phase 1. The SDE is envisioned as a statewide, state-designated, non-profit organization. During Phase 2, its key activities are expected to be:

- Complete implementation and roll-out of technology required for HIE "pull" capabilities
- Operate centralized health information exchange services
- Operate Accreditation Program of HIE participants for health information exchange
- Maintain and revise standards for and accreditation of health information exchange participants as needed
- Provide support services for health information exchange participants

During Phase 2 the SDE would also implement any additional central HIE services identified in Phase 1, and explore potential services to be offered in the future.

➤ Potential Future Offerings

The SDE could explore filling both geographic and functional gaps during its ongoing operations, and seek out opportunistic follow-on services.

The primary strategic approach to Oregon's business architecture and operations planning relies on the standards for health information exchange and accreditation for HIOs and other HIE organizational participants. These standards will be essential to the effort's success. Each phase will include evaluation techniques that will evaluate the effectiveness of centralized services that support and promote HIE and provide value to stakeholders within the state. Finally, a sustainable financing model must be developed. The final list of services to be determined will be based on the financing model and further review of options and offerings.

➤ Business and Technical Alignment with Medicaid, Public Health

Plan for integrating MMIS with regional and local HIOs
It is anticipated that Oregon's Medicaid Management Information System (MMIS) will be able to support the bi-directional exchange of electronic health information with HIOs in Oregon. This will be achieved through local HIOs using central shared services supported by the governance entity that will be able to connect with Oregon's MMIS. In addition, the accreditation process for HIOs and widespread adoption and use of certified electronic health record (EHR) systems will allow for increased information connectivity and information exchange between the state's MMIS, managed care organizations and HIOs within Oregon.

Approach to meet HIE meaningful use requirements
Oregon's Medicaid HIT Planning Team, and more broadly, the Division of Medical Assistance Programs, will be responsible for the monitoring and administration of meaningful use criteria for providers who are eligible to receive meaningful use (MU) incentive payments. The Medicaid HIT Planning Team is actively working on and coordinating with HITOC and other key stakeholders to facilitate the program for administering MU incentive payments. One potential approach is to use the new MMIS to track and account for incentive payments. The activities that will be needed to establish the program for monitoring and administration of MU criteria will be set up through an ongoing participatory process that will incorporate input and feedback from all relevant engaged stakeholders.

In the end, our approach will be guided by the goal of ensuring that the greatest number of eligible providers can participate in HIE, achieved through ongoing coordination among HITOC, Oregon Health Authority and Department of Human Services and the Medicaid HIT Planning Team. Existing and planned technologies including MMIS and Medicaid Information Technology Architecture (MITA) will support Oregon providers serving the 430,000 clients of the Medicaid and Oregon Health Plan in qualifying and demonstrating meaningful use.

For more complete information on the coordination with Medicaid HIT Planning and other state and local health agencies, see pages 68 to 73.

Plan for alignment with the state Medicaid HIT plan
The Division of Medical Assistance Programs, which manages Medicaid in Oregon, was integrally involved in the development of this strategic plan, including the Deputy CIO for Medicaid's participation on the Strategic Workgroup. The State Coordinator for HIT and staff are closely working with the Medicaid HIT planning staff to ensure efforts are aligned. The attestation of approval by Oregon's Medicaid Director, Judy Mohr-Peterson, via a written endorsement letter will ensure that the HIE strategic plan aligns with the state Medicaid HIT Plan. (see Appendix K). To help ensure ongoing and effective coordination between Medicaid and HIE efforts in Oregon, Oregon's Medicaid Director has been appointed as an ex-officio member of HITOC effective August 5, 2010.

Plan for alignment with public health in Oregon
Similar to the state Medicaid HIT plan endorsement process, Oregon's Director for the Division of Public Health, Mel Kohn, will provide written consent and endorsement of the state HIE plan. The plan supports the state's existing capacity to advance public health initiatives in Oregon by promoting widespread exchange and availability of health information among community health care providers and public health agencies, at both the state and local levels (see Appendix K).

The Division of Public Health was integrally involved in the Strategic Workgroup for this plan and the State Coordinator for HIT will continue to work closely with the deputy chief information officer of the Division of Public Health and support staff to develop a comprehensive and integrated network for public health information exchange. HITOC will coordinate activities across state and local public health programs to avoid duplication of efforts and ensure support of a unified approach to bi-directional exchange of public health data.

HITOC will work in partnership with the state Medicaid director, the MMIS systems manager, director for the Division of Public Health, CIO for DHS/OHA and other support staff as appropriate to make certain that the State's Medicaid Health IT Plan and public health initiatives are coordinated with the broader statewide plan for HIE. HITOC will continuously adapt its strategies to work with multiple statewide HIE initiatives. In addition, to help ensure ongoing and effective coordination between Public Health and HIE efforts in Oregon, Oregon's Public Health Director has been appointed as an ex-officio member of HITOC effective August 5, 2010.

➤ Communications

In Phase 1, regular HITOC communications will continue, including monthly newsletters distributed to more than 900 stakeholders and meeting material packets produced for the monthly HITOC meeting. There will also be regular communications with regional and local HIOs building on the work of previous meetings and webinars focused at that audience, including email updates, in-person meetings and webinars.

There will also be targeted communications incorporating provider adoption strategies developed in collaboration with the Regional Extension Center and the Medicaid HIT Planning efforts (P-APD.) A priority is outreach to all providers including those eligible for Medicaid and Medicare incentive payments and those that are not eligible. Initial priorities will include those eligible for incentive payments (a Medicare eligible professional [EP] is a doctor of medicine or osteopathy, a doctor of dental surgery or dental medicine, a doctor of podiatric medicine, a doctor of optometry, or a chiropractor, who is legally authorized to practice under state law. A qualifying EP is one who successfully demonstrates meaningful use for the EHR reporting period. Hospital-based physicians are not eligible.)

Consumer education and outreach will be developed during Phase 1, with widespread implementation during Phase 2. Moving into Phase 2, the SDE will develop a communications plan as part of its ongoing operational plan.

Available Human Capital for Health IT Services/Support

HITOC and the Oregon Health Authority, in coordination with the Oregon Healthcare Workforce Institute, health professional schools and regional health care employers, will adopt a range of strategies to attract and retain the necessary human resources in all geographic areas of Oregon. One strategy will be to provide health IT training services and programs to rural providers and health IT professionals using Internet-based educational programs that could be completed online. Other strategies could include opportunities for working professionals to get training at community colleges. This workforce goal will be accomplished through the support and partnership of the Bellevue College Consortia, which will create non-degree training programs for five of Oregon's community colleges that can be completed within six months or less.

Such targeted educational programs could be tailored for professionals already working in underserved areas of the state and could help recruit newly trained health care professionals, clinicians and health IT services and support professionals to work in underserved areas with the help of incentive programs. Distance learning non-degree training programs will support training of new health IT professionals, especially those already practicing in underserved geographic areas and rural health care settings.

Unfortunately, there is very limited data in Oregon regarding the state's existing health IT workforce. This is largely due to the complexity in classifying job titles such as clinician, office administrator or IT support staff. Every two years the Oregon Employment Department (OED) forecasts Oregon's employed workforce by occupation and industry. Because health IT professionals are counted within their occupation code such as physician, dentist, or nurse, there is no way to identify who is working in those roles as a health IT professional. Similarly, the OED's data on system administrators or computer support specialists do not identify who is working in the health care industry. The OED does identify health information managers and medical records technicians, but they are just a part of the total HIT workforce.

Also, IT workers who install EHR systems make up a transient workforce that moves in and out of jobs in the health care industry as system installation jobs open. Once systems are installed, these workers typically move on to other jobs across industries, so they are hard to count. Accurately forecasting Oregon's existing health IT workforce would require additional workforce studies. Moreover, good information on the existing supply would quickly be outdated with the recent, significant hiring occurring in this area due to the HITECH Act. Consequently, data collection efforts are mainly focused towards understanding Oregon's future health IT workforce.

Vendor and Program Management

The Office of Health IT, with oversight by HITOC and OHA in Phase 1 and the SDE in Phase 2 will provide vendor and program management support for the planning and implementation of services. As part of the initial staffing, a full-time program manager will be hired. Once the definition phase of the services nears completion, the governance entity will add vendor management expertise. Depending on the number and complexity of programs and vendors, there may be one or more people filling these roles. Non-service programs, such as consumer outreach, HIE participant outreach, HIT purchase loan programs, and other programs that will facilitate HIE will have program management resources assigned.

Vendor management

Before and during Phase 1, HITOC will further define and recommend to OHA the final set of initial services that it will provide to HIE participants within the state. As part of the definition of these services, HITOC may choose to solicit information and quotes from vendors who supply solutions that are compatible with the requirements. Until the SDE is established as a separate and independent entity from the state of Oregon (during Phase 2), all vendor information solicitation, engagement and management will occur through existing state of Oregon processes and resources.

Once the SDE is established, current contracts or licenses would be transferred under the terms within the designation rules, and any future contracts for services or licenses would be negotiated and executed between the vendor and the SDE.

➢ Program management

Each program, whether outreach or service implementation, will have program management resources assigned. Each program manager will be responsible for two to three programs at any one time. This number of simultaneous programs has been shown to be the most effective. Each program manager will have relevant and related expertise in program management. Program management certifications are desirable, but not required, for a program manager filling this role. Each program manager will be responsible for establishing the requirements of a given program, creating the implementation and rollout schedule, communicating with program resources and stakeholders, updating the schedule, creating the risk and risk mitigation plan and tracking overall program health. This program management approach applies to all phases of the SDE's existence and will remain consistent throughout.

Program management methodology

The program management methodology to be used for a given program will be determined by the program manager for that program. Program managers will be expected to use accepted best practices.

There will be no single and mandated program management methodology or process, but the expectation is that, at a minimum, the following will be implemented for each program:

- A requirements phase and resulting requirements document

- A published implementation and rollout schedule

- A published communication plan

- Regularly scheduled update meetings

- Published risk and risk mitigation plans

- Regular program status updates

The process by which each of these items is generated, documented and communicated will be up to the individual program manager, with the approval of the program director or executive director of the SDE.

Legal and Policy

Section Overview

- An "opt-out with exceptions" consent model for the use and disclosure of protected health information will support the initial phase of electronic exchange of information while excluding specially protected health information from health information exchange (HIE) without express patient consent, as current Oregon law specifies.

- A Legal and Policy Workgroup will convene in Phase 1 of operations to examine state laws that define specially protected health information.

- Proposed revisions of current Oregon statute to allow for a full opt-out consent model will be considered and may be presented to the Oregon Legislature.

- This strategy addresses all eight of HHS' principles in its Privacy and Security Framework.

- Oregon's HIOs will be held to national standards, federal and state law.

- Oregon Health Authority, with guiding recommendations from the Health Information Technology Oversight Council, may act as an accrediting body for regional and local HIOs in Phase 1, or may contract with another organization to serve in that function.

➤ State Laws

Oregon, through its participation in the Health Information Security and Privacy Collaboration (HISPC) project and under the direction of the Health Information Infrastructure Advisory Committee (HIIAC), undertook a detailed analysis of Oregon law as it affects health information exchange (HIE), and through this work identified a significant state law issue affecting health information exchange within the state. Oregon, like many other states, provides special protections for limited classes of health information ("specially protected health information," or SPHI). The different classes of SPHI under Oregon law include genetics, mental health, alcohol and chemical dependency (also specially protected under federal law, 42 CFR pt. 2), HIV/AIDS and health information about a minor (generally a minor 14 years of age or older and specific to alcohol and chemical dependency, birth control, mental health and sexually transmitted diseases). When health care information is specially protected, it generally requires a specific authorization from the patient for any release, including for treatment, payment and health care operations.

The review and analysis of existing state law is an ongoing process. Oregon SPHI laws provide important protections. They also present technical difficulties and create interstate barriers that are becoming more significant as our population becomes increasingly mobile and delivery systems grow across state lines. Therefore, during Phase 1, the Health Information Technology Oversight Council (HITOC) will establish a Legal and Policy Workgroup to conduct an examination of state laws that define SPHI, in line with the recommendations made in Oregon's HISPC Final Implementation Plan Report. This workgroup will review the appropriateness of these protections and the feasibility of implementing these protections in an electronic environment, with the possibility of legislative changes during later phases.

During Phase 1, HITOC will also work with legal counsel and the Legal and Policy Workgroup to consider potential legislation or rulemaking aimed at enabling and facilitating HIE in Oregon. This could possibly include component elements such as legal recognition of electronic medical records and disclosure of health information via health information exchange and provisions for out-of-state disclosures.

➤ Privacy and Security

Consent

The collaborative, public-private, multi-stakeholder HIE policy development process coordinated by HITOC has resulted in an initial consent model for HIE in Oregon during Phase 1 that maintains the current status quo of today's paper record system. It is an "opt out" system for the use and disclosure of protected health information (for the purposes of treatment, payment and operations), with the exclusion of specially protected categories of health information. Under this approach, information now available under the Health Insurance Portability and Accountability Act (HIPAA) and Oregon state law will be available via HIE if the provider is an authorized participant. Disclosure of specially protected information (e.g. HIV, behavioral health) would require the same special, specific consents that it does today. However, patients who wish to opt out of having their health information available may do so, and patients will also have the option to give express, written consent (in other words, to opt in) to the exchange of any or all categories of their specially protected health information via HIE.

HITOC, with a supporting recommendation by the Strategic Workgroup and a written endorsement of Oregon's Patient Safety Commission will also conduct a thorough review of current Oregon statute defining categories of SPHI through its Legal and Policy Workgroup and will consider proposing revisions to the Oregon Legislature that would allow for a full "opt-out" consent model. It is important to note that both HITOC and its Strategic Workgroup supports an effort to move Oregon to the legal status where a full "opt-out" consent model could be implemented, based on desired goals of improved health care quality and patient safety.

HHS Privacy and Security Framework

The HHS Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information sets out eight principles to guide the actions of health care related persons and entities that participate in health information exchange. HITOC, as the oversight body for HIE in Oregon, will encourage, and as appropriate, require, adoption by all HIE participants of the eight principals outlined in the HHS Privacy and Security Framework, and will itself comply with those principles related to HITOC's role in health information exchange.

The eight principles and HITOC's corresponding policies and processes are as follows:

(1) Individual Access and (2) Correction:

The first two principles, individual access to health information and providing an individual with the ability to correct errors in the individual's information, will be guaranteed to patients and the responsibility of the individual participants in health information exchange to provide.

(3) Openness and Transparency:

HITOC is a public/private board that includes broad community representation. HITOC will establish a Legal and Policy Workgroup during Phase 1 to further analyze and determine key policy issues, and this workgroup process will be conducted in a transparent, public manner. HITOC will develop consumer educational materials for both participants in health information exchange and for individuals whose information may be the subject of disclosure of such exchange to ensure openness and transparency of policy. Education will include explanations of the right of an individual to opt out (or opt in for SPHI) of the system and the consent procedures.

(4) Individual Choice:

Health information exchange in Oregon will provide individuals with the ability to decide whether or not their information may be disclosed through an opt-out system for general (non-specially protected) health information, and opt in for specially protected categories of health information. The governance entity will ensure that the patient's right to opt out/opt in has supporting processes and procedures to facilitate that right, including education to ensure that consent is informed. HITOC will create a Legal and Policy Workgroup at the onset of Phase 1 to create the policies and procedures to afford this right to individuals. During Phase 1, HITOC, with the assistance of its workgroups and advisory panels, will also determine the best methods to communicate this information to patients/consumers, including (but not limited to) the information being made available on the HITOC and/or Oregon Health Authority web site.

(5) Collection, Use and Disclosure Limitation:

Participants in HIE will be required to adhere to certain policies, procedures, standards and requirements as developed by HITOC. These requirements will include appropriate limitations, as defined by federal and Oregon state law, on the collection, use and disclosure of protected health information.

(6) Data Quality and Integrity:

Data quality concerns the accuracy, currency and precision of data, while integrity relates to how data maintains its conformity to rules and constraints over time. HITOC will develop standards and requirements for managing data quality and integrity according to the following guidelines:

- HITOC will define a proactive, ongoing data quality strategy during Phase 1;

- Data will be managed according to institutionalized rules, policies, constraints and continual monitoring;

- Processes by which data are created, transformed and used will be streamlined and optimized to provide transparency and eliminate unnecessary waste;

- Disclosed information will have a demonstrable audit trail relating to the source of the data and calculations performed on it, and;

- Problems, when identified, will be rectified at the source to eliminate the underlying problem.

(7) Safeguards:

In order to protect the privacy and security of protected health information exchanged via HIE, the HITOC Legal and Policy and Technology Workgroups will develop, during Phase 1, policies, procedures and technical processes that address the following four questions:

- <u>**Access:**</u> **Who** can access the information available through HIE?

- <u>**Authorization:**</u> **Which functions** will a user be authorized to perform? (i.e. to view, contribute and/or save data)

- <u>**Authentication:**</u> **How will the identity** of an authorized user **be verified**?

- <u>**Audit:**</u> What means will be in place to **monitor use** and **investigate breaches**?

For every aspect of security, Oregon HIE will follow national standards and best practices developed and tested around the country, with a focus on compliance with the HIPAA Privacy and Security Rules, which will require a wide range of activities, procedures and infrastructure, including but not limited to:

- Use of **digital certificates, including X.509, a requirement for NHIN Direct,** to authenticate the identity of an authorized organizational entity (i.e. an HIO or a provider's office).

- The highest standards for **secure encryption of data** so that it is not exposed to an unauthorized or unauthenticated user, including:
  - For data at rest, any encryption algorithm identified by the National Institute of Standards and Technology (NIST) as an approved security function in Annex A of the Federal Information Processing Standards (FIPS) Publication 140-2
  - For data in transit, any encrypted and integrity-protected communication link. A hashing algorithm with a security strength equal to or greater than SHA-1 (Secure Hash Algorithm (SHA-1) as specified by the National Institute of Standards and Technology (NIST) in FIPS PUB 180-3 (October, 2008)) must be used to verify that electronic health information has not been altered.

- Assignment of **unique usernames and passwords** within participating entities to authenticate the identity of users.

- Use of **role-based access** within participating entities to dictate access levels and authorized functions for the varying roles within their organization.

- Maintaining **Audit logs**:
  - The date, time, patient identification and user identification must be recorded when electronic health information is created, modified, accessed, or deleted; and an indication of which action(s) occurred and by whom must also be recorded;
  - The date, time, patient identification, user identification and a description of the disclosure must be recorded for disclosures for treatment, payment and health care operations, as these terms are defined at 45 CFR 164.501;
  - The patient will have access to the audit logs related to their record upon request.

(8) Accountability:

HITOC, through an HIE Participant Accreditation Program, and potentially contractual subscription or funding agreements, will define the system of accountability to ensure compliance with all applicable policies, standards and requirements, and will implement a system to monitor compliance and identify and resolve non-compliance.

A clear message will be sent to all Oregon HIE participants that standards and accreditation will be a focus and a priority for HITOC from the beginning of statewide HIE implementation. Early in Phase 1, HITOC will develop and implement an HIE Participant Accreditation Program Pilot Project, using Electronic Healthcare Network Accreditation Commission (EHNAC) HIE accreditation criteria as a baseline standard, with the understanding that it currently represents the national standard. The primary goal of Oregon's HIE Participant Accreditation Program will be ensuring the privacy and security of protected health information, including meeting HIPAA and all other relevant federal and state legal and policy requirements. The purpose of this pilot project will be threefold: 1) to assess the appropriateness, adequacy and feasibility of EHNAC criteria for health information organizations (HIOs) in Oregon; 2) to assess how HIOs in Oregon measure vis-à-vis these standards; and 3) to inform the development of the accreditation criteria, processes and cost for the permanent HIE Participant Accreditation Program that will be launched later in Phase 1.

For the pilot project, HITOC will work with one to three HIOs on a voluntary basis, each of which will perform self-assessments as well as receive on-site reviews by a HITOC-appointed accreditation panel. An additional goal is to use this process as a means to get the participating HIOs up to EHNAC standards, or if this is not possible, to identify the barriers to meeting these

standards, as well as identify any necessary additional standards that are not captured in the EHNAC criteria. HITOC will also incorporate any guidance or rules generated by ONC and other relevant federal regulatory bodies regarding national HIE standards into Oregon's pilot and permanent accreditation programs as they become available.

➢ Policies and Procedures

HITOC will establish a process, including workgroups, during Phase 1 for further development of policy guidance surrounding legal and policy issues, financial sustainability planning, accreditation and standards and others as needed. HITOC will also oversee the process to develop a validation framework for monitoring and assuring adherence to the policies that are developed through this process. HITOC is expected to require that participants in the statewide collaborative process bind themselves by contract and/or state accreditation to adhere to the statewide policy guidance that is adopted through the processes described above.

The policies developed by the HITOC will aim to achieve the following:

- Facilitate the flow of individual health information via HIE to improve the quality of health care while safeguarding the privacy of the information;
- Achieve clarity and uniformity in the application of privacy and security rules;
- Assure security in the exchange of clinical data;
- Harmonize Oregon law, court orders, regulations, guidelines and federal law as they pertain to HIE;
- Coordinate Oregon's HIE requirements with evolving rules at the federal level; and
- Harmonize our HIE policies and procedures with those of neighboring states to facilitate efficient and increasing inter-state exchange.

For the HITOC Legal and Policy Workgroup, the immediate goal for Phase 1 is to develop trust and consensus around basic privacy and security principles, propose resolution to current legal issues inhibiting data exchange and advance policies, processes and forms for patient consent. Once these fundamentals are developed and implemented, the workgroup will develop policy solutions to more complex privacy and security issues, such as consent for secondary uses of data.

➢ Trust Agreements

Developing trust and clear expectations around data sharing among all HIE participants in Oregon is key to building successful statewide HIE. Trust agreements and data usage and reciprocal sharing agreements (DURSAs)[15] are not currently uniform across HIE participants today, with the various covered entities and exchange organizations developing their own customized agreements. To streamline and facilitate efficient exchange of health information in Oregon, HITOC will engage stakeholders in developing a standard, uniform trust agreement and/or DURSA consistent with state and federal law to be used by all participants in Oregon HIE. Having such policies and agreements in place will enhance the development of a sustainable HIE market across the state.

➢ Accountability and Oversight

National standards, including but not necessarily limited to criteria established by EHNAC, related to the domains of technical infrastructure, business and technical operations and legal/policy, will be 'baseline' requirements for Oregon HIOs during Phase 1 of our statewide implementation plan. Additionally, any state-accredited HIO must meet the privacy and security requirements set forth by federal Law, including: HIPAA, the HITECH Act, the Office of the National Coordination for Health Information Technology, Centers for Medicare and Medicaid Services and any applicable Oregon State laws. To the degree that the federal government develops or updates requirements for connecting to the National Health Information Network (NHIN), a state-accredited HIO must be able to meet the requirements within some specified time frame.

HITOC could potentially act, during Phase 1, as the HIO accrediting body. If HITOC is to be the state body for accrediting local HIOs, then representation on the HITOC will be reconsidered and potentially modified to better represent these stakeholders.

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[15] The terms DURSA and trust agreement are common ways to reference these items when referring to HIE contracts and agreements, however it is acknowledged that there are other legal usages of the term trust agreement.

As staff gathers more information about the experiences of other states and our own experience with HIE, the ONC's requirements and the evolution of federal law and national standards, the effort can move forward during Phase 1 to further determine the following for implementation in Phase 2:

1. Adequate criteria for accreditation;

2. The most appropriate system for HIO accreditation;

3. The definition of which, if any, additional organizations should receive accreditation;

4. Appropriate privacy and security enforcement mechanisms.

➢ Interstate Agreements

HITOC is currently in the process of investigating actual and potential barriers to interstate exchange, and setting up a process to coordinate with neighboring states (Alaska, Washington, Idaho and California) to develop and harmonize policies and procedures to minimize and/or remove those barriers to facilitate interstate exchange. A proposal to launch the Pacific Northwest Health Policy Consortium and receive support services, including subject matter experts, was submitted to RTI International in June but was not funded. Oregon took the lead position in preparing the proposal. The proposed Pacific Northwest Health Policy Consortium will lay the groundwork for a common approach to information exchange among the five states, and will evaluate specific near term solutions in defined border markets as well as longer term opportunities for moving toward harmonization with national standards and the potential for a multi-state compact related to health information exchange issues. The states will determine whether to reapply in the next round of funding.

➢ Stakeholder Endorsement

Stakeholders had several opportunities to provide input on the statewide policy framework, in addition to the general outreach during the comment period on the draft plan. In May 2010, HITOC sponsored an Oregon Consumer Privacy and Security Forum to engage consumers and key stakeholders in the strategic planning process. Panelists included representatives from AARP, Cascade AIDS Project and the American Diabetes Association. More than 150 stakeholders attended this meeting, and during table discussions and through individual input sheets there was general and widespread support and agreement that the plan is directionally correct; there was also support for the phased approach and general support for the proposed consent model of "opt out with exceptions," with most people viewing it as the best option given existing Oregon state law around Specially Protected Health Information (SPHI). The valued input from this forum is integrated into the overall strategic plan and builds upon the principles put forward by the HISPC Action and Implementation Manual.

A stakeholder webinar held in late April attended by more than 50 stakeholders provided an additional opportunity for stakeholders to provide input on the legal and policy domain. Respondents to the exit survey overwhelming indicated that they believed that the framework was directionally correct, and in particular that direction to begin with an opt-out consent policy with exceptions.

HIT Adoption Strategies

Section Overview

- O-HITEC, Oregon's Regional Extension Center, is working to support providers' adoption of electronic health records and achievement of meaningful use and is an important adjunct to health information exchange (HIE).

- Work is also under way to bring broadband capabilities to more providers and particularly to those in rural and other underserved areas through the work of Oregon Health Network and the Oregon Public Utility Commission

- Efforts for HIE through local, regional and statewide entities will support electronic health record (EHR) connectivity to data sharing between unaffiliated organizations, beginning with three priority services: electronic prescription transmission, clinical summaries of care and receipt of structured laboratory data.

➤ Current and Planned HIT Adoption Initiatives

Electronic health record adoption through Oregon's Regional Extension Center
As Oregon's Regional Extension Center, O-HITEC works collaboratively with stakeholders throughout the state to help providers meet the federal definition for meaningful use of their electronic health record (EHR) systems. To achieve its goals, the center will leverage the proven abilities of its two lead partners – OCHIN, the lead applicant and Oregon Health and Science University, the foundational partner. The center will also benefit from the combined experience of several independent provider associations, rural research networks, academic institutions and technical partners.

In addition to bringing EHR technologies to these providers, the center will participate in the development of interoperable health information technology (HIT) and health information exchange (HIE) systems and services to provide clinicians, health systems and policymakers the information they need to advance the state of Oregon's health care systems and infrastructure. The center will also collaborate closely with universities and community colleges to develop workforce-training programs designed to prepare more Oregonians for careers in this high-growth sector of our economy. Part of that collaborative approach has been working with Oregon's Health Information Technology Oversight Council (HITOC).

HITOC is actively engaged with O-HITEC senior leadership and management. For the past six months, the state HIT coordinator and support staff have participated in regular meetings to develop a collaborative relationship with O-HITEC and to plan a coordinated approach for developing HIT adoption strategies for the state's providers. In addition, O-HITEC presents regular updates to members of HITOC, setting the stage for aligned efforts across the state.

For more information see Coordination with ARRA Programs, page 74.

➤ Broadband Access and Telehealth

As a geographically large state with a small population, coupled with the fact that the majority of the state's population resides within a defined geographic region, Oregon has encountered difficulties with the provision of high-quality, cost-effective broadband service both to health care providers and communities in general. The lack of broadband access in Oregon's rural areas presents a particular challenge for HIT adoption and HIE. Oregon's size and dispersed population in particularly remote regions has made construction of high-speed Internet (and intranet) connectivity not economically feasible in many cases. As described below, public and private sector organizations are working together to deploy broadband and other telecommunication services to health care providers throughout the state, primarily in support of HIT adoption and information exchange.

Broadband network infrastructure
Oregon has a strong commitment to expand broadband access to all regions of the state, serving as a critical element of the strategic and operational plans for widespread HIE in Phase 1 and 2. There are two initiatives in the state actively assessing existing broadband access. HITOC and the state HIT coordinator are in active and ongoing discussion and coordination with Oregon Health Network (OHN). During Phase 1, HITOC will coordinate with OHN efforts and long-term initiatives to help achieve the goals identified in Oregon's HIE strategic and operational plans.

OHN is a non-profit membership based organization that was created in the early fall of 2007 due in large part to the organization being awarded a $20.2 million federal subsidy through the Federal Communications Commission (FCC) Rural Health Care Pilot Program (RHCPP). One of 62 RHCPP projects nationwide, OHN is Oregon's only RHCPP and is responsible for building the first state-wide broadband telehealth network in the state. The goal for the first phase of the organization is to connect 200 eligible RHCPP provider participants to the network and to each other. These *eligible* participants include

non-profit hospitals, clinics (rural, tribal, FQHC, mental health etc.) and community colleges with health care education programs. The second phase for the organization will see projects building out from that core broadband and provider footprint, and expanding participation to reach all for-profit providers (and those not eligible for RHCPP funding). These *non-eligible* participants will include for-profit clinics, hospitals, long-term care and assisted living facilities, allied health/distance education, payers, pharmacies and government agencies.

Through the FCC RHCPP, the OHN requires stringent service level agreements with approved contracted telecommunications vendors to bring the high-speed, high-quality, reliable broadband connectivity required to support current and future HIT and telemedicine services and applications to providers across the state. This is accomplished through the FCC's open, competitive bidding process and providers have access to OHN's central network operations center (NOC), which manages the network connections 24 hours a day and seven days a week

As of July 2010, a total of 53 provider sites have negotiated contracts with their vendors to build out and improve upon their broadband infrastructure and connect to OHN as a result of the RHCPP subsidy. Of those, 34 have received their official funding commitment from the FCC and are at various stages of their build out. Of those 34, 26 are actively on the OHN being monitored by their NOC. These *active* sites include five hospitals, four integrated delivery networks, six community colleges, five FQHC's, one rural health clinic and one county data center.

The second initiative is a broadband mapping project led by the Oregon Public Utility Commission (OPUC).The Oregon PUC is contacting the state's "community anchor institutions," including schools, hospitals, libraries, public safety agencies, and local governments. The information being collected is in response to the need to develop a congressionally mandated national map and will be used for an Oregon-specific map. These maps, when completed, will show where the state's broadband Internet services are located, and what speeds and types of service are being used. Oregon has contracted with BroadMap under a grant from the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA) on this effort. This initiative will help inform HITOC regarding availability of broadband services among Oregon's acute care hospitals and critical access hospitals, rural health centers and FQHCs, among others. Information collected by Oregon PUC will provide a basis for evaluation and planning effort regarding broadband Internet access and service levels at hundreds of locations and communities throughout Oregon.

Together, these two broadband initiatives are providing ongoing information about infrastructure gaps and allowing HITOC to find ways to close those gaps in Phases 1 and 2 of the strategic and operational plans. Ultimately the goal is to ensure that both the middle and last miles of Oregon's broadband infrastructure are built throughout the state. Over the next three to five years, all communities in Oregon should have access to broadband Internet, which will help support widespread HIE, facilitated by local and regional HIOs; making certain that providers and patients can engage in electronic exchange of clinical information to improve and support patient centered health care delivery. In summary, Oregon's strategy for broadband is to achieve 100% access and deployment to all provider communities. The strategy will include:

- Supporting accessible and affordable broadband services to all communities, in particular rural and remote communities.

- Ensuring adequate broadband infrastructure and Internet connectivity is available for all health care facilities including those currently without broadband access.

- Ensuring connectivity to local HIOs and the governance entity for Oregon's provider community.

Oregon's telehealth/telemedicine
A number of telehealth/telemedicine applications operate in Oregon. Notable projects include: pediatric intensive care video consultations and monitoring (OHSU and Sacred Heart), tele-genetics counseling (OHSU, Medford, Bend and Boise but currently suspended until payer reimbursement is activated), psychiatric video consultations (OHSU, a prison and tribal clinic), specialty telemedicine consults (eastern Oregon and Idaho hospitals), cardiology Stemi consults and data transfers (southern Oregon hospital, EMS ambulance and emergency department), trauma consults to triage patient appropriately, pediatric and adult image interpretation and overreads (store and forward).

➤ Adoption Priorities and Activities for Statewide HIE

For health information exchange to occur and meaningful use to be achieved, several key criteria must be met. First and foremost, a critical mass of health care providers must be using electronic health records, or be using some form of electronic communication of health care information, such as electronic prescribing. Beyond that, there needs to be sufficient penetration of broadband Internet connectivity to handle the transmission of health care information. Once these two pieces are in place, these systems need to be able to exchange data in a standardized format in a standardized way. As with

computer peripherals, a centralized organization with representation from stakeholders must define and set the standards by which data is shared. Once the information is in electronic format, and a system to exchange the data is in place, a secure way to transmit the information to approved parties must be implemented to complete the health information exchange. These four items are the necessary backbone for creating a health care information super highway, and strategies to address each of them are core elements of this plan.

➢ EHR Connectivity to HIE

For HIT and HIE to achieve meaningful and widespread use in the state of Oregon, the gaps in adoption and implementation of the necessary products and services to make HIE possible must be addressed. These include: reliable broadband internet access by HIE participants, electronic health records installed at the point of care (or at least a capability to generate electronic prescriptions, summaries of care and laboratory test ordering and reporting), capability to transmit and receive said data and information and support for these services. These data must be in standardized format so that no HIE participant is left out of the exchange. The governance entity in each phase will work across organizations to achieve the highest level of adoption across the broadest audience. There are several initiatives within the state that have been funded through the federal economic stimulus law and other federal grant opportunities. (See Coordination section starting on page 68 for examples.) These initiatives, combined with this effort will serve to connect HIE participants.

HITOC has already begun engaging with the key stakeholders in these other programs to coordinate and get the biggest return on the dollars invested in the state of Oregon. HITOC and the Oregon Health Authority will continue to work with these other initiatives to ensure that all participants are served and that no participant is excluded based on size, location, or mission. During the initial phase, the organizations will communicate and coordinate their education and outreach to make sure that participants are receiving a consistent message about the roles and responsibilities of each of the organizations and which services each will be providing.

As each of these services matures, continued coordination and communication will be necessary such that the HIE participants are getting the services that they need in order to participate in HIE and achieve meaningful use of their EHR investments. As these investments are made, HITOC in Phase 1 and the SDE in Phase 2 will work with its partners to ensure that HIE participants are able to meet at least one of the meaningful use criteria. To achieve the highest and broadest levels of participation HITOC will initially focus its efforts on making sure that HIE participants can, at a minimum, exchange the following electronically:

- Electronic prescription transmission
- Create and exchange summaries of care between unaffiliated organizations
- Order laboratory tests and receive structured results

Phased approach
Because of the already high rate of EHR adoption within the state and the designation of O-HITEC as the Regional Extension Center for Oregon to help providers in small clinics adopt EHR technology, the governance entity in each phase will focus its efforts on services that facilitate HIE. As part of Phase 1, HITOC, with recommendations from its Technology workgroup will finalize and prioritize the services and support necessary to achieve widespread and meaningful use of HIT. Criteria for inclusion and prioritization of these services will include:

- Necessary for widespread HIE to occur
- Does not exclude a participant based on size, location or affiliation
- Is affordable to implement and support long-term
- Supports HIT adoption to achieve meaningful use

This process will be repeated throughout Phase 1 and subsequent phases as part of the SDE's "monitor and adapt" strategy for assessing and providing services for HIE participants to facilitate HIE within the state.

Achieving the results
Success metrics will be developed for each program and service. These metrics will be defined using industry-accepted processes and will be subject to stakeholder review. Once final, the program manager for the given program or service will be responsible for tracking and reporting progress of the program against these metrics. Communication of success and performance metrics will occur on a regular basis, as determined by the executive director of the SDE.

Role of Consumers

Section Overview

- Security and privacy are important to Oregon consumers.

- The strategy takes into account the development of personal health records.

- A core goal of health information exchange (HIE) is to ensure patients have safe, secure access to their personal health information and the ability to share that information with others involved in their care.

- Access to accurate health information will help consumers make better decisions about their health care and lifestyle choices.

➢ Oregon Residents and Health Care Consumers

The attitudes of Oregon residents and health care consumers toward health information technology (HIT) and health information exchange (HIE) will have a great influence on the success of HIT and HIE as technology becomes more integrated into health care delivery settings. Electronic health records and related ehealth technology can help consumers track their health status and lifestyle factors, supporting their efforts to adopt healthy behaviors. Like most Americans, the majority of Oregon residents and health care consumers support HIT and HIE, provided that these efforts protect their health information using the most up-to-date technologies and security provisions. Oregon residents have expressed some concern about the use of health information by employers and insurers. This is reflected in the work completed by the Oregon Health Information Security and Privacy Collaboration (HISPC).
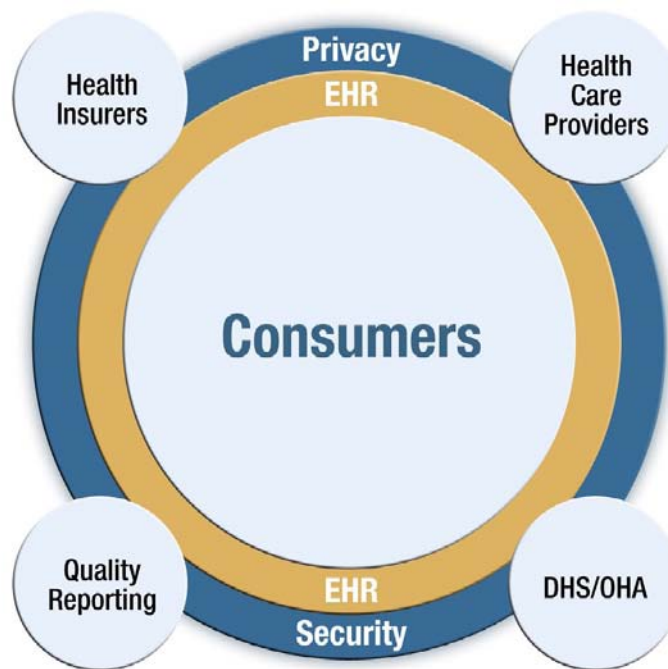
Oregon HISPC

Oregon participated in all three phases of the federally funded HISPC from 2006 to 2009. The Oregon HISPC team included Oregon Office for Health Policy and Research (OHPR), the Oregon Health Care Quality Corporation (a multi-stakeholder non-profit representing the private sector, and other security and privacy experts. The team engaged a broad group of stakeholders to develop plans for an interoperable health information exchange that is private and secure. In addition to this planning work, Oregon conducted a consumer engagement project and developed best practices around privacy and security.

Oregon's participation in this phase helped illuminate key issues surrounding HIT and guided the development of proposed solutions, while positioning Oregon for continued involvement in developing a national health information network. Oregon will continue to make the privacy and security of Oregonians' health information a priority, as demonstrated in this plan.

Finally, the strategic plan addresses the Health Insurance Portability and Accountability Act (HIPAA), state law requirements and other federal and state guidelines and initiatives, all meant to ensure rigorous privacy and security protections along with the development of a system to allow Oregon residents to conveniently and securely access their medical information. The privacy and security policies developed by Oregon's Health Information Technology Oversight Council (HITOC) and its Strategic Workgroup are consistent with federal guidance and specific to Oregon state law: to assure the privacy and security of all electronically exchanged patient data. Work generated through Oregon's involvement in HISPC has had a direct impact on and provided a foundation for the planning and development of statewide HIE.

Consumer Security and Privacy Forum

In May 2010, HITOC sponsored an Oregon Consumer Privacy and Security Forum to engage consumers and key stakeholders in the strategic planning process. Panelists included representatives from AARP, Cascade AIDS Project and the American Diabetes Association. Over 150 stakeholders attended this meeting, and during table discussions and through individual input sheets there was general and widespread support and agreement that the Plan is directionally correct; there was also support for the phased approach and general support for the proposed consent model of "opt out with exceptions," with most people viewing it as the best option given existing Oregon state legislation around Specially Protected Health Information (SPHI). This consent model for electronic health records will maintain the status quo and give the same permission for health care providers to share electronic records as is available for current paper records. The valued input from this forum is integrated into the overall strategic plan and builds upon the principles put forward by the HISPC Action and Implementation Manual.

Personal health records and patient portals

A number of efforts are underway related to the deployment of personal health record (PHR) systems and patient portals. Provider-based tethered PHRs are currently supported by organizations such as Kaiser Permanente and Oregon Health & Science University (Epic's MyChart), DCIPA's UmpquaOneChart and PeaceHealth. A number of health plans offer tethered PHRs such as Providence Health Plan (WebMD), Regence Blue Cross/Blue Shield, ODS Health Plan (WorldDoc with synchronization through HealthVault). To better serve consumers and support the triple aim goals, the SDE will work with consumers and consumer groups to identify consumer-focused services as potential Phase 2 offerings. These services may include un-tethered personal health records, services to push health data to consumer data aggregator platforms, health data auditing services, or other consumer-focused services.

Medicaid Transformation Grant (MTG)

The Oregon Department of Human Services (DHS) received from the Centers for Medicare and Medicaid Services (CMS) a Medicaid Transformation Grant (MTG) for $5.5 million in October 2007 to implement a Health Record Bank of Oregon (HRBO).

The original HRBO project goals were to:

- Implement a PHR for Oregon Health Plan clients using an HRB model.

- Demonstrate how the HRBO could improve consumer safety, health care quality and reduce costs.

- Evaluate the project based on utilization measures identified in the proposal to CMS, including the impact on quality of care, cost of service and replicability.

The HRBO proposal assumed that the technology challenge facing the project would be acquiring records from diverse systems that were unable to talk to each other. In fact, the greatest difficulties lay in two other areas:

1. Since most of those on medical assistance are minors, the privacy and special legal barriers to sharing information about minors proved to be more challenging than expected, causing delays that put the overall project at significant risk in terms of meeting the grant requirements.

2. Information on the low and slow adoption rates from health record banking projects in other states became available in late 2009 and early 2010. With that new data, the contractor responsible for engaging and enrolling consumers in the HRBO and for promoting the use of the HRBO by providers made major revisions to expected adoption rates in Oregon, concluding that the goals presented in the grant proposal are unrealistic.

Also, the national landscape of HIT and HIE changed significantly since the time the grant was awarded in 2007. The 2009 passage of the HITECH provisions of the recovery act (ARRA), and the federal funding support for health information exchange as a result of HITECH have changed the role that the HRBO project was anticipated to play in Oregon. The substantial emphasis on HIE in the stimulus bill has shifted the attention of the industry and state governments away from smaller transformation projects to the adoption of electronic health records and HIE services. The federal Office of the National Coordinator for Health Information Technology has effectively shifted the focus on PHRs under the umbrella of health information exchange.

In January 2010, after an analysis of the timelines and requirements, the executive committee of the project concluded that the risks to successful completion had grown to an unacceptable level and elected to cease work on the HRBO project. Substantial funds remain uncommitted, exceeding $4.5 million.

With CMS approval, the Medicaid Transformation Grant funding is being repurposed to address some of the original HRBO project goals and to address issues identified in the HRBO project. The reallocated funds will produce health profiles for children in foster care and enhance the Immunization Information System now being developed to provide data to child welfare, and develop interfaces with EHRs for the purpose of sharing immunization data in both directions. In addition, significant work will be done to resolve challenging policy issues relating to sharing information about minors, issues that have a major impact on HIE development in Oregon and elsewhere. The scope of the four projects to be accomplished by March 2011 involves:

Health profiles for children in foster care
The Department will build upon the new OR-Kids Child Welfare information system to aggregate and filter information from the Medicaid Management Information System (MMIS) claims database and additional data from the Oregon immunization registry to generate a health profile for each foster child. Health profiles will be tailored to four audiences: case workers, foster care providers, health care providers and individual clients upon reaching 18 or emancipation.

Immunization Information System (IIS) enhancements
Immunization data are highly valued by the health care provider community. To make IIS data more available to providers (and others who need it), and to enable providers with electronic health record (EHR) systems to easily provide updated immunization information to the IIS, a bi-directional web services interface will be developed. The interface will allow real-time immunization data export to OR-Kids in support of the health profile, and as providers activate EHR information exchange capabilities, it will enable data exchange directly with those provider EHRs.

IIS interfaces for health providers' EHRs
Immunization information for health care providers serving higher numbers of foster children, beyond the access provided by the health profile (above), can be further facilitated by strategic investments in EHR interfaces to IIS. The department is deploying a grant program to support the development, and operation of IIS to EHR interfaces for the products of leading Oregon EHR vendors, serving Medicaid recipients.

Information policy and business analysis
Finally, the HRBO project uncovered several foundational business and information technology policy challenges within Oregon statute that must be addressed for current Medicaid operations and future involvement in HIE. These challenges include approaches to managing: (a) foster child data, (b) professional and client identity, (c) family and other relationships and (d) adolescent data.

Coordination

Section Overview

- The Oregon Medicaid program's comprehensive planning work to develop a State Medicaid HIT Plan (SMHP) will be a natural coordination point with the statewide health information exchange (HIE) effort.

- A wide variety of other state and federal programs touch on electronic health information exchange and will be part of a coordinated plan, including focused coordination with O-HITEC, Oregon's Regional Extension Center.

- Oregon's Health Information Technology Oversight Council (HITOC) and eventually the state designated entity will work with Oregon health information technology (HIT) workforce development programs.

- Oregon's health care markets extend across state borders so continued coordination with neighboring states will be a priority of this strategic plan.

➤ Coordination with State and Federal Programs

State and county agencies maintain a vast array and number of information technology applications and systems. The state of Oregon maintains dozens of IT systems that support health and social services programs with significant health information technology (HIT) components. Oregon's health information exchange (HIE) planning efforts have reviewed the IT applications operated by the state through the Oregon Department of Human Services (DHS).[16] There are also a number of federally sponsored programs that will require coordination.

Medicaid HIT planning

The Oregon Department of Human Services, Division of Medical Assistance Programs (DMAP), within DHS/Oregon Health Authority, oversees the Oregon Health Plan, which is a public and private partnership that ensures universal access to a basic level of health care for Oregonians. In response to the opportunities defined by the American Recovery and Reinvestment Act (ARRA), an internal HIT environmental scan was undertaken by DHS. This comprehensive scan was executed to identify all DHS/OHA programs and associated computer applications, and then a prioritized approach was used to collect more information for the subset of these applications that would be most relevant for Oregon's HIE planning efforts.

The results of the DHS review show that development of a comprehensive HIE plan for Oregon will benefit from incorporating and leveraging existing and planned DHS/OHA HIT capabilities; however, these applications have been designed within the scope of each program, and it will require a significant effort to integrate these capabilities into HIE. DHS/OHA has key HIE capabilities such as the new Medicaid Management Information System (MMIS), which could serve as an HIE backbone. DHS/OHA has new capabilities for comprehensive client health management, such as the FamilyNet applications, and health records like the Behavioral Health Information system for Oregon state hospitals. Additional registry capabilities were identified, including the vital statistics system and the new Physicians Orders for Life Sustaining Treatment (POLST) system. Finally, DHS/OHA has good monitoring and surveillance capabilities through systems like the new ORPHEUS communicable disease application and the new prescription drug monitoring application.

Oregon's Medicaid providers are ready for health information exchange. This is evidenced in that Oregon's Medicaid providers, in particular those working in Federally Qualified Health Centers, have adopted EHRs at a higher rate than Medicaid provider adoption rates found in other states.[17] The strategic effort will focus on improving quality by building a health information infrastructure and exchange capability that supports the meaningful use of health information technology by both Medicaid providers and clients. An important initial step was approval by the federal Centers for Medicare and Medicaid Services (CMS) of Oregon's Medicaid HIT Planning Advance Planning Document (HIT P-APD) in February 2010. Due to the strength of this application and its track record of innovation, Oregon was awarded one of the largest grants for states of its size.

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[16] For a comprehensive assessment of Oregon's Department of Human Services (DHS) Health Information Technology, please refer to the Oregon DHS HIT Scan Report 2009.

[17] Hsaio CJ, Beatty PC, Hing ES, Woodwell DA, Rechtsteiner EA, Sisk JE. Electronic medical record/electronic health record use by office-based physicians: United States, 2008 and preliminary 2009. Health E-Stat. National Center for Health Statistics, December 2009. Accessed June 5, 2010 at http://www.cdc.gov/nchs/data/hestat/emr_ehr/emr_ehr.pdf.

State Medicaid HIT Planning, statewide HIE and meaningful use

Oregon is well positioned to advance statewide HIE and support meaningful use among the state's Medicaid providers. For example, Oregon is taking a comprehensive approach to its Medicaid HIT planning project including both internal and external initiatives. In addition to developing the Medicaid EHR Incentives Program, Oregon is undertaking a broad effort to encourage EHR adoption and develop the organizational and technical capacity within state HIT systems.

Integrated state IT architecture for shared health services

This latter planning will support the integration of current and future IT systems over the next five years that impact Medicaid providers and clients. Medicaid clients in Oregon are the largest consumers of nearly all other DHS/OHA services, including the provision of mental health; self-sufficiency; aged and physically disabled services; Women, Infants, and Children; child welfare; and food stamps. Integration of numerous DHS/OHA IT systems will help the state save money, improve health care and human services delivery and improve the health of Oregon residents served by Medicaid and other DHS/OHA programs; all of which help to advance Oregon's triple aims. In the meantime, it is anticipated that these major state agency programs will function as local health information organization (HIO) nodes in the statewide HIE services architecture. Further, MMIS and Oregon's managed care organizations can be expected to be active participants in HIE.[18]

Medicaid HIT Planning Project (P-APD)

As mentioned, Oregon has taken a comprehensive approach to the development of a State Medicaid HIT Plan (SMHP). The Medicaid HIT Planning Team is coordinating closely with the state HIE planning team, particularly around topical areas of overlap and leveraging resources. Oregon expects to submit its initial draft SMHP with details on the state's Medicaid incentive program by winter 2010/2011. As the SMHP and State HIE strategic plan are integrally linked, the Medicaid HIT Planning team will continue working closely with the state coordinator for HIT to ensure that the State Medicaid HIT Plan builds upon, enhances and strengthens Oregon's strategic and operational plan for HIE. Collectively, these efforts are all designed to help achieve statewide HIE and support achievement of Oregon's overall goals for the health of its population.

Efforts included in Oregon's Medicaid HIT Planning project:

- Environmental Scan

- Vision

- Incentives program activities and roadmap including audit and oversight strategies

- Electronic health record (EHR) adoption initiatives:

    - Feasibility study and plan for an EHR loan program

    - Provider outreach and communications

- DHS/OHA Internal HIT Planning related to Medicaid providers' use of EHRs, including:

    - Organizational capacity, Shared Services Architecture planning

    - Public health HIT planning

    - Behavioral health HIT planning

    - Long term care HIT planning

    - DHS privacy and security policy planning

- HIE-related initiatives:

- Funding for the Medicaid portion of the HITOC/HIE work

- Local HIO planning

Oregon's State Medicaid HIT Plan will identify goals for EHR adoption and participation in the incentives program for Medicaid providers. The state HIE project team will participate in the development of those targets, along with planning related to EHR adoption strategies and initiatives.

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[18] State of Oregon, Department of Human Services (2010). Oregon Medicaid HIT Planning Advance Planning Document (HIT P-APD). Submitted to and approved by the Centers for Medicare and Medicaid Services.

Other Medicaid-related HIT efforts

Key Medicaid HIT efforts in Oregon that will help support health information exchange include:

- **MMIS Certification:** DHS/OHA implemented a new Medicaid Management Information System (MMIS), in December 2008. Oregon is using the legacy certification review process, but has also created a bridge to the current process that is based on Medicaid Information Technology Architecture (MITA). This would allow Oregon to leverage certification activities to further components of the MITA State Self Assessment.

- **MITA State Self Assessment (SS-A):** The MITA SS-A project is in process with a planned completion date of October 1, 2010. The project will be coordinated with the Medicaid HIT Planning Project.

- **5010/ICD-10 Planning:** DHS/OHA is creating a P-APD to remediate the MMIS to support the 10th revision of the International Classification of Diseases (ICD-10) as well as the 5010 version of the X12 HIPAA transactions. The changes associated with 5010/ICD-10 will be considered and coordinated as part of the MITA SS-A project as well as the Medicaid HIT Planning Project.

- **Healthy Kids Profile (Medicaid Transformation Grant):** DHS/OHA proposes to use OR-Kids to aggregate and filter information from the MMIS claims database and additional data from the Oregon immunization registry to generate a health profile for Oregon's foster children. This project plan will also develop a bi-directional interface for the state's Immunization Information System (IIS) and will support OR-Kids and provider EHRs seeking to exchange data with the IIS system. The interface will allow real-time immunization data export to OR-Kids in support of the health profile, and as providers activate EHR information exchange capabilities, it will enable data exchange directly with those provider EHRs.

- **All Payer Data Reporting Program:** Oregon is in the process of implementing an All Payer Data Reporting Program (also known as all payer all claims, or APAC). The State Medicaid HIT Plan will consider the opportunities to use the APAC to monitor EHR utilization related to Medicaid beneficiaries. The APAC is expected to provide data for screening and/or determining provider eligibility for Medicaid incentive payments (20% threshold for pediatrics and 30% for other eligible professionals). This may include tracking EHR utilization and capturing data to support planning components pertaining to meaningful use. Medicaid data will be synchronized between MMIS and the APAC so as to be included in the APAC for Oregon's analysis of cost and quality trends.

With the completion of these efforts, Medicaid providers' ability to exchange information and achieve a number of meaningful use (MU) criteria can be achieved by actively transmitting to and receiving from the state's MMIS, IIS and other IT systems. In addition, local and regional HIOs will be able to send and receive clinical data by interfacing with the state's systems. It is anticipated that a number of Oregon's Medicaid providers will actively engage in HIE by interfacing with local HIOs. By exchanging clinical information through the adoption and use of EHRs and HIOs, Medicaid providers will be able to better attest to MU criteria by exchanging clinical information with multiple IT systems operated by DHS/OHA.

Measuring Medicaid provider participation in HIE

Medicaid provider participation in HIE will be monitored through adoption and use of certified EHR systems and MU certification. Additional mechanisms will be determined as the Medicaid HIT planning project proceeds, but could include state-facilitated HIO accreditation programs.

Points of coordination

The state HIE planning and the state Medicaid HIT planning projects will run along similar timelines, with state HIE strategic and operational plans due to the ONC in summer 2010 and the SMHP due to CMS in winter 2010/2011. The Medicaid HIT planning project team will interact regularly with the HITOC team throughout the development of the State Medicaid HIT Plan to ensure a coordinated planning strategy, synchronize contractor resources, prevent duplicative efforts and develop a consistent and coordinated approach to provider communications and outreach.

To effectively develop and achieve statewide HIE capability among Oregon's Medicaid providers, HITOC will closely coordinate with established lead contacts with the State Medicaid HIT Planning Team and O-HITEC to promote EHR adoption across all Medicaid providers in Oregon. In addition, the state HIT coordinator and staff will work with the State Medicaid HIT Planning Team and O-HITEC to address barriers with EHR adoption faced by Oregon providers during Phases 1 and 2. Key points of coordination include convening of joint HITOC and Medicaid HIT planning team meetings; active communication to and from various workgroups created by the Medicaid HIT Planning Team during Phase 1; and ongoing communication with the state Medicaid director, DHS/OHA chief information officer and deputy chief information officer for Medicaid.

State Medicaid/CHIP

Coordination with the state's Children's Health Insurance Program (CHIP), referred to in Oregon as Healthy Kids, will be part of the state's Medicaid HIT Planning process. The integration of CHIP programs in the strategic plan will be articulated in the State Medicaid HIT Plan (SMHP) that is to be submitted to CMS in October 2010. Oregon will leverage every opportunity to build interoperable connectivity for Medicaid practices and providers that offer services to individuals covered under Healthy Kids.

Other state and local programs

There are a number of public health registries and disease surveillance programs in Oregon. Immunization registries, disease surveillance and related programs are important components in developing a statewide, comprehensive and coordinated data exchange network for public health.

Table 15. Public Health Registries & Disease Surveillance

ALERT Immunization Information System	Statewide immunization information system developed to achieve complete and timely immunization of all Oregonians. ALERT collects immunization data from public and private health care providers and links the data to provide accurate and up-to-date records.
Oregon Public Health Epi-User System (ORPHEUS)	An integrated electronic disease surveillance system intended for local and state public-health epidemiologists and disease investigators to efficiently manage communicable disease reports.
	80% of communicable disease reporting occurs electronically to local health departments from 12 clinical laboratories and the Oregon State Public Health Laboratory. These reports flow into ORPHEUS.
Emergency medical services	Statewide EMS reporting does not exist in Oregon.
OR-Kids	A comprehensive automated Child Welfare Information System that will facilitate the statewide integration of child welfare processes.
	Will bring the following benefits: (1) align technology systems and support with needs of the Children, Adults and Families (CAF) division, (2) reduce the complexity of systems and procedures, (3) implement modern technologies that will have continued technical support through the life of the new system, (4) standardize child welfare practices within Oregon and bring Oregon practices into alignment with other state and federal standards, and (5) reduce duplicate data entry and errors.
	Pilot testing is taking place in county settings in the second half of 2010, and projected target implementation is expected in the first quarter of 2011.
FamilyNet Child Health Record	A health data system intended to integrate public health programs and coordinate services for children and families on the local agency level.
Vitals Statistics OVERS	The Oregon Vital Events Registration System is a multi-year project to modernize Oregon's vital records systems.
Oregon Electronic Laboratory Reporting (ELR) project	A long-term effort to convert major labs, county health departments, and the state health department to electronic data interchange. The state health department will serve a new role, functioning as an electronic hub to accept, route, and process electronic HL7 messages containing lab and clinical data.

Emergency medical services

Oregon would benefit from a statewide EMS patient-encounter data system but there are not currently any plans to implement a statewide EMS reporting system. Linking a statewide EMS reporting system to the Oregon POLST registry system (details below) is also a state objective in the future.

Oregon POLST (Physician Orders for Life-Sustaining Treatment) Registry

The Oregon Physician Orders for Life-Sustaining Treatment (POLST) program is designed to assure that the medical treatment wishes expressed by the patient are honored by health care professionals as the patient moves from one health care setting to another. The program was developed initially in Oregon in 1990 by a multi-professional task force convened by the Center for Ethics in Health Care at Oregon Health & Science University (OHSU). The voluntary use of the POLST document is intended to align medical treatments with the wishes of persons with advance illness and frailty, and is expected to complement the advance directive, if one has been completed. The POLST program has been proven to be remarkably effective, so much so that 30 other states are following Oregon's lead and developing similar programs.

As Oregon's experience with the POLST program grew, first responders frequently were unable to find a patient's completed POLST form in a time of crisis. In response to this need, the Oregon POLST Registry was created as a public/private partnership with funding from private foundations to build a pilot database in one Oregon county and to educate the professional community. In 2009 with passage of HB 2009, as part of Oregon's health care reform efforts, Oregon launched the nation's first statewide 24-hour electronic POLST Registry on December 3, 2009. Healthcare providers are required to submit completed POLST forms to the registry. First responders and providers are able to call the registry from the field and be informed of a patient's POLST orders. The Registry is a partnership between the Oregon Health Authority and OHSU's Center for Ethics, and is housed in the emergency response unit at OHSU. Conversations on how best to link to electronic records to more fully automate the registry are currently underway.

Behavioral Health Integration Program (BHIP)

Addiction and Mental Health Division (AMH) recently completed a multiple-year planning process for implementing a comprehensive Behavioral Health Information Project (BHIP). The program is designed to provide an EHR and other clinical and administrative systems to support the state's behavioral health continuum of care. This scope is intended to include the state's psychiatric hospitals, 500 mental health and addiction services community-based programs and 13 acute care hospital programs. The technology will include an EHR, Admit-Discharge-Transfer (ADT), scheduling and medical, laboratory and pharmacy services. The BHIP has decided to employ an incremental implementation strategy starting with sites in Salem before moving on to Portland and Pendleton, with connections to Junction City and the community following. Clinical information exchange among the BHIP EHR system and community providers and health systems is an important consideration of the plan.

Coordination with long-term care

Starting in the 1970s, Oregon developed and successfully implemented an innovative system of long-term care. Among many other elements, this work included the creation of the Department of Human Services' Seniors and People with Disabilities Division (SPD) and the adoption, for the first time in any state, of a statewide standardized individual functional assessment computerized instrument and process, assuring placement in, and/or transfer to appropriate nursing facility or community-based long-term care. This system case manages selective and cost-effective utilization of nursing facility, assisted living and residential care, together with a complete spectrum of medical and non-medical in-home services. The system is used by SPD staff to assess individuals for Medicaid eligibility for placement in nursing facilities and community-based settings based on care needs and is not a health information record. NFs are required to submit Minimum Data Assessment (MDS) records to a database in Oregon that transmits this record to the CMS MDS/ASPEN database. The MDS is a comprehensive resident assessment conducted by the NF that does contain health information and must be updated at proscribed intervals. ALFs, RCFs and AFHs do not have a required statewide or federal electronic system to which they must submit this information.

The Medicaid HIT planning process through the P-APD (see Appendix I) will include long-term care HIT planning for Medicaid patients. One challenge will be supporting EHR adoption in long-term care settings, and whether a loan program can be developed to help support adoption. Researching the options for a loan program is part of the Medicaid P-APD, and HITOC has already had some initial conversations with the state Treasurer's Office and the health care philanthropic community about possible avenues. In addition, all stakeholders will be involved in efforts to expand the ability to share electronic health records throughout the long-term care environment to ensure safe, secure and private exchange capabilities with family members, hospitals, doctors' offices, clinics, plans, intensive rehabilitation facilities and preventive programs. Having information where and when it is needed will improve transitions, improve the quality of patient care and contain costs through reducing hospital admissions, readmissions and lengths of stay.

The case for including long-term care is well articulated in the *Roadmap for Health IT in Long Term and Post Acute Care (LTPAC)1*, published by the LTPAC HIT Collaborative:

"What distinguishes this sector is its focus on coordination of supportive services and care, restoring and maintaining health, wellness and functional abilities, and a particular, almost programmatic, focus on the particular needs and goals of each of its consumers and their families. This focus demands an application of health IT towards shared care, transitions of care and person-centered longitudinal health and wellness records to ensure a person receives affordable, quality and coordinated care when they need it, where they need it."

According to a recent AARP review, about one-third of Oregon's Medicaid-eligible intermediate care clients are in licensed nursing facilities, while two-thirds are appropriately placed in community based long-term care at equivalent or lower costs. The ratio in the other states is generally the opposite: two-thirds in nursing facilities, one-third in alternative care. By this significant patient-centered criterion, Oregon is indeed unique.

Furthermore, in the Medicare and private pay sectors, the availability and utilization of community-based care in Oregon has expanded greatly. A variety of factors, including but not limited to the catalytic effects of the early provider-supported changes in certificate of need, together with the innovative statewide Medicaid changes under successive federal waivers, must account for Oregon's long-term care achievements.

Because of Oregon's unusual history and present accomplishments in long-term care, the state is in an ideal position to develop and demonstrate, from the very start, the usefulness and cost-effectiveness of EHR adoption, HIE and transition facilitating systems across the entire health care system: hospitals, doctors' offices, clinics, health plans and long-term care, but it will require the broad adoption of EHR capability across the long-term care sector to be successful.

Local county health departments
Part of the state's HIE planning process consisted of collecting information from Oregon's local public health departments in order to better understand agency capacity and needs related to the use of information systems. An assessment of all 34 local or county health departments was conducted. The survey initiative served as an opportunity for HITOC to engage in a collaborative initiative with both the Oregon Public Health Division and the Conference of Local Health Officials (CLHO).

Overall, findings from the survey indicate the need for additional human and technical resources. Local health departments reported being unable to adequately staff, support and implement new IT systems; the inability to integrate or interface existing IT systems; and being unable to store, access and retrieve data in a meaningful, useful or straightforward process. Findings also indicate the strong interest in new and upgraded IT systems, developing better information management capacity and achieving more effective and efficient use of various systems and IT applications related to HIE.

State and county corrections departments
The Department of Corrections (DOC) operates 15 clinics in its adult correctional facilities. The DOC is exploring EHR systems for its corrections populations. The Oregon Youth Authority operates correctional facilities for minors: seven closed facilities and four transitional facilities. OYA operates six clinics in support of the closed facilities, and is exploring EHR adoption as well. It will be important to work with these two agencies as they move forward with plans for EHR adoption.

Safety net and state programs supported by the Health Resources and Services Administration
An Oregon-based HIT organization, OCHIN, received a grant from the U.S. Department of Health and Human Services to help networks of health centers adopt health records and other HIT systems. OCHIN received $3 million to expand health care services to low-income and uninsured individuals. The grant from the federal Health Resources and Services Administration (HRSA) supports community-based coalitions of health care organizations that provide management, financial, technology and clinical support services to health centers that receive HRSA funding.

➢ Federal Programs

The state of Oregon, through OHA/DHS, HITOC and OHIT, as well as the future state designated entity (SDE), will coordinate with federal programs that have their own HIT and HIE efforts under way. Because these efforts are rapidly evolving, the specific identification of coordination points will take place during Phase 1 of operations. The federal programs include:

- Medicare
- Centers for Disease Control and Prevention
- Agency for Healthcare Research and Quality
- Substance Abuse and Mental Health Services Administration
- Social Security Administration
- Health Resources and Services Administration
- Food and Drug Administration

Other federal program coordination involves the Indian Health Service and military/veterans agencies, as detailed below.

Indian Health Service
Oregon's Tribal and Indian Health Service clinics are dispersed throughout the state with 11 clinics found among nine tribes and in nine counties, but providing health care services to tribal members in many additional counties. These facilities are often in rural and isolated communities. The following tribal clinics report using the Indian Health Services (IHS) Electronic

Health Record graphical user interface (GUI) application in providing patient care: Warm Springs Health Center, Warm Springs OR (IHS); Western Oregon Health Center, Chemawa, OR (IHS); Cow Creek Health & Wellness Center, Roseburg, OR (Tribal); and Siletz Community Health Center, Siletz, OR (Tribal). The remaining clinics, operated by either IHS or tribal communities, will be included as one of the priority provider groups for HIE connectivity, once these facilities have implemented an EHR.

It is expected that health centers operated by either IHS or by individual tribes will have connectivity to regional or local HIOs. This assumes that the EHR platform supported by IHS will provide direct connectivity with local HIOs as well as via NHIN Exchange. It is anticipated that bi-directional flow of health information can be achieved either through connectivity with local HIOs and/or NHIN Exchange.

Veterans Health Administration, Department of Defense
Interoperability with the Veterans Administration VistA and My HealtheVet systems are recognized as essential elements to comprehensive statewide HIE. There is expected to be connectivity via NHIN Exchange from the SDE and local HIOs. It is also expected that the VA and its network of civilian providers will be able to exchange clinical information at the local community level across Oregon.

Oregon's health care providers and local HIOs expect to exchange clinical information with the Department of Defense installations located in various parts of the state via NHIN Exchange, local HIOs and the SDE. It is expected that the Department of Defense activation process to retrieve care summary records from local providers through HIOs and provide clinical information to local providers and/or from VA-related discharge/deactivations of military personnel.

Oregon's National Guard is an organization of more than 11,000 people who are citizen soldiers and airmen and civilian (federal and state) employees. Approximately 2,600 soldiers, airmen and civilians work full-time for the National Guard and the Oregon Military Department relationships with the National Guard. The majority of active military and National Guard military personnel are covered under TRICARE. In Oregon, TRICARE provides comprehensive medical services through its network of civilian providers, and coordination with TRICARE will be part of statewide HIE.

➢ ARRA Programs

Regional Extension Center (REC)
The team from the Health Information Technology Extension Center (O-HITEC) for Oregon and the HIE planning team have been working together closely from the beginning of the ONC application process. The O-HITEC management team reports regularly at HITOC meetings. HITOC and O-HITEC staffs work collaboratively on the elements of this effort where they intersect. HITOC and O-HITEC have contracted with some of the same consulting teams, particularly around strategic planning and communications. O-HITEC staff will support meaningful use EHR adoption by furnishing education, outreach and technical assistance to providers to select, successfully implement and meaningfully use certified EHR technology to improve the quality and value of health care.

O-HITEC is a partnership of OCHIN and Oregon Health & Science University, with OCHIN holding the lead planning and implementation role, and OHSU providing the curriculum support. OHSU, under the ONC workforce funding, is one of the five curriculum development centers, as well as the National Training and Dissemination Center. This allows the HIE, REC and workforce efforts to work closely together.

Coordination with O-HITEC is also part of Oregon's Medicaid P-APD process to develop a Medicaid HIT plan; this includes outreach and communications to Medicaid providers about meaningful use.

For more information on O-HITEC see HIT Adoption Strategies, page 62.

Oregon Health Network (OHN)
HITOC members and the State Coordinator for HIT are working closely with OHN to assure that all providers can access regional and local HIOs and electronically exchange administrative and clinical data using broadband technologies. Statewide broadband coverage is key to the successful execution of the HIE efforts. OHN is leading the initiative to improve Oregon's broadband mapping, analysis and planning capacity as part of the five-year plan funded by the federal Rural Health Care Pilot Program (RHCPP). It is anticipated that OHN and its key partners will expand broadband access to local communities, including those currently with limited-to-no broadband access. HITOC will monitor progress in Oregon's broadband initiative.

For more information on OHN see HIT Adoption Strategies, page 62.

Social Security Administration

OCHIN, Douglas County Individual Practice Association (DCIPA) and Bay Area Community Informatics Agency (BACIA) were all notified at the beginning of March 2010 that their proposals to develop and pilot disability reviews through the use of HIT for the Social Security Administration (SSA) were approved. The purpose of these projects is to reduce the time it takes to carry out a quality review for individuals going through the disability determination process.

OCHIN is using the grant to develop software to connect electronic medical records to the Social Security Administration via the Nationwide Health Information Network (NHIN). This process will significantly shorten the time it takes to make a disability decision and improve the speed, accuracy and efficiency of SSA disability programs.

OCHIN is a non-profit collaborative of 32 West Coast and Midwest community health centers with a combined database of nearly 1 million individual patients. In addition to providing practice management and electronic medical records software and services to community-based clinics, the collaborative also partners with governmental, university and community-based organizations to improve population health. As a catalyst in the transformation of health care, the lessons learned by OCHIN in the process of enabling the exchange with the SSA and other HIE programs are being shared with HITOC.

DCIPA was also among the 15 entities to be awarded a contract under this program. As a project partner, DCIPA will develop continuity of care documents and integrate its GE Centricity-based Electronic Medical Records and Health Information Exchange, known as the UmpquaOneChart, with the CONNECT framework, a national "network of networks" designed to facilitate interoperability among different HIEs. DCIPA is laying the groundwork to begin this work mid-June 2010, with a completion date of mid-June 2011.

BACIA, Bay Area Community Informatics Agency, is a multi-entity organization within the Bay Area Health District in Southwestern Oregon. BACIA will work in partnership with Medicity through the SSA pilot program to focus on the applicability of health information exchange in rural settings.

All three of these efforts are being coordinated with HITOC as part of the ongoing coordination with local HIOs in Oregon. This specific project, as well as the ongoing HIE work of OCHIN, DCIPA and BACIA, are key components of the HIE planning and implementation.

➤ Preparing Oregon's Workforce for HIT Transformation

To address the vast new need for health information technology expertise, the Oregon Healthcare Workforce Institute (OHWI), in partnership with the Oregon Department of Community Colleges and Workforce Development and WorkSource Oregon, conducted a comprehensive assessment around preparing Oregon's workforce for rapid and extensive health IT transformation.

In fall 2008, the OHWI established the Health Information Technology Workforce Initiative as one of four key initiatives critical to the mission of developing a high-quality health care workforce. The partners convened a "brain trust" of health information technology experts. Over the course of four months, this group, comprising representatives from healthcare, education, state government and other areas, identified the workforce needs associated with state and federal reform, analyzed supply and demand estimates, reviewed current education programs, examined federal training grant opportunities and assessed the challenges to building Oregon's HIT workforce and training the current health care workforce (see Table 16 for details).

Table 16. State Health IT Workforce Needs

The short timeframe for health care providers to take advantage of federal dollars to purchase, implement and use EHRs creates a huge demand for a skilled HIT workforce.
Oregon's health care providers have a higher rate of adoption of EHRs than most other states. This indicates that Oregon will need fewer workers to install EHR systems compared with other states and more workers to support health care providers in the implementation and optimization of EHR systems.
At a minimum, it is estimated that an additional 100 information technology (IT) workers will be needed statewide to install and provide technical support for EHR systems over the next two years.
Health care providers in rural areas face a variety of obstacles in adopting and using EHRs, including access to training and retention of HIT staff.
Oregon is home to a strong HIT industry and accordingly has a need for access to a trained workforce.
Highly skilled IT professionals from Oregon's high tech industry have moved into the health care technology industry, creating new businesses and job opportunities.
A skilled HIT workforce is needed internally to support the secure exchange of patient health information.
The implementation of the Oregon Health Network's high-quality broadband network to provide patient access to enhanced telehealth services and education throughout Oregon requires a skilled HIT workforce to install and support telehealth and distance education technologies.
The number of IT workers needed to support health providers' use of EHR systems is relative to the computer literacy of health care workers.

In collaboration with various community colleges and universities, Oregon's REC and regional health care employers and health IT vendors, the following three strategic goals will be pursued.

Table 17. Oregon HIT Workforce: Strategic Goals

Build Oregon's Health IT workforce	Target training efforts and funds to develop the HIT workforce needed for the installation, implementation and optimization of EHRs in Oregon's clinical and hospital settings in accordance with federal and state health care reform policies and deadlines.
Prepare the health care workforce	Train Oregon's current health care workforce to meet basic competencies in using EHRs and related technology.
Prime the health profession education pipeline	Integrate HIT coursework into Oregon's health care profession education programs so that graduates are competent in the use of EHRs and related technology.

➢ Workforce Training Programs

Oregon Health & Science University

Oregon Health & Science University (OHSU) is a leading academic and research institution in the field of health informatics through its Department of Medical Informatics and Clinical Epidemiology (DMICE). OHSU will be receiving $5.8 million through two stimulus grants. The first grant is a $3.1 million training grant to train 160 certificate and master's students in their informatics graduate program over the next three years. The second grant is for $2.7 million to fund OHSU as one of five curriculum development centers charged with developing curricula for identified community colleges to train students in informatics and health IT. In addition, OHSU was selected to be the National Training and Dissemination Center housing the curricula on a web site and training community college faculty in its use. This grant includes partnerships with five community colleges.

Community College Consortia Program

Portland Community College (PCC) will receive funding through the Community College Consortia Program, which provides assistance to five regional consortia of 70 community colleges across the country. PCC is part of the Bellevue College Consortium, and will receive $625,000 to partner over the next two years with Mt. Hood, Lane, Umpqua and Blue Mountain community colleges to train and place 300 health IT workers. Each college will create non-degree training programs that can be completed in six months or less.

➢ Other States

Preparations for interstate exchange of health information are at different levels of development in each of the five states within the Pacific Northwest region, but conversations have begun to form a consortium comprised of leaders and key stakeholders from the states of Alaska, California, Idaho, Oregon and Washington. A proposal to launch the Pacific Northwest Health Policy Consortium and receive support services, including subject matter experts, was submitted to RTI International in June but was not funded. Oregon took the lead position in preparing the proposal. Interstate exchange of health information is already occurring in specific border markets and defined situations (e.g., Portland, Oregon/Vancouver, Washington; Eastern Oregon/Boise, Idaho; Southwest Washington/Columbia Gorge, Oregon; Medford, Oregon/ Northern California; Seattle, Washington/Portland, Oregon/Alaska). The proposed Pacific Northwest Health Policy Consortium will lay the groundwork for a common approach to information exchange among the five states, and will evaluate specific near term solutions in defined border markets as well as longer term opportunities for moving toward harmonization with national standards and the potential for a multi-state compact related to health information exchange issues. The states will determine whether to reapply in the next round of funding.

Oregon is taking initial steps to prepare for interstate exchange by:

- Identifying relevant current laws and policies

- Identifying existing mechanisms for exchange used by provider organizations

- Identifying current barriers to exchange

- Gathering proposals for policy and legal changes that would facilitate exchange

- Laying the groundwork for additional work to harmonize state approaches, overcome barriers and coordinate exchange on an ongoing basis

Conversations are also occurring with Nevada, which shares a border with Southeast Oregon. As these are extremely low-population areas, they are a secondary priority on our timeline.

List of Appendices

Appendix A: Health Information Technology Oversight Council Members

Steve Gordon, MD, Chair
Vice President and Chief Quality Officer, PeaceHealth

Rick Howard, Vice Chair
Chief Information Officer, Oregon Department of Human Services

Robert E. Brown
Consumer Advocate

Brian DeVore
Director of State Health Policy, Intel

Gregory Fraser, MD, MBI
Medical Director of Information Systems and Informatics, Mid-Valley Independent Physicians Association

Bridget Haggerty
Vice President and Chief Information Officer, Oregon Health and Science University

William H. Hockett
Director, Web Strategy, ODS Companies

Marie A. Laper
Behavioral Health Clinical Coordinator, OCHIN, Inc.

Robert F. Rizk
Director, Information Technology, Good Shepherd Health Care System

Sharon Stanphill
Health and Wellness Director, Cow Creek Health and Wellness Center
Cow Creek Band of Umpqua Tribe of Indians

Dave Widen
Adjunct Professor, Pacific University

Appendix A: Health Information Technology Oversight Council Members
Health Information Exchange: A Strategic Plan for Oregon
ONC Cooperative Agreement Award 90HT0014/01: CFDA #93.719

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Appendix B: Strategic Workgroup Members

Brian Ahier
Health IT Evangelist Mid-Columbia Medical Center

Bonnie Altus, MS, RHIT, CPHIMS, CHPS
Consulting services in health information management and health information systems

Carol Barnett, CHC
System Director, Organizational Integrity and System Compliance Officer, Peace Health

Dick Taylor, MD
Chief Medical Information Officer, Oregon, Providence Health and Services

Dick Gibson, MD
Former Senior Vice President and CIO, Legacy Health Systems

Rusell Hargrave
Deputy Chief Information Officer for Public Health, State of Oregon

Vaughn Holbrook
Director of Health Information Exchange, Regence Blue Cross/Blue Shield of Utah

Bob Joondeph (consent meetings only)
Executive Director, Disability Rights Oregon

Aaron Karjala
Deputy Chief Information Officer, DMAP & AMH, State of Oregon

Jeff Larson, MBA, CFRE
Executive Director, Foundation, Samaritan Health Services

Paul Matthews
Chief Technology Officer, OCHIN, Inc.

Eric McLaughlin, MRIPA
Data Integration Engineer, Mid-Rogue eHealth Services

Steve Modesitt, RN, MPH
Information Systems Coordinator/Public Health Coordinator, Oregon Department of Human Services

Doug Ritchie, PhD
Retired, former President and CEO, eFormatix & Central Oregon Electronic Medical Records (COEMR)

Robert H. Thomson
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Chief Information Officer, Portland InterHospital Physicians Association

Appendix B: Strategic Workgroup Members
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Appendix C: Oregon Health Policy Board Members

Eric Parsons, Chair
StanCorp Financial Group and Standard Insurance Company

Lillian Shirley, BSN, MPH, MPA, Vice Chair
Director, Multnomah County Health Department

Michael Bonetto, PhD, MPH, MS
Director of Community Benefit and Government Affairs, Cascade Healthcare Community

Eileen Brady
Co-owner, New Seasons Market

Carlos Crespo, MS, DrPH
Professor and Director of the School of Community Health at Portland State University

Felisa Hagins
Political Director, Service Employees International Union Local 49

Chuck Hofmann, MD, MACP
Baker City physician

Joe Robertson, MD, MBA
President, Oregon Health & Science University

Nita Werner, MBA
President/CFO, Ornelas Enterprises Inc

Appendix C: Oregon Health Policy Board Members
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Appendix D: Matrix of Regional HIE Initiatives in Oregon

Working Table of Regional HIE Initiatives in Oregon[19, 20]

HIE	YEAR EST.	REGION	ORG TYPE	TECHNOLOGY APPROACH	OPERATIONAL (DATA EXCHANGED)	GOALS/ OBJECTIVES	PARTICIPANTS (INITIAL/ PLANNED)	INITIAL FINANCING	SUSTAIN-ABILITY MODEL
Bay Area Community Informatics Agency (BACIA)	2009	Coos Bay & North Bend	Not-for-profit 501(c)3	Centralized (possible future hybrid)	- Centralized - ADT (all) - Labs (all) - Radiology images & transcription (both BAH, transcription only NBMC) Transcription (BAH) - Pathology (BAH)	- Provide access to clinical data at point of care - Provide continuity of care for patient in under-serviced area	- Bay Area Hospital (BAH) - North Bend Medical Center (NBMC) - Bay Clinic	AHRQ Grant	Under development
St. Charles Health System	2006	Crook, Deschutes & Jefferson Counties	Not-for-profit health system	Centralized working towards hybrid- federated	- Lab results - CCDs	200 ambulatory physicians running EMR/PM and HIE over the next 3 years	Approximately 40% regional physicians on EMR/PM. Central Oregon Healthcare Physicians, Approximately 400+ connected to an HIE to support Triple Aim goals	Hospital self-funded, pursuing a Beacon Grant to accelerate plans	Pay-per-use monthly fee with subsidies paid by hospitals to encourage adoption rates
Douglas County Independent Practice Association (DCIPA)	2005	Douglas County	Community Health Alliance	Fiber network with centralized IT services, single EMR database provides Single Patient Chart Model	Operational: HIE for Douglas County health care providers w/single patient chart model - Multiple interfaces in place including four major laboratories, radiology, cardiovascular dynamic procedures, EKG, EEG, and all transcribed documents from hospital Planned: HIE extension to adjunct healthcare systems and immunization interface w/ State of Oregon	Multiple goals and objectives	Initial: Health providers in Douglas County Planned: Adjunct health care system	DCIPA	Continue pursuing grant funding, business partnerships, governmental funding and other community based ventures to underwrite continuing costs
Gorge Health Connect	2009	Hood River, Wasco, Sherman, Gilliam, & Wheeler Counties	Non-for-profit, 501(c)3	Federated	Planned: testing Q4 2010 (Labs, Medications, H&P, etc.)	Improve the consumer experience, enhance provider efficiency, and improve clinical outcomes through secure exchange of relevant clinical information	Providence Hood River Hospital, Columbia Gorge Community College, Mid-Columbia Medical Group, Columbia River Women's Clinic, Mid-Columbia Surgical Specialists, La Clinica Del Carino, North Central Public Health, Hood River Public Health	$81,000 HRSA Grant	Continue pursuing grant funding from government and foundations while developing long-term strategy for sustainability
Jefferson HIE	2000	Josephine & Jackson Counties	Not-for-profit, Asante Health System	Centralized	- Hospital reports - Lab Results - Lab order from physician offices, diagnostic images, patient demographic information	Ease of practice for physicians, improved access to clinical info		Asante Health System	Funded by participating health systems
Northeast Oregon Network (NEON)	2009	Union, Wallowa, and Baker Counties	Not-for-profit 501(c)3	Exploratory Phase: applying for planning funding and convening/leading the planning process					

[19] Table is adopted from the Missouri Health Information Exchange Strategic Plan, Feb. 19th, 2010, p.15.

[20] Table reflects information as of June 13, 2010.

Appendix D: Matrix of Regional HIE Initiatives in Oregon
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HIE	YEAR EST.	REGION	ORG TYPE	TECHNOLOGY APPROACH	OPERATIONAL (DATA EXCHANGED)	GOALS/ OBJECTIVES	PARTICIPANTS (INITIAL/ PLANNED)	INITIAL FINANCING	SUSTAIN-ABILITY MODEL
OCHIN	2009	Multi-State	Not-for-profit 501(c)3	Federated	Operational: Live w/ CCD for Epic, Testing w/CCD = PVMHIE NHIN: On-Ramping for SSA (testing gateway), Pilot CHC NHIN project w/Kaiser Permanente	Enable standards-based exchange of patient data with all health systems in our member regions for treatment	All Providers w/HIE capability	OCHIN funded augmented by grants	TBD
PeaceHealth	2000	Lane, Linn, Benton, Coos, and Douglas Counties	Not-for-profit health system	Centralized	Common EHR across inpatient & ambulatory environment; 15,000 active Oregon Users; Look Up for labs, CCDs, other diagnostic services; Integrated PACS	Enable standards-based exchange of patient data & reporting data among all community partners; integration with state wide exchange		Regional multi-stakeholder Steering Committee formed 2010	TBD	TBD
Portland-Vancouver Metro (PVMHIE)	2009	Clackamas, Clark, Multnomah, & Washington Counties	Voluntary Collaboration	Hybrid/ Federated	Operational: OHSU = live w/CCD for Epic counterparts; Providence & Southwest WA = testing CCD Planned: full exchange of CCD w/ all participants of PVMHIE	Enable standards-based exchange of patient data & reporting data among all partner health system providers within Portland-Vancouver metropolitan area for treatment, performance feedback, decision support, & evaluation	Providence Health & Services, OHSU), Legacy Health Systems, Kaiser Permanente NW, OCHIN, Portland Adventist, Southwest Washington Health System, Tuality Healthcare, all affiliated Providers w/HIE capability		TBD
Salem Area Community Health Information (SACHIE)	2007	Marion and Polk Counties	Physicians Choice Foundation 501(c)3	Federated	NA	Single point of access to community-wide patient -centric healthcare data to improve quality & efficiency -CCR/CCD summary record exchange in phase 1	Initial: - Physicians - Hospitals - Diagnostic Imaging Facilities Planned: - FQHC(s) - IHS Clinic(s) - Public Health Department(s) - Consumers - Health Plan(s)	Physicians association supported Private foundation supported	- Membership fees - User fees - Payer support

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Appendix E: Oregon Phase 1 Risks and Mitigation Strategies

POTENTIAL RISKS	MITIGATION
Opposition, disagreement and/or confusion among participants about state and/or federal standards could also result in a potential lack of interoperability.	HITOC and Phase 1 workgroups will focus on interoperability and communication standards based on national and federal standards; assist local HIO and provider adoption of interoperability standards; monitor interoperability barriers and issues, and coordinate technical approaches within Oregon.
Lack of participation among organizations and patients.	HITOC will monitor participation by local HIOs, providers and patients in local HIOs, along with HIE services and functions with attention to barriers and issues in adoption. HITOC will work cooperatively with O-HITEC to encourage provider participation in HIE services and achievement of meaningful use.
Local HIOs are weak and or failing	HITOC will monitor the scope of local HIO services, operations, participation and financial sustainability on an ongoing basis and assist local HIOs in developing strategies for success. The governance entity may have to provide additional services to support local HIOs.
Consumer concerns about electronic health records, health information exchange and privacy/consent policies	HITOC will monitor the scope and effectiveness of the consumer engagement and communications program. The state, with input from the Consumer Advisory Panel, will implement a consumer engagement and communication plan focused on educating consumers regarding the benefits of electronic records and information exchange in improving the quality and safety of health care services.
Exclusion of specially protected health information (SPHI) in the consent model proves difficult to implement.	HITOC and Phase 1 workgroups will consider further evolution of the consent model and technologies including providing support and standardization for HIPAA/Privacy & Security approaches to facilitate exchange within and between local HIOs. The state will facilitate a consensus about what minimum data is transferred within and between HIEs, and treatment of specially-protected health information. Legislation to clarify Oregon statues may be requested.
Legal inconsistencies may prove difficult to reconcile and harmonize.	HITOC and Phase 1 workgroups will consider legal and policy issues related to widespread HIE use both interstate and intrastate, HIO organizational development. Legislation to clarify Oregon statues may be requested.
Slow provider adoption of EHRs; general intransigence to change.	HITOC will monitor provider adoption of EHRs as well as provider achievement of meaningful use including HIE functions with attention to barriers and issues in adoption. HITOC will work cooperatively with O-HITEC to encourage EHR adoption and achievement of meaningful use. O-HITEC will assist providers with implementation and change management issues.
Insufficient technical infrastructure, such as broadband connectivity.	HITOC will monitor development of provider and local HIO technical infrastructure development issues, including broadband connectivity and other infrastructure elements. HITOC will work cooperatively with the Oregon Health Network to address broadband connectivity capabilities.
Unanticipated future policy or reform initiatives may influence HIE participation and participant connectivity.	HITOC and Phase 1 workgroups will monitor the possible impacts of federal and Oregon health reform efforts on HIE functions, services and participation. HITOC will consider adapting HIE strategies to take advantage of health reform efforts to maximize HIE participation and participant connectivity.
Reluctance to change standards or move to expected standards.	HITOC and Phase 1 workgroups will consider impacts of new standard specifications on existing systems along with implementation priorities and timeframes.

Appendix E: Oregon Phase 1 Risks and Mitigation Strategies
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Appendix E: Oregon Phase 2 Risks and Mitigation Strategies

POTENTIAL RISKS	MITIGATION
Lack of compliance due to changing legal/ regulatory landscape.	HITOC and the SDE will monitor the impacts of any compliance issues due to a changing legal/regulatory landscape and develop strategies and recommendations related to the provision of HIE services.
Tension between local HIOs and SDE as the SDE expands its service offerings	HITOC will monitor the evolution of services by local HIOs and the SDE and develop strategies to minimize the impacts of tensions.
Legal obstacles in Phase 1 may create delays in legal/policy domain issues (i.e. interstate exchange)	HITOC, the SDE and workgroups will monitor the possible impacts of delays in addressing legal and policy issues and develop strategies and recommendations for minimizing adverse impacts.
Unresolved legal and policy issue related obstacles in Phase 2.	HITOC, the SDE and workgroups will consider unresolved legal and policy issues related to widespread HIE use both interstate and intrastate along with HIO organizational development. Legislation to clarify Oregon statues may be requested.
Inadequate financial plan for sustainable non-profit SDE.	HITOC will monitor the scope of planned and operating SDE services, actual and projected financial performance and financial sustainability on an ongoing basis. HITOC will work with the SDE to maximize the financial and programmatic success of the SDE.
Accreditation program lacks enforcement or systems lack resources to meet standards.	HITOC and the SDE will monitor the effectiveness of the accreditation program in certifying and tracking HIO compliance with accreditationstandards including issues encountered by HIOs in meeting accreditation program standards. HITOC will consider strategies for maximizing the success of HIOs in achieving accreditation.
Early failures of HIE efforts and public support due to privacy and security breaches.	HITOC, the SDE and local HIOs are expected to make the protection of privacy and security a critical imperative in the design, implementation and operation of HIE services. The SDE and local HIOs will aggressively respond to any privacy and security breaches to maintain the trust and support of the public.
Failure to transition from "start-up" mode to on-going operation, resulting in unreliable services and unstable standards	HITOC and the SDE will closely monitor the establishment of the SDE, initial SDE operations including implementation of planned services, technical and performance standards to assure an effective transition to ongoing operations with reliable and stable services.
Consolidation in the provider markets may create changes for HIE.	HITOC and the SDE will monitor consolidations and changes in provider organization markets for possible impacts on the scope of local HIO services, operations, participation and financial sustainability and assist local HIOs in adapting strategies for success. The SDE may have to provide additional services to support local HIOs.

Appendix E: Oregon Phase 2 Risks and Mitigation Strategies
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Appendix F: Value Propositions for Stakeholders

The widespread adoption and use of health information exchange services provides benefits and value to all health care stakeholder segments.

Patients
- Improved coordination of care of services among multiple providers and care settings

- Improved quality of care and patient safety; reduce errors and omissions

- Improved timeliness and efficiency in receiving appropriate care, reduced delays and avoided services

- Inefficiencies and redundant services adversely impact access of patients who really need services

- Savings from services avoided due to missing (or not readily available) information at the time of service results: avoided hospitalizations, office visits, lab tests and imaging studies

Community-Wide Savings
- Reduced avoidable services caused by missing information not readily available

- Improved efficiencies in physician practices and provider organizations

Other Community Benefits
- Accelerated achievement of Oregon's triple aim goals

- Improved quality and patient safety, reduced errors

- Minimized complications caused by unavailable information

- Maximized physician and hospital adoption and use of EHRs and HIT to benefit patients

- Maximized attainment of meaningful use criteria and incentive payments to Oregon providers

Physician Practices
- Electronic access to prior medical history information from other practices and hospitals

- Improved productivity in locating and retrieving information from other practices and health systems

- Improved efficiency of patient management and decision making including making and receiving consultation referral requests and reports

- Accelerated and continuing achievement of meaningful use and incentive payments as criteria evolve

- Improved productivity and efficiency in providing clinical and administrative information to other providers and health plans

- Potential to use electronic access through local HIO and/or state designated entity (SDE) to minimize interface development and maintenance

Hospitals
- Access to prior medical history data from other sources

- Improved productivity in locating and retrieving information from physician practices, clinics and other health systems

- Improved efficiency of patient management and decision making including making and receiving consultation referral requests and reports

- Savings on uncompensated care related to unnecessary or avoidable services (avoidable admissions, lab tests and imaging studies) caused by missing (or not readily available) information

- Accelerated and continuing achievement of meaningful use and incentive payments as criteria evolve

- Success of medical staff physicians in achieving meaningful use and incentive payments

- Option to support HIE services on behalf of physicians without adverse Stark implications

Appendix F: Value Propositions for Stakeholders
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- Improved productivity and efficiency in providing clinical and administrative information to other providers and health plans

- Potential to use electronic access through local HIO and/or SDE to minimize interface development and maintenance as well eliminate legacy system interfaces

Safety Net Clinics (federally qualified health centers, health departments, community clinics)
- Electronic information access and connectivity through local HIO to other community providers

- Improved productivity in locating and retrieving information from other practices and health systems

- Improved efficiency of patient management and decision making including making and receiving consultation referral requests and reports

- Accelerated and continuing achievement of meaningful use and incentive payments as criteria evolve

- Improved productivity and efficiency in providing clinical and administrative information to other providers and health plans

- Potential to use electronic access through local HIO and/or SDE to minimize interface development and maintenance

Community Imaging Networks
- Potential to integrate community PACS and imaging services through local HIO services

- Electronic access to clinical information relevant for performing of imaging studies and interpreting results

- Ability to track and confirm receipt of imaging study reports by ordering physicians

Health Plans
- Maximized quality and safety of services provided to health plan members

- Savings from services avoided due to missing (or not readily available) information at the time of service results: avoided hospitalizations, office visits, lab tests and imaging studies

- Lower operating costs with increased use of standardized electronic transactions for eligibility verification, prior approval processes, claims submission, claims tracking and payment remittance advices

- Administrative efficiencies due to improved documentation and access to standardized EHR data with CCD/CCRs

Employers and Purchasers
- Maximized quality and safety of services provided to employees and their families

- Reduced time loss related to avoided services due to missing information

- Improved continuity of care and care coordination reduces longer term health care costs

- Improved provider efficiencies reducing the escalation of health care costs and health plan premiums

Public Health Agencies (state and local)
- Improved completeness and timeliness of public health reporting by providers

- Improved accessibility by providers to relevant patient and other public health data and services

- Improved care coordination and interventions improve population health

Appendix F: Value Propositions for Stakeholders
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Appendix G: Oregon HIE Strategic Plan:
Approach to Stage 1 Meaningful Use Objectives

This appendix provides a summary of Oregon's approach to supporting providers in achievement of the Stage 1 Meaningful Use Objectives as reflected in the final rule issued July 13, 2010 by the Centers for Medicare and Medicaid Services in coordination with Office of the National Coordinator for Health Information Technology. This summary supplements information presented in the strategic plan. Table 1 summarizes the Oregon approach for those meaningful use (MU) objectives for which HIE functionalities are judged to be essential. Table 2 summarizes the Oregon approach for those MU objectives for which HIE functionalities are judged to be supportive. Table 3 lists the MU objectives that are not judged to be dependent on HIE functionalities. Each MU objective also indicates whether the objective is part of the Core Set or Menu Set. For Stage 1, professionals must demonstrate achievement of all Core Set objectives and all but five (5) of the Menu Set objectives to receive applicable incentive payments.

The descriptions of the Relevant HIE Capabilities shown in Tables 1 and 2 are derived from California's 2010 Strategic and Operational Plan. Unless otherwise noted the MU objective applies to Eligible Professionals (EP), Eligible Hospitals and Critical Access Hospitals (CAH).

Table 1. Meaningful Use Objectives for Which HIE is Essential

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [21]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN)[22]	OREGON HIE APPROACH SUMMARY
1. Generate and transmit permissible prescriptions electronically (eRx). Applies only to Eligible Professionals in Stage 1. Core Set Objective	More than 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology.	Infrastructure for an EHR or EHR module to correctly address and securely transmit an electronic prescription (e-prescribing) to the desired dispensing pharmacy in the specified standard format. The transmission may occur directly or via a third-party.	• Eligible Professionals meeting the • MU objectives are expected to use their certified EHRs functionalities and eRx infrastructure for e-prescribing with pharmacies. • Enabling Oregon legislation/policies are in place. • HITOC under the auspices of the Oregon Health Authority (HITOC/OHA) will encourage adoption and support of national eRx standards. • HITOC/OHA will monitor e-prescribing adoption issues and assess functional and regional gaps that should be addressed. • State designated entity (SDE) may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by provider EHRs or local HIOs.
2. Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, medication allergies, discharge summary (for hospitals), procedures), upon request. Core Set Objective	More than 50% of all patients of the EP or the inpatient or emergency departments of the eligible hospital or CAH (POS 21 or 23) who request an electronic copy of their health information are provided it within 3 business days.	HIE capability is required if the electronic copy is to be transmitted to the patient via a network, either directly (e.g. via secure email) or through a third party patient-authorized entity (e.g., a Personal Health Record [PHR]). In these cases, the capability is required to correctly address and securely* transmit the information in an accepted format to the patient or the patient-authorized entity.	• Eligible Hospitals meeting the MU objectives are expected to provide patients with copies of electronic records upon request through certified EHR system functionalities or through provider- tethered PHRs or patient portals offered by providers. As patient use of untethered PHRs expands, providers, local HIO or SDE may develop connectivity functionalities to PHRs. • HITOC/OHA to monitor patient information access issues and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor PHR (tethered and untethered) adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.

[21] From Table 2 –Stage 1 Meaningful Use Objectives and Associated Measures Sorted by Core and Menu Set; Final rule, Medicare and Medicaid Programs; Electronic Health Record Incentive Program, Centers for Medicare and Medicaid Services, announced July 13, 2010, pages 221-231.

[22] Adapted from California's 2010 Strategic and Operational Plan, pages O-9 to O-11.

Appendix G: Oregon HIE Strategic Plan: Approach to Stage 1 Meaningful Use Objectives
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Table 1. Meaningful Use Objectives for Which HIE is Essential

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [21]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN) [22]	OREGON HIE APPROACH SUMMARY
3. Provide patients with an electronic copy of their discharge instructions and procedures at the time of discharge upon request. Applies only to Eligible Hospitals in Stage 1. Core Set Objective	More than 50% of all patients who are discharged from an eligible hospital or CAH's inpatient department or emergency department (POS 21 or 23) and who request an electronic copy of their discharge instructions are provided it.	HIE capability is required if the electronic copy is to be transmitted to the patient via a network, either directly (e.g. via secure email) or through a third party patient-authorized entity (e.g., a Personal Health Record [PHR]). In these cases, the capability is required to correctly address and securely* transmit the information in an accepted format to the patient or the patient-authorized entity.	• Eligible Hospitals meeting the MU objectives are expected to provide patients with copies of electronic records upon request through certified EHR system functionalities or through provider- tethered PHRs or patient portals offered by providers. As patient use of untethered PHRs expands, providers, local HIO or SDE may develop connectivity functionalities to PHRs. • HITOC/OHA to monitor patient information access issues and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor PHR (tethered and untethered) adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
4. Capability to exchange key clinical information (for example, discharge summary (for hospitals), procedures, problem list, medication list, medication allergies, diagnostic test results), among providers of care and patient authorized entities electronically. Core Set Objective	Performed at least one test of certified EHR technology's capacity to electronically exchange key clinical information.	Infrastructure to correctly address and securely* transmit the specified types of information (e.g., problem list, medication list) in an acceptable data format from one provider to another, from a provider to a patient-authorized entity or from a patient-authorized entity to a provider.	• Eligible Providers meeting the MU objectives are expected to use certified EHR system functionalities to generate clinical summaries in standard electronic formats for electronic transmission to other providers. Providers may have direct connectivity with other providers, connectivity with other providers using NHIN Direct or through a local HIO. • HITOC/OHA to monitor the adoption issues for the electronic exchange of information between providers including connectivity issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
5. Incorporate clinical laboratory-test results into certified EHR technology as structured data. Menu Set Objective	More than 40% of all clinical lab tests results ordered by the EP or by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 or 23) during the EHR reporting period whose results are either in a positive/ negative or numerical format are incorporated in certified EHR technology as structured data.	Infrastructure for laboratories to securely transmit structured laboratory results to the EHR or EHR module of the appropriate provider(s) in the specified standard format. The transmissions may occur directly between laboratories and EHRs or via a third-party.	• Eligible Providers meeting MU objectives are expected to receive electronic results from laboratories (directly or indirectly) and incorporate the results in their certified EHR systems as structured data. • HITOC/OHA will support standards, and encourage electronic laboratory results reporting including public health laboratory results reporting. • HITOC/OHA will monitor electronic lab reporting adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by provider EHRs or local HIOs.

Table 1. Meaningful Use Objectives for Which HIE is Essential

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [21]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN)[22]	OREGON HIE APPROACH SUMMARY
6. The EP, eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care should provide summary of care record for each transition of care or referral. Menu Set Objective	The EP, eligible hospital or CAH who transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 50% of transitions of care and referrals.	HIE capability will simplify and promote the transition of care or referral made to a different organization, and most easily facilitate transfer of the summary-of-care record.	• Eligible Providers meeting the MU objectives are expected to utilize the certified EHR system functionalities to generate clinical summaries in standard electronic formats for electronic transmission to other providers. Providers may have direct connectivity with other providers, connectivity with other providers using NHIN Direct or through a local HIO. • HITOC/OHA to monitor the issues related to the availability of summary-of-care information for care transition and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
7. Capability to submit electronic data to immunization registries or Immunization Information Systems and actual submission in accordance with applicable law and practice. Menu Set Objective	Performed at least one test of certified EHR technology's capacity to submit electronic data to immunization registries and follow up submission if the test is successful (unless none of the immunization registries to which the EP, eligible hospital or CAH submits such information have the capacity to receive the information electronically).	Infrastructure to securely* transmit immunization events from any hospital or outpatient facility to the appropriate immunization registry for the appropriate patient in a specified data format, and to allow immunization registries to securely* exchange data.	• A statewide immunization registry has been in use in Oregon for many years for school age children. Oregon's Division of Public Health is upgrading the ALERT-IIS system capabilities and infrastructure to receive immunization records electronically from providers. Later phases to expand to bi-directional interfaces. • Eligible Providers meeting the MU objectives are expected to utilize their certified EHR system functionalities to electronically submit immunization records to ALERT-IIS system. • HITOC/OHA to monitor issues related to the submission if immunization data and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
8. Capability to submit electronic data on reportable (as required by state or local law) lab results to public health agencies and actual submission in accordance with applicable law and practice. Applies only to Eligible Hospitals in Stage 1. Menu Set Objective	Performed at least one test of certified EHR technology's capacity to provide electronic submission of reportable lab results to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which eligible hospital or CAH submits such information have the capacity to receive the information electronically).	Infrastructure to securely* transmit laboratory results from any hospital laboratory to the appropriate public health agency in a specified standard format.	• Oregon Division of Public Health (ODPH) Electronic Laboratory Results (ELR) system is capable of receiving reportable lab results from hospitals and commercial laboratories (currently 6 large hospital/health systems, the large commercial, 6 referral laboratories) and the Oregon State Public Health Laboratory (OSHPL). Connections from most hospital labs should occur by 2011. Small and rural hospitals may be more difficult. • Eligible Hospitals meeting the MU objectives are expected to utilize their certified EHR system or laboratory system functionalities to electronically submit reportable condition reports to the ELR. • HITOC/OHA to monitor issues related to the submission of reportable laboratory data and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.

Table 1. Meaningful Use Objectives for Which HIE is Essential

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [21]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN)[22]	OREGON HIE APPROACH SUMMARY
9. Capability to provide electronic syndromic surveillance data to public health agencies and actual submission in accordance with applicable law and practice. Menu Set Objective	Performed at least one test of certified EHR technology's capacity to provide electronic syndromic surveillance data to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which an EP, eligible hospital or CAH submits such information have the capacity to receive the information electronically).	Infrastructure to securely* transmit relevant clinical data from any hospital or outpatient facility to the appropriate public health agency in a specified standard format, including de-identification of the data, if required.	• Oregon Division of Public Health does not currently have a syndromic surveillance database or electronic submission system. The Division is assessing the requirements for such a system. • Within a reasonable period after ODPH has implemented an electronic submission system, Eligible Providers meeting the MU objectives are expected to utilize their certified EHR, laboratory or other systems to electronically submit syndromic surveillance data to the reporting system. • HITOC/OHA to monitor issues related to submission of syndromic surveillance data and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
10. Check insurance eligibility electronically from public and private payers. **Deferred to Stage 2**	No measure for Stage 1. The Final Rule specifies that the planned Stage 2 measure is the same as stated in the Interim Final Rule (December 2009): Eligible Providers are expected to use their certified EHR system or companion EPM system and EDI capabilities to achieve 80% use of electronic eligibility verification directly or through a third-party clearinghouse.	Infrastructure to securely* query a payer, either manually via a web browser or automatically via Electronic Data Interchange (EDI), in the specified standard format and to receive an electronic response, either via a web browser or automatically via EDI, in the specified standard format. These transactions may occur directly between providers and payers or via a third-party.	• Providers are encouraged to use their certified EHR system functionalities or companion electronic practice management (EPM) system and EDI capabilities and/or web queries to achieve electronic eligibility verification during Stage 1 if possible. • The Insurance Division of the Oregon Department of Consumer and Business Services (DCBS) will be establishing uniform standards for eligibility verification through DCBS administrative rules. Providers and payers already working toward administrative simplification, common websites with single sign-on capability to multiple plans. • HITOC/OHA to monitor electronic eligibility verification adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by plans, providers or local HIOs.
11. Submit claims electronically to public and private payers. **Deferred to Stage 2**	No measure for Stage 1. The Final Rule does not specify the planned Stage 2 measure. The Interim Final Rule (December 2009) proposed measure stated: Eligible Providers are expected to use their certified EHR system or companion EPM system capabilities to achieve 80% submission of electronic claims directly or through a third-party clearinghouse.	Infrastructure to securely* transmit claims from a provider organization to a payer in the specified standard format. These transactions may occur directly between providers and payers or via a third-party.	• Providers are encouraged to use their certified EHR system or companion EPM system capabilities to submit electronic claims directly or through a third-party clearinghouse during Stage 1 if possible. • The Insurance Division of DCBS will be establishing uniform standards for claims submission through DCBS administrative rules. Providers and payers already working toward administrative simplification, common websites with single sign-on capability to multiple plans. • HITOC/OHA to monitor usage electronic claims submission adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs. SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.

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Table 2. Meaningful Use Objectives That Are Enabled by HIE

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [23]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN) [24]	OREGON HIE APPROACH SUMMARY
12. Report clinical quality measures to CMS or the States. Core Set Objective	For 2011, provide aggregate numerator, denominator, and exclusions through attestation as discussed in section II(A)(3) of this final rule. For 2012, electronically submit the clinical quality measures as discussed in section II(A)(3) of this final rule.	This is a specific set of functional requirements of a certified EHR system related to generating quality metrics and transmission of the metrics. Accurate generation of quality measures may require the electronic aggregation of clinical data from multiple organizations within the EHR system or through a data aggregation organization. In the latter case, the required capability will enable secure* transmission of clinical data from the source organization to the aggregating organization, as well as resolve patient-identity discrepancies in the data at the time they are requested or received.	• Eligible Providers using certified EHR systems are expected to have at least basic capabilities to calculate and display quality measure results as specified by CMS or states and electronically submit calculated quality measures. • Quality Corp will be piloting efforts to obtain clinical data from EHR systems to supplement claims-based encounter and medications data for quality measures. • State is implementing an All Payer All Claims database that is expected to serve as a patient record locator service and support quality improvement efforts. • HITOC/OHA to monitor issues related to utilizing and reporting quality data and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
13. Record advance directives for patients 65 years old or older. Applies only to Eligible Hospitals in Stage 1. Menu Set Objective	More than 50% of all unique patients 65 years old or older admitted to the eligible hospital's or CAH's inpatient department (POS 21) have an indication of an advance directive status recorded.	This is a specific set of functional requirements of a certified EHR system for documentation of the presence of advance directives. HIE capability may facilitate provider access to Oregon POLST registry.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed, including coordination with the POLST (Physician Orders in Life-Sustaining Treatment) registry.
14. Generate lists of patients by specific condition to use for quality improvement, reduction of disparities, research or outreach. Menu Set Objective	Generate at least one report listing patients of the EP, eligible hospital or CAH with a specific condition.	This is a specific set of functional requirements of a certified EHR system related generating lists of patients using various selection criteria. As quality improvement and health reform efforts evolve, there may be the need for a required capability to enable secure* transmission of clinical data from the source organization to the aggregating organization, as well as resolve patient-identity discrepancies in the data at the time they are requested or received.	• Eligible Providers using certified EHR systems are expected to have at least basic capabilities to generate patient lists for specific conditions and other selection criteria. • HITOC/OHA to monitor issues related to generating patient condition lists utilizing multiple data sources and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.

[23] From Table 2 –Stage 1 Meaningful Use Objectives and Associated Measures Sorted by Core and Menu Set;
Final rule, Medicare and Medicaid Programs; Electronic Health Record Incentive Program, Centers for Medicare and Medicaid Services, announced July 13, 2010, pages 221-231.

[24] Adapted from California's 2010 Strategic and Operational Plan, pages O-9 to O-11.

Table 2. Meaningful Use Objectives That Are Enabled by HIE

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [23]	MEANINGFUL USE STAGE 1 MEASURES	RELEVANT HIE CAPABILITY (FROM CALIFORNIA HIE PLAN)[24]	OREGON HIE APPROACH SUMMARY
15. Provide patients with timely electronic access to their health information (including lab results, problem list, medication lists, medication allergies) within four business days of the information being available to the EP. Applies only to Eligible Professionals in Stage 1. Menu Set Objective	More than 10% of all unique patients seen by the EP are provided timely (available to the patient within four business days of being updated in the certified EHR technology) electronic access to their health information subject to the EP's discretion to withhold certain information.	HIE capability may simplify electronic access provided to patients via a third-party patient authorized entity, such as an "untethered" PHR. In these cases, the capability is required to correctly address and securely* transmit the information in an accepted format to the patient or the patient-authorized entity.	• Eligible Professionals meeting the MU objectives are expected to provide patients with access to their health information within 96 hours through their certified EHR system functions or through provider tethered PHRs or patient portals offered by providers. As patient use of untethered PHRs expands, providers, local HIO or SDE may develop connectivity functionalities to PHRs. • HITOC/OHA to monitor patient information access issues and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor PHR (tethered and untethered) adoption issues and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.
16. The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation. Menu Set Objective	The EP, eligible hospital or CAH performs medication reconciliation for more than 50% of transitions of care in which the patient is transitioned into the care of the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23).	Accurate medication reconciliation may require the electronic aggregation of medication data from multiple organizations where care was received or medications dispensed, either via (1) an ongoing collection of data from various organizations into an EHR, disease registry or data warehouse, (2) a real-time distributed query to the various organizations holding the relevant patients' medication history data, or (3) a real-time query to a third-party organization that aggregates patients' medication history data. In each case, an infrastructure is required to securely* transmit clinical data from the source organization to the aggregating organization and to resolve patient identity discrepancies in the data at the time they are requested or received.	• Eligible Providers using certified EHR systems are expected to have the functional capabilities to display the extant medication list in the EHR and medication list(s) received from external sources and facilitate the reconciliation process and update the current EHR medication list. • External medication data should be available in clinical summaries from other providers or other medication history sources. Oregon is implementing a Prescription Drug Monitoring Program for controlled substances and an All Payer All Claims database that includes medications transactions that may enhance the completeness of medication data available to providers. • HITOC/OHA to monitor issues related to provider access to medication history data and assess functional and regional gaps that should be addressed. • SDE may deploy infrastructure in later phases to address geographic or functional service gaps not addressed by providers or local HIOs.

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Table 3. Other Meaningful Use Objectives Not Dependent on HIE Functionalities

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [25]	MEANINGFUL USE STAGE 1 MEASURES	RELATIONSHIP TO HIE CAPABILITY	OREGON ASSESSMENT
17. Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines. Core Set Objective	More than 30% of unique patients with at least one medication in their medication list seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one medication order entered using CPOE.	This is a specific set of functional requirements of a certified EHR system related to managing orders. Order management is key function that facilitates clinical decision support, e-prescribing, lab orders and reports and other order and reporting functions.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor issues related to provider CPOE adoption, and assess functional and regional gaps that should be addressed.
18. Implement drug-drug, drug-allergy interaction checks. Core Set Objective	The EP/eligible hospital/CAH has enabled this functionality for the entire EHR reporting period.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access reference data from other sources that may be supported through HIO services.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. Provider EHRs will need access to the necessary reference data to perform the checks. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor provider feedback regarding access to necessary data for checks and especially access to formulary data from multiple health plans and assess functional and regional gaps that should be addressed. • SDE may consider developing services to support providers and local HIOs and/or address geographic or functional service gaps.
19. Record demographics. Core Set Objective	More than 50% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have demographics recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.

[25] From Table 2 –Stage 1 Meaningful Use Objectives and Associated Measures Sorted by Core and Menu Set;
Final rule, Medicare and Medicaid Programs; Electronic Health Record Incentive Program, Centers for Medicare and Medicaid Services, announced July 13, 2010, pages 221-231.

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Table 3. Other Meaningful Use Objectives Not Dependent on HIE Functionalities

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [25]	MEANINGFUL USE STAGE 1 MEASURES	RELATIONSHIP TO HIE CAPABILITY	OREGON ASSESSMENT
20. Maintain an up-to-date problem list of current and active diagnoses. Core Set Objective	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry or an indication that no problems are known for the patient recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
21. Maintain an active medications list. Core Set Objective	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23)have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
21. Maintain an active medication allergy list. Core Set Objective	More than 80% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have at least one entry (or an indication that the patient has no known medication allergies) recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
22. Record and chart changes in vital signs: height, weight, blood pressure, calculate and display BMI, plot and display growth charts for children ages 2-20 years, including BMI. Core Set Objective	For more than 50% of all unique patients age 2 and over seen by the EP or admitted to eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23), height, weight and blood pressure are recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
23. Record smoking status for patients 13 years old or older. Core Set Objective	More than 50% of all unique patients 13 years old or older seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) have smoking status recorded as structured data.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access data from another EHR system or data source.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.

Table 3. Other Meaningful Use Objectives Not Dependent on HIE Functionalities

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [25]	MEANINGFUL USE STAGE 1 MEASURES	RELATIONSHIP TO HIE CAPABILITY	OREGON ASSESSMENT
24. Implement one clinical decision support rule relevant to specialty or high clinical priority along with the ability to track compliance that rule. Core Set Objective	Implement one clinical decision support rule.	This is a specific set of functional requirements of a certified EHR system.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
25. Provide clinical summaries for patients for each office visit. Applies only to Eligible Professionals in Stage 1. Core Set Objective	Clinical summaries provided to patients for more than 50% of all office visits within 3 business days.	This is a specific set of functional requirements of a certified EHR system.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
26. Protect electronic health information created or maintained by the certified EHR technology through the implementation of appropriate technical capabilities. Core Set Objective	Conduct or review a security risk analysis per 45 CFR 164.308 (a)(1) and implement security updates as necessary and correct identified security deficiencies as part of its risk management process.	This is a specific set of functional requirements of a certified EHR system.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor issues related to EHR privacy and security including provider compliance, and assess issues that should be addressed.
27. Implement drug-formulary checks. Menu Set Objective	The EP/eligible hospital/CAH has enabled this functionality and has access to at least one internal or external drug formulary for the entire EHR reporting period.	This is a specific set of functional requirements of a certified EHR system. No relationship to HIE functions unless provider needs to access formulary data from other sources that may be supported through HIO services.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective. Provider EHRs will need access to the necessary reference data to perform the checks. • HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed. • HITOC/OHA to monitor provider feedback regarding access to necessary data for checks and especially access to formulary data from multiple health plans and assess functional and regional gaps that should be addressed. • SDE may consider developing a centralized formulary databank service to support providers and local HIOs and/or address geographic or functional service gaps.

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Table 3. Other Meaningful Use Objectives Not Dependent on HIE Functionalities

MEANINGFUL USE STAGE 1 OBJECTIVES (JULY 2010) [25]	MEANINGFUL USE STAGE 1 MEASURES	RELATIONSHIP TO HIE CAPABILITY	OREGON ASSESSMENT
28. Send reminders to patients per patient preference for prevention/ follow up care.\n\nApplies only to Eligible Professionals in Stage 1.\n\nMenu Set Objective	More than 20% of all unique patients 65 years or older or 5 years old or younger were sent an appropriate reminder during the EHR reporting period.	This is a specific set of functional requirements of a certified EHR system.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective.\n• HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.
29. Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate.\n\nMenu Set Objective	More than 10% of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) are provided patient-specific education resources.	This is a specific set of functional requirements of a certified EHR system.	• Eligible Providers using a certified EHR system should have access to the EHR system functionalities to meet this MU objective.\n• HITOC/OHA to monitor the adoption and usage of certified EHRs including the barriers and issues, and assess functional and regional gaps that should be addressed.

Appendix H:
Oregon HIT Environment Assessment

Office for Oregon Health Policy and Research

Oregon Health Information Technology Environment Assessment

David M. Witter, Jr., Witter & Associates

Updated February 2010

Prepared for Office for Oregon Health Policy and Research

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INTRODUCTION

This document is intended to provide a high-level overview of Oregon's health information technology environment for the purpose of informing stakeholders and policy-makers as they contemplate development of an Oregon HIT plan to facilitate electronic health record (EHR) adoption, health information exchange and interoperability. This assessment is a compilation of information from multiple sources, surveys and interviews. Supporting documents and reports will be made available as they are completed to provide additional detailed information. This document and the environmental scan is a work in process that will evolve over time as additional information is developed. Corrections and suggestions are encouraged.

Oregon HIT Environmental Scan
The Office for Oregon Health Policy and Research on behalf of the Health Information Technology Oversight Council is undertaking the environmental scan. The scan involves a number of components including:

- Oregon 2009 Ambulatory EHR Survey

- Oregon HIT Assessment, 2009: Hospital and Health System Survey

- Oregon HIT Assessment, 2009: IPA Survey

- Oregon HIT Assessment, 2009: Health Plan Survey

- Department of Human Services HIT Environmental Scan

- Potential ARRA incentive payments to Oregon providers demonstrating meaningful use

- Tracking of e-prescribing adoption and use in Oregon

- Assess the role of two major Federal grants on Oregon HIT planning: Health Record Bank of Oregon (Medicaid Transformation Grant) and Oregon Health Network (FCC communication infrastructure).

Health Information Exchange (HIE) Activities Inventory
The second section of this document identifies HIE activities in Oregon that may be useful for HIT planning including strategies for health information exchange in Oregon that leverages existing resources and accelerates achievement of Oregon HIT goals.

Additional information will be added to both the HIT Environmental Scan and the HIE Activities Report as information is received from key HIT stakeholders located throughout Oregon.

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ENVIRONMENTAL SCAN HIGHLIGHTS

➢ **Ambulatory EHR Adoption**

The 2009 Oregon Ambulatory EHR Inventory updates the earlier 2006 survey and collects additional information of the functionality of EHRs in ambulatory care setting. The full report will be posted at http://www.oregon.gov/OHPPR/docs/OR2009EHRSurvey.pdf.

The 2006 Oregon Ambulatory EHR Inventory provides a baseline for tracking EHR adoption in Oregon ambulatory care settings. The 2006 survey report is available at http://www.oregon.gov/OHPPR/docs/OR2006EHRSurvey.pdf.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Overall Adoption	1,168 responding practices & clinics, 7,845 clinicians	2009 Survey: 65% of Oregon clinicians (physicians, nurse practitioners work in practices or clinics where EHRs are present compared to 44% nationally (CDC-2009)[26]. 38% of surveyed practices and clinics have EHRs. By 2011 respondents forecast that 54% of practice organizations will utilize an EHR covering 80% of clinicians. Higher EHR adoption rates occur in health systems and affiliated practices, large practices, practices with multiple locations and multi-specialty or mixed primary care practices.	2009: Oregon remains well ahead of national adoption of EHRs. Barriers to adoption remain: cost, ROI & perceived value especially in solo and small practices.
Overall	Level of Functionality - Basic - Full	2009 Survey: 49%% of Oregon clinicians are in practices using an EHR with **all** "Basic" functions compared to 21% nationally (CDC-2009) using definitions reported in 2008 (NEJM-2008)[27]. 32% of Oregon clinicians are in practices with **all** "Full" functions compared to 6% nationally (CDC-2009).	Fully functional systems are concentrated in larger practices and health systems.
Overall	Level of Functionality - Near Basic - Near Full	2009 Survey: 55% of Oregon clinicians are in practices using an EHR with **nearly all** "basic" functions or better; 46% of Oregon clinicians are in practices with **nearly all** the "full" functions or better.	Meeting the Basic or Full function criteria is attainable by many practices.
Clinician Organizations - MD/DOs, PA/ NP/CNMs	1,008 practices with 4,177 clinicians	2009 Survey: 38% of physician-owned/operated practices (54% of clinicians) are using an EHR, ranging from 26% for solo practices to 68% of practices with 10 or more clinicians. By 2011, respondents forecast that 53% of the clinician practices would utilize an EHR serving 72% of clinicians in clinician organizations.	Issues include EHR Adoption: - practices without an EPM - practices with EPM, no EHR - self-developed EHR apps EHRs not certified - non certified products - current EHR version not certified
FQHCs - Safety Net Clinics	25 FQHCs & other safety net clinics, 328 clinicians	2009 Survey: EHRs were in use by 60% of 25 responding organizations involving 65% of clinicians covered by the responses. By 2011, respondents forecast that 88% of the clinics would utilize an EHR serving 94% of the clinicians in FQHCs.	FQHC adoption enhanced by funding mechanisms for FQHCs and HRSA grant support. Most FQHCs without an EHR have implemented and EPM and are well positioned for EHR adoption.
Public and other clinics (public health, schools, mental health, tribal, college and other clinics)	44 clinics, 189 clinicians	2009 Survey: EHRs are in use by 23% of the 44 responding organizations involving 38% of clinicians covered by the responses. By 2011, respondents forecast that 46% of the clinics would utilize an EHR serving 62% of the clinicians in public and other clinics.	Major funding issues impact adoption of EPM and EHR systems in public and other clinics.

[26] Hsaio CJ, Beatty PC, Hing ES, Woodwell DA, Rechtsteiner EA, Sisk JE. Electronic medical record/electronic health records use by office-based physicians: United States, 2008 and preliminary 2009. Health E-Stat. National Center for Health Statistics, December 2009. http://www.cdc.gov/nchs/data/hestat/emr_ehr/emr_ehr.pdf.

[27] DesRoches CM, Campbell EG, Rao SR, Donelan K, Ferris TG, Jha A, Kaushal R, Levy DE, Rosenbaum S, Shields AE, Blumenthal D. Electronic health records survey in ambulatory care -a national survey of physicians. NEJM, 359:1, July 3, 2008.

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DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Hospital and health systems practices and clinics	50 practices, 2,616 clinicians	2009 Survey: 64% of practices and clinics (98% of clinicians) owned or operated by health systems are using EHRs. The larger health systems with practices and clinics (Kaiser, OHSU, PeaceHealth, Providence, Samaritan Health have comprehensive ambulatory and hospital EHR systems. Legacy will complete a comprehensive implementation in 2010 and 2011.	Large health systems with owned or affiliated practices have made substantial EHR commitments.
EHR Products and Vendors		2009 Survey. Approximately 81 vendors provide the EHR systems in use Oregon and 106 companies provide EPM systems. Nearly all practices use the same vendor and product for both their EPM and EHR systems. 16 vendors provide EHRs for 90% of clinicians (68% of organizations). 80% of organizations (90% of clinicians) are using EHR products from a vendor that has CCHIT certified products. There are a number of specialized EPM & EHR systems in specialty/sub-specialty practices that are not certified products. **Not all products in use are certified (old versions) and not all product lines from a vendor with a certified product are certified.**	A number of products are not certified and may or may not be certified in the future. Many practices may need to upgrade or change EHR products to qualify for meaningful use.
EPM Products			

Hospital & Health System EHR Adoption

An Oregon Hospitals and Health Systems HIT Inventory is currently underway to provide information for Oregon's HIT planning process regarding EHR adoption and the functionalities of operational EHR systems.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Acute Care Hospitals	58 acute care hospitals	2009 survey: Preliminary survey results indicate that the 47 of Oregon's 58 acute care hospitals have or are implementing EHRs by mid 2010. These 47 hospitals represented 95% of 2008 Oregon hospital discharges (348,883). The EHRs are provided by nine vendors that all have products certified by CCHIT. Not all currently installed products are certified products or versions. All eleven hospitals without EHRs are planning implementations: six hospitals within 1-2 years and five hospitals in 2-5 years. Delayed EHR implementation limits the potential for ARRA incentive payments.	Several health systems and hospitals upgrading systems.
Critical Access Hospitals (CAH)	25 CAH hospitals (subset of 58 acute hospitals)	2009 survey: Preliminary survey results indicate that 17 of Oregon's 25 CAHs currently have an EHR system. These 17 hospitals represent 76% of 2008 Oregon CAH discharges (29,277). EHRs at Oregon CAHs are provided by seven vendors. All the vendors offer CCHIT certified product although not all currently installed products/versions are certified. All eight CAH hospitals without EHRs are planning implementations: five hospitals within 1-2 years and three hospitals in 2-5 years.	Gap: eight of 25 CAHs are at least 1 to 2 years away from implementing hospital EHRs.
Multi-hospital Health Systems	35 hospitals in 9 systems (subset of 58 hospitals)	2009 survey: Preliminary results indicate that 30 of the 35 hospitals in the nine hospitals systems have implemented EHR systems. Five hospitals in two multi-hospital systems are planning EHR implementations: three hospitals in 1 to 2 years and two hospitals in 2 to 5 years. By early 2010 seven health systems will have robust deployments of certified EHRs covering all the hospitals in their systems (27 hospitals).	
Health Systems with Hospitals and Practice Groups	Kaiser, Legacy, OHSU, Providence, Peace Health, Samaritan Health	Seven health systems in Oregon include hospital operations and an owned or operated medical group practice or employed physicians and other clinicians. All seven systems have or will shortly have (early/mid 2010) robust and certified EHR systems covering both hospital and other practice operations.	

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Health Information Exchange Activities

Identification of the scope of existing and planned health information exchange functions is a major goal of the 2009 HIT environmental scan and necessary to developing a statewide HIE strategy. Responses from the 2009 Hospitals & Health System HIT Survey and IPA HIT survey provided information on Oregon HIE activities. Please see second section of this document to review the Oregon HIE Activities Report (see page 111).

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
HIE planning		Planning efforts Portland and central Oregon occurred in 2007. Current planning efforts include Central Oregon, Mid Columbia Gorge, Portland area, Salem area and discussions among Epic users.	See the Oregon HIE Activities Report for additional information.
Health Systems		Health systems with multiple hospitals or hospitals and affiliated medical groups are functionally operating health information exchanges within their health systems. Examples include Cascade Health (four hospitals), Kaiser Permanente (hospital and multiple clinic locations), Providence Health and Service (seven hospitals, Providence medical groups), PeaceHealth (four hospitals, PeaceHealth medical groups), Samaritan Health Services (five hospitals, Samaritan medical groups).	The scope of health information exchange functionalities within each health systems varies and is evolving. See the Oregon HIE Activities Report for additional information.
Developing HIEs		Providence Health and Services will be implementing an HIE infrastructure in 2010 to integrate inpatient and outpatient EHRs and connect EHRs of affiliated medical groups.	See the Oregon HIE Activities Report for additional information.
Active HIEs		OCHIN, Umpqua OneChart HIE, Mid-Rogue HIE, Samaritan HIE, Bay Area Community Information Agency provide and are evolving information exchange services.	See the Oregon HIE Activities Report for additional information.
Imaging Collaborations		Imaging collaborations, shared PACS systems and imaging exchange mechanisms have and are evolving in Oregon communities.	See the Oregon HIE Activities Report for additional information.

IPAs and Health Plans

Surveys are currently underway of Oregon IPAs and health plans to identify their involvement in facilitating the adoption of EHR and HIT systems and provide information for Oregon's HIT planning process.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Independent Practice Associations (IPAs)		Several IPAs and affiliated organizations are involved in facilitating the adoption of EHRs. • Central Oregon EMR, an affiliate of Central Oregon IPA, offers EHR services to COIPA members (eClinicalWorks) and non-members (eClinicalWorks and Allscripts-MyWay). • Douglas County IPA and affiliated ITechSS provides EHR services Centricity in the greater Roseburg community. • Mid-Rogue e-Health Services, a subsidiary of Mid-Rogue IPA offers EHR services (Greenway) to MRIPA members and non-members. • Mid Valley IPA offers EHR services (NextGen) to its members. • Portland IPA provides it members with implementation, training and ongoing support eClinicalWorks PM and EMR installations.	

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➤ Personal Health Record Adoption

The November 2008 HIIAC report adopted by the Oregon Health Fund Board into its health reform plan for the state, establishes a goal that "All Oregonians have access to a personal health record by 2013." A number of efforts are underway related to the deployment of personal health record systems and patient portals. Information about PHRs is derived from the HRBO project and survey responses from hospitals and health plans.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Health Record Bank of Oregon		CMS Medicaid Transformation Grant for $5.5 million was awarded in October 2007 to the Oregon Department of Human Services (DHS) to implement a health record bank (HRB) project for Medicaid clients and evaluate the project. The HRBO is unique among the 49 grants totaling $150 million made to 34 states in 2007. Of the 26 grants awarded for health information technology (HIT) projects, the Oregon project is the only project building a personal health record (PHR) using a health record banking approach. • Initial grant term: 18 months - October 2007 to March 2009. • CMS approved a grant extension to March 31, 2010. • An extension request through March 31, 2011 is expected. An RFP was issued in March 2009 to select an HRBO vendor. The contract with the selected vendor should be in place in late August 2009. The HRBO is scheduled to go-live in early 2010.	The November 2008 HIIAC report to the Oregon Health Fund Board considered the HRBO as a fundamental building block in developing health information exchange in Oregon. Further evaluation of the HRBO in light of ARRA and other HIE efforts in Oregon will be required.
Provider-based PHRs		Tethered PHRs identified to date are provided by provider organizations include Kaiser and OHSU (Epic's MyChart), UmpquaOneChart and PeaceHealth.	Incomplete list
Health plan-based PHRs		Tethered PHRs identified to date are provided by health plans include Providence Health Plan (WebMD), Regence BS/BC, ODS (WorldDoc with synchronization through HealthVault)	Incomplete list
Other PHRs	Unknown	There are number of commercial PHR vendors offering services to individuals and employer groups.	Information not available

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➢ Electronic Eligibility and Claims Transactions

The environmental scan surveys emphasized the electronic exchange of clinical information. Oregon administrative simplification efforts are focused maximizing the use of electronic transactions and standardizing the implementation of best practices across health plans and provider organizations.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Electronic eligibility transactions	Provider – Health Plan Interactions	Oregon has not surveyed the extent of provider utilization of standard HIPAA electronic eligibility transactions, health plan eligibility websites or telephone verification inquiries. The of eligibility confirmation mechanisms in Oregon are believed to be comparable to Washington State where a 2007 survey found that 63% of practices sometimes checked eligibility by web browser while only 36% sometimes did so via an electronic inquiry[28]. Oregon health plans indicate a large volume of telephone eligibility inquiries consistent with August 2007 data from a Washington health plan showing that 55% of all provider calls were to determine patient eligibility or benefits.[29]	Providers have a high level of inefficiencies and frustrations from current eligibility verification processes. Administrative simplification efforts, best practice standardization and sign-on website access would improve efficiencies for providers and health plans.
Electronic claims transactions	Provider – Health Plan Interactions Hospitals	Oregon has not specifically surveyed the extent of electronic claims generation by physician practices, hospitals or other providers. The 2009 Ambulatory EHR Survey found that 80% of clinicians covered by the survey were in practices with an electronic practice management (EPM) system. Nearly all EPM systems have electronic claims submission capabilities. Some unknown portion of practices with and without an EPM contract with a commercial billing service or clearinghouse that generates electronic claims including customizations for specific health plans. Health plans report receiving most of their claims volume is submitted electronically. It is assumed that all Oregon hospitals have the patient accounting and billing systems to generate electronic claims from their internal systems or contract with a billing services provider or clearinghouse.	Both health plans and providers express concerns about the efficiency of existing claims transaction processes. Administrative simplification efforts, best practice standardization and sign-on website access would improve efficiencies for providers and health plans.
Administrative Simplification Initiative	Health Care Leadership Task Force (HCLTF)	In mid 2008 a number of hospitals, practice groups, health plans and associations established an Administrative Simplification Initiative under the auspices of the HCLTF (http://www.healthleadershiptaskforce.com) to simplify administrative challenges for physicians, hospitals and health plans. Over 100 individuals from physician groups, hospitals and health plans are involved in three work groups: claims, eligibility and credentialing. Specific efforts are underway on developing standards and best practices for payer websites to reduce provider-plan phone calls, developing a single authentication sign on system, standardization of insurance cards, electronic credential processing and repository.	The HCTLF administrative simplification initiative efforts have implications for HIE planning and interoperability as well as provider and health plan workflows and efficiencies. The roles of the administrative simplification initiatives in statewide HIT and HIE planning and need further analysis and discussion.
Administrative Simplification Initiative	2009 Legislative Session	The 2009 Oregon legislature concluded that costs could be reduced by standardizing administrative processes. As part of the health reform legislation, HB 2009 authorized the insurance regulator, the Department of Consumer and Business Services (DCBS), to establish uniform standards for insurers including standards for eligibility verification, health care claims processing, and payment and remittance advice transactions. A work plan (http://www.oregon.gov/OHA/OHPB/meetings/2010/agenda-1001.pdf, pages 27-28) for the Administrative Simplification Initiative was presented to the Oregon Health Policy Board on January 12, 2010 indicating the recommendations to DCBS in June 2010.	The HB2009 administrative simplification initiative efforts have implications for HIE planning and interoperability as well as provider and health plan work flows and efficiencies. The roles of the administrative simplification initiatives in statewide HIT and HIE planning and need further analysis and discussion. The work plan identifies these issues and coordination of activities with HITOC.

[28] Washington State Office of the Insurance Commissioner Health Care Administrative Expense Analysis Blue Ribbon Commission Recommendation #6 Final Report, pages 57-60 (11/26/07)

[29] Washington State Office of the Insurance Commissioner. Health Care Administrative Expense Analysis Blue Ribbon Commission Recommendation #6 Final Report, page 25 (11/26/07)

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Electronic Clinical Laboratory Ordering and Results Distribution

Assessing the state of laboratory health information exchange services relies on several sources: ambulatory and hospital/health system EHR surveys included questions about laboratory ordering and reporting, the Department of Human Services (DHS) HIT inventory regarding the relationship between commercial and hospital laboratories to public health communicable disease reporting as well as website information and interviews with hospital and commercial laboratories.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Commercial laboratories		Based on interviews with commercial laboratories, the commercial laboratories providing services to ambulatory practices are all able to received electronic laboratory orders and provide electronic reports based on industry standards. Labs have implemented standard interfaces to/from most EHR vendor systems used by practices referring specimens. Commercial labs provide secure website access for submission of orders and retrieval of lab results that can be used by practices with and without EHRs.	Laboratories express high interest in information exchange to/from physician EHRs. The major issue is protracted EHR adoption in physician practices.
Hospital laboratories		Medical practices owned or operated by the multi-hospital health systems in Oregon have electronic ordering and results report through the health system EHRs. Many affiliated practices have comparable access. The major health system laboratories provide secure website access for submission of orders and retrieval of lab results comparable to commercial laboratories. Several hospital labs have implemented standard interfaces to/from a number of EHR systems.	
Ambulatory EHR systems:	Enter & Review Labs	2009 Survey: 75% of surveyed organizations with EHRs (87% of clinicians) are able to enter and review lab orders,	
Ambulatory EHR systems	Electronically place orders	2009 Survey: 48% of organizations with EHRs (69% of clinicians) are able to electronically place lab orders.	Less than half of organizations with EHRs have CPOE functionality
Ambulatory EHR systems	Electronic Lab Interface	2009 Survey: 72% of organizations with EHRs (91% of clinicians) have an electronic EHR – laboratory interface.	
Hospital EHR systems		2009 Preliminary Results: 44 of 47 hospitals (98% of discharges) with EHRs have or by early 2010 will have electronic laboratory results included in their EHR system. 11 of 47 hospitals support laboratory CPOE. 43 of 47 hospitals (98% of discharges) with EHRs have fully or partially implemented or planning CPOE for laboratory services.	
Public health reporting from laboratories		80% of communicable disease reporting occurs electronically to local health departments from 12 clinical laboratories and the Oregon State Public Health Laboratory. These reports flow into the recently upgraded Oregon Public Health Epi-User System (Orpheus) and are the basis of reporting to the Centers for Disease Control (CDC).	

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➤ Electronic Prescribing

SureScripts prepares a State Progress Report on Electronic Prescribing. The last report as of December 31, 2008 shows that Oregon ranks favorably against national statistics. The SureScripts reports are available at http://www.surescripts. net/e-prescribing-statistics.html. Anecdotal information from providers and pharmacies notes that substantial numbers of physicians and providers have initiated electronic prescribing in 2009.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Prescriptions routed electronically	SureScripts report 12/31/2008	For 2008 Oregon ranked 15th nationally with 4.39% of prescription routed electronically. Growth in 2008 over 2007 was 180%.	
Visits with a prescription benefit request	SureScripts report 12/31/2008	For 2008 Oregon ranked 19th nationally with 7.86% of patient visits with a prescription benefits request and 4.37% with a prescription benefit response. Growth in 2008 over 2007 was 300%.	
Physicians routing e-prescriptions	SureScripts report 12/31/2008	As of 12/31/2008 Oregon ranked 11th nationally with 15.43% of physicians routing e-prescriptions (1,030 physicians). Growth in 2008 over 2007 was 170%.	
Payer coverage	SureScripts report 12/31/2008	For 2008 Oregon ranked 36th nationally with 55.83% of patients with available prescription benefit information.	
Pharmacy participation	SureScripts report 12/31/2008	As of 12/31/2008 Oregon ranked 27th nationally with 76.86% of community pharmacies (475) activated for e-prescribing. Growth in 2008 over 2007 was 12%.	
Clinicians registered with SureScripts	Salem area, Marion and Polk Counties	A review of SureScripts registration in Marion and Polk counties on May 27, 2008 identified 227 registered clinicians. Registration increased 29% to 292 clinicians as of October 12, 2009.	
Ambulatory EHR systems	EHR system prints prescriptions	2009 Survey: 76% of surveyed organizations with EHRs (87% of clinicians) are able to generated printed prescriptions from their EHR systems.	
Ambulatory EHR systems	Electronically transmits prescriptions	2009 Preliminary Results: 57% of surveyed organizations with EHRs (74% of clinicians) are able to electronically transmit an electronic prescription to a pharmacy.	

➤ Other Health Care Delivery Settings

A number of other heath care settings may need to be considered as Oregon HIT planning efforts move forward.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	ADOPTION GAP OR COMMENTS
Nursing Homes	Unknown	Not yet addressed	
Home Care & Home Health Agencies	Unknown	Not yet addressed	

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➤ Oregon State Government

A number of State of Oregon programs involving health and social services programs have implications for HIT planning. The Oregon Department of Human Services (DHS) is developing an inventory of programs with significant HIT components. The DHS HIT scan reviewed 64 separate program areas and identified 32 programs that have one or more technology applications for further consideration. A structured assessment is under development for eleven program areas. Addition programs may be added as the DHS HIT scan proceeds. Selected DHS HIT programs are included below. The Department of Corrections and Oregon Youth Authority provide health services in the adult and youth correctional facilities. Efforts are contemplated to include these agencies in the EHR and HIT environmental assessments.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	COMMENTS
DHS - Medical Assistance Programs (DMAP)		DMAP operates the Oregon Health Plan (OHP) including the Medicaid program. The Medicaid Management Information System (MMIS) is an essential infrastructure component for administering the OHP and processing eligibility and provider claims data. The new MMIS system was activated in December 2008 to replace the 30 year old legacy system and consolidate a number of separate applications and data bases.	The MMIS conversion encountered a number of conversion and implementation issues that are being resolved. The roles of MMIS in statewide HIT and HIE planning need further analysis and discussion.
DHS- Addiction & Mental Health Division (AMH)		AMH has completed a several year process for planning a comprehensive Behavioral Health Information Project (BHIP) designed to provide an EHR, other clinical and administrative systems to support the state hospitals (OSH replacement project and Blue Mountain Recovery Center) 500 mental health and addiction services community-based programs and 13 acute care hospital programs. Responses for the BHIP system RFP were due in late July 2009.	BHIP has implications for HIE planning and interoperability of BHIP with EHRs of various provider organizations and heath systems. The roles of BHIP in statewide HIT and HIE planning and need further analysis and discussion.
DHS - Public Health		A number of public health programs have direct involvement and linkages to providers that are being more fully described in the DHS-HIT scan including • Immunization Information System (ALERT) • Orpheus – communicable disease reporting • Emergency medical services • OR-Kids • FamilyNet Child Health Record • Vitals Statistics OVERS • Oregon Electronic Laboratory Reporting (ELR) project • DHS-LIMS – laboratory information management system • Prescription Drug Monitoring	The roles of the various public health programs in statewide HIT and HIE planning and need further analysis and discussion. Integration of distinct applications into an overall DHS & HIE framework will require careful planning and phasing.
Prescription Drug Monitoring Program	2009 Legislative Session	Senate Bill 355 enacted by the 2009 Legislature establishes a Prescription Drug Monitoring Program (PDMP) to address prevention of prescription drug diversion by providing a tracking system that tracks dispensing of Schedule II-IV prescription drugs.	PDMP implementation planning has important implications for HIE planning related to medication history data.
All Payer Claims Database	2009 Legislative Session	House Bill 2009 enacted by the 2009 Legislature requires the Office for Oregon Health Policy and Research to establish a health care data reporting system (i.e., all payer claims database) for purposes of improving transparency regarding health care services and costs, supporting health reform efforts and improving quality and effectiveness.	An all payer claims database has important implications for HIE planning related to the development of HIE functions for a record locator service (RLS), master patient index (MPI) and master provider index.
Dept of Corrections		The Department of Corrections (DOC) operates 15 clinics in its adult correctional facilities. DOC is exploring EHR systems for its corrections population.	
Oregon Youth Authority		The Oregon Youth Authority (OYA) operates correctional facilities for minors: seven closed facilities and four transitional facilities. OYA operates six clinics in support of the closed facilities. OYA is exploring EHR systems for its corrections population	

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Telehealth and Telemedicine

During September and October 2009, the Oregon Health Network Applications Committee plans to compile an inventory of telehealth and telehealth applications in Oregon.

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	COMMENTS
Telehealth applications		A number of telehealth – telemedicine applications are operating in Oregon. Example projects include pediatric intensive care video consultations and monitoring (OHSU and Sacred Heart), tele-genetics counseling (OHSU, Medford, Bend, Boise) – currently suspended until payer reimbursement is activated, psychiatric video consultations (OHSU, a prison, a tribal clinic), specialty telemedicine consults (eastern Oregon and Idaho hospitals), cardiology Stemi consults and data transfers (southern Oregon hospital, EMS ambulance and emergency department), trauma consults to triage patient appropriately, pediatric and adult image interpretation and overreads (store and forward).	OHN and the Telehealth Alliance of Oregon (TAO) will be undertaking an inventory of telehealth applications in fall 2009.
Oregon Health Network (OHN)		Oregon Health Network (OHN) has been approved by the Federal Communications Commission (FCC) to receive up to $20.2 million in funding reimbursement under the Universal Service Fund to build a comprehensive and robust broadband infrastructure and telehealth network that will connect hospitals, clinics and community colleges throughout Oregon. The project will connect eligible health care facilities under the FCC's Rural Health Care Pilot Program (RHCPP). Four RFPs are in various stages of solicitation and contracting for implementing the FCC grant. Additional information is available at www.oregonhealthnet.org.	Slow process to work through RFPs and contract for projects.

Other Oregon Assets to Advance HIT Adoption (partial list)

Oregon benefits from the presence of a number of organization that play unique roles supporting EHR and HIT adoption and in meeting the ARRA meaningful use requirements. An incomplete list of such organizations includes the following:

DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	COMMENTS
Acumentra Health		Acumentra Health is Oregon's federally-designated Medicare Quality Improvement Organization (QIO) as well as the External Quality Review Organization for Medicaid in Oregon and Washington. Acumentra Health has been involved in a number of HIT-related projects including Oregon Diabetes Collaborative (2001-2, 2003-4), Oregon Rural Collaborative (2005-7), DOQ-IT (2005-8), and EHR Preventive Care Initiative (2008-11). Acumentra Health also coordinates HIT activities of the Oregon IPA Collaborative (representing over 4,300 providers) and pharmacy project activities of the Medicare Advantage Health Plan QI Collaborative. Additional information is available at http://www.acumentra.org/	Interests include facilitating EHR adoption and optimization, HIE development, regional extension centers, quality metrics and practice-based quality improvement.
OCHIN		OCHIN is a health center controlled network (HCCN) of community health clinics and small practices serving the medically underserved with 18 members in Oregon, 9 members in California and one in Washington that operate clinics in over 200 locations. OCHIN provides a comprehensive suite of products including practice management and EHR (Epic) services, panel and population management tools to member organizations. As an Organized Health Care Arrangement (OHCA) under HIPAA with a single record per patient OCHIN also functions as an HIE among the member organizations. The OCHIN master patient index contains information on over 400,000 Oregonians and 600,000 lives across California, Oregon and Washington. OCHIN also operates SafetyNetWest, a practice-based research network that solicits proposals and coordinates research projects involving safety-net populations. Additional information is available at http://www.ochin.org/	Interests include regional extension centers, EHR adoption, HIE development, HIT-based quality improvement and collaborative research among safety net organizations, workforce development. OCHIN is the lead organization in Oregon's Regional Extension Center proposal.

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DOMAIN	SCOPE	HIT ADOPTION OR ROLE IN HIT ADOPTION	COMMENTS
OHSU-DMICE		Department of Medical Informatics & Clinical Epidemiology (DMICE) is an academic and research department in the Oregon Health & Science University (OHSU) School of Medicine. DMICE blends teaching, research, and service activities in medical informatics and clinical epidemiology. The medical informatics program features a diversity of research activities on the application of information technologies in health care as well as graduate education programs available on-campus or via distance learning. The clinical epidemiology program includes the AHRQ-funded Oregon Evidence-Based Practice Center that conducts systematic reviews of medical tests and interventions, and clinical effectiveness studies. Additional information is available at http://www.ohsu.edu/ohsuedu/academic/som/dmice/	Interests include workforce development, regional extension centers and applied informatics. OHSU-DMICE is a partner organization in Oregon's Regional Extension proposal.
Oregon Health Care Quality Corp		The Oregon Health Care Quality Corp's Partner for Quality Care initiative is using pooled encounter and medications (claims) data (96 million claims, 1.6 million unique individuals) to measure and report quality metrics for 2,212 adult primary care physicians (120 medical groups with 308 clinic sites). 19 practices representing about 729 physicians are using a secure interactive web portal to access data about their patients. Metrics based on clinical EMR data are planned. This effort is part of the Robert Wood Johnson Foundation Aligning Forces for Quality program. Quality Corp is also a Federally-designated Chartered Value Exchange (CVE). Additional information is available at http://www.q-corp.org/	Interests include quality metrics from claims data and EHRs, HIE development, practice-based quality improvement, quality reporting metrics and consumer engagement.

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Health Information Exchange (HIE) Activities report

This section identifies HIE activities in Oregon that may be useful for HIT planning including strategies for health information exchange in Oregon that leverages existing resources and accelerates achievement of Oregon HIT goals. The framework below focuses on current planning efforts and implementation initiatives in Oregon around HIE, as well as existing or future planned use of HIE within in integrated health systems.

Information in this section was collected from multiple sources including the 2009 eHealth Initiative HIE Survey report, the 2009 Oregon Hospital & Health System HIT Survey, and 2009 Oregon IPA Survey. Additionally interviews were conducted with individuals involved with most of the identified HIEs activities.

➢ HIE Terminology

Terminology was developed in 2008 through a collaborative process by the National Alliance for Health Information Technology and authorized by the Office of the National Coordinator for Health IT. www.nahit.org/images/pdfs/HITTermsFinalReport_051508.pdf.

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

- Health Information Organization (HIO) – an organization that oversees and governs the exchange of health-related information among organizations according nationally recognized standards.

➢ HIE Planning Efforts

Central Oregon Health Information Exchange: In 2007, a number of central Oregon stakeholders explored development of an HIE to serve central and eastern Oregon. In 2009, various organizations including Cascade Healthcare, Bend Memorial Clinic, and Central Oregon Electronic Medical Records resumed active HIE planning for central Oregon. Recommendations expected late 2009.

Gorge Health Connect: - In 2009 Mid Columbia Medical Center, La Clinica del Carino Family Health Care Center and Wasco County Public Health sponsored discussions for a community-based health information exchange serving The Dalles and surrounding area. Participating organization include Columbia River Women's Clinic. Mid Columbia Surgical Specialists, Arlington Clinic, Moro Clinic and Deschutes Rim Clinic. The Consortium has submitted funding proposals to support further planning and HIE development.

Oregon Health Information Exchange Options Report: In December 2005, the Oregon Business Council's Data Exchange Group commissioned an analysis of options for initiating a pilot project for health information exchange. The May 15, 2006 report can be found at: http://www.q-corp.org/qcorp/images/public/pdfs/OR%20HIE%20Options.pdf.

Metro Portland Health Information Exchange (MPHIE) Mobilization Planning (2006-7): In September 2006, the Oregon Business Council's Data Exchange Group commissioned a mobilization plan to implement health information exchange in the Portland area based on retrieval of results and reports. The May 14, 2007 MPHIE Mobilization Plan can be found at http://www.q-corp.org/q corp/images/public/pdfs/MPHIE%20Final%20Report%20053007.pdf. Supporting planning documents can be found at http://q-corp.org/default.asp?id=61.

Portland Metropolitan Area Health Information Exchange Coalition: The eight health systems (Providence, Kaiser Permanente, Southwest Washington Medical Center, OHSU, OCHIN, Legacy, Adventist, and Tuality) in the Portland-Vancouver metropolitan area are partnering to create a federated Health Information Exchange. Building on standard XDS.b functionality being deployed in or as an adjunct to their EHR deployments, the partners have agreed on a point-of-care "pull" model for information exchange. A consent at the time of service will allow patients to "opt out" of the exchange, and the partners are working to evolve common consent language and standards, identity matching will occur at the time of initial service in the normal course of registration, and will be persistent once established (as is the standard XDS.b PIX/PDQ interchanges). Standard vendor tools will be used to incorporate interchange data into the record. Five of the partners are using the Epic EHR, and those partners will be exchanging data using Epic's Care Everywhere product. The remaining EHRs will be interfaced to each other and to Epic through automated services being built by the coalition. This is expected to go live in phases, with the first data exchange occurring between the Epic customers; by the end of 2010, exchange will Providence's HIE (and potentially others) will be live.

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Salem Area Community Health Information Exchange (SACHIE): A group of Marion-Polk County community stakeholders began discussing formation of an HIE in September 2007. In 2009 grant funding was obtained to develop a technology strategy and business plan. A SACHIE Development Committee is actively engaged in the planning process under the auspices of the Physician's Choice Foundation. The technology roadmap and business plan framework are due in early 2010.

South Coast Health Alliance: Five hospitals on the southern Oregon coast (Bay Area, Coquille Valley, Curry General, Lower Umpqua and Southern Coos) are discussing health information technology strategies for the area including the use of two local efforts to leverage health information exchange among the five hospitals and local physician practices.

➤ Integrated Health Systems

There are a number of health systems in Oregon that have multiple operating components that may include one or more hospitals, system-owned medical groups, affiliated medical groups, home health agency, skilled nursing facilities and/ or others units. These health systems strive to use a core set of HIT applications across the various settings in which they operate and work to improve the interoperability and exchange of information between their HIT applications, care settings and medical groups interacting with the health systems.

Asante Health System operates two hospitals in Jackson and Josephine Counties.

Cascade Healthcare Community operates four hospitals in central Oregon.

Kaiser Permanente operates one hospital in Portland and clinics the Portland metro area, Salem and southwest Washington.

Legacy Health System operates four hospitals in the Portland metro area, one hospital in Clark County Washington and clinics in the Portland metro area, Woodburn and southwest Washington.

PeaceHealth operates four hospitals and medical group practices in Lane County.

Providence Health and Services operates eight hospitals across the state of Oregon and medical groups in the Portland area, north coast and southern Oregon.

Salem Health operates two hospitals in Marion and Polk Counties.

Samaritan Health Services operates five hospitals and medical group practices in Linn, Benton and Lincoln Counties.

➤ Operational & Soon to be Operational HIEs

Bay Area Community Informatics Agency (BACIA): BACIA represents a consortium of rural Oregon Coast healthcare organizations focused on health information technology. BACIA is supported by a $174,190 AHRQ grant in 2004 to implement a local HIE between community providers. Starting in late 2009, the Medicity ProAccess information exchange application will support connectivity between partner organizations: Bay Area Hospital, North Bend Medical Center, Bay Clinic and Southwest Oregon IPA. Plans include expanding the Medicity ProAccess application to the South Coast Health Alliance hospitals, tribal clinics, Waterfall Clinic, Bay Eye Clinic and other clinics.

Epic CareEverywhere - CareEpic: Epic Systems has developed a process for information exchange between providers using Epic EHR systems known as CareEpic. Epic EHRs are in use at Kaiser, OCHIN, OHSU, and Salem Health (Salem Hospital and West Valley Hospital). Legacy Health System is in the process of implementing Epic. Epic users in Oregon have begun informal discussions about health information exchange using CareEpic.

Jefferson Health Information Exchange (formerly Mid-Rogue HIE): Mid Rogue eHealth Services has partnered with Asante Health System and is collaborating with Providence Medford Medical Center and other entities in Jackson and Josephine Counties to exchange patient data. Initial information exchange interfaces started in winter 2008. In late 2009, Medicity Systems was selected to expand HIE functionality with a master patient index, record locator service and connectivity. Mid Rogue eHealth Services implemented Greenway PrimeSuite, an interoperable 2009 CCHIT certified EHR, and has active interfaces with four Laboratory Information Systems (LIS), one HIS and the Oregon ALERT Immunization Registry.

OCHIN: OCHIN is a health center controlled network (HCCN) of community health clinics and small practices serving the medically underserved with seventeen members in Oregon, eight members in California and one in Washington. OCHIN provides practice management and EHR (Epic) services to member organizations. As an Organized Health Care Arrangement (OHCA) under HIPAA with a single record per patient OCHIN also functions as an HIE among the member organizations. The OCHIN master patient index contains information on 400,000 Oregonians and 600,000 lives across California, Oregon and Washington. OCHIN has signed an agreement to participate in Epic CareEverywhere

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Lane/PeaceHealth Community Health Record: The PeaceHealth system (7 hospitals and 5 medical groups in Oregon, Washington and Alaska) utilizes a system-wide, integrated (inpatient/outpatient/practice groups) electronic health record system (GE Centricity Enterprise) implemented in a manner to support the broader goal of a Community Health Record (CHR). The goal of CHR is to provide all community clinicians secure access to a patient's inpatient and outpatient comprehensive medical history at any time from any place. The CHR includes the PeaceHeatlh EHR, clinical data repository and data warehouse. Over 23,000 PeaceHealth and community clinicians are registered to access information including over 3,000 physicians, approximately 55% are in the Lane County region. About two-thirds of users are community clinicians. Community clinicians can also upload information about their patients from other EHRs. In January 2010, a broad-based group of PeaceHealth and community stakeholders formed a Steering Committee to explore the further development of health information exchange connectivity and functions in Lane County including governance and technology development.

Providence Health & Services – Oregon Health Information Exchange: Providence is implementing a standards-based HIE to connect their inpatient EMR (McKesson), the outpatient EMR for their employed physicians GE Centricity), other clinical systems (Picis EDIS and others), and the EMRs of their affiliated physicians (Centricity EMR and others). Production publication to the HIE is expected to begin in February 2010. Providence's HIE is ultimately expected to contain data for over 2 million patients that Providence has been in various health care settings. Providence's vendors have provided functionality that incorporates coded data into their EMRs automatically, an industry "first." This end-to-end data sharing will be live in February 2010. Providence will also be using their HIE to manage order/result workflow for their internal and external laboratory and imaging customers. This functionality is expected to enter production in March 2010. Providence is actively involved in the Portland Metro HIE planning discussions

Samaritan Health Services - Health Information Exchange (SHS-HIE): In August 2009 Samaritan Health Services partnered with Medicity Systems to establish an HIE. The system allows Samaritan's 5 hospitals and affiliated practices in Linn, Benton and Lincoln counties to deliver patient data securely and efficiently. Clinics' within Samaritan's service area will be able to join the exchange and data will flow to their disparate EMR systems. SHS-HIE initially will feed information to the Benton County Health (Epic EMR) and The Corvallis Clinic (Allscripts EMR). Subsequent phases involve reciprocal information exchange and adding other clinical practices in the area.

Umpqua OneChart Health Information Exchange (Roseburg, Douglas County and surrounding area): Starting in 2005, the community-based HIE now supports a community enterprise master patient index supporting about 150 different practice management systems. These systems provide the foundation for a common EHR system (Centricity) throughout the community, leveraging single chart patient technology in a centralized data repository, including comprehensive interfaces to the Mercy Medical Center Meditech HIS, local ambulatory and cancer treatment facilities and related systems. Umpqua OneChart provides a personal health record (PHR) system compatible with both Microsoft HealthVault and Google Health. Read-only access (with appropriate privacy and security controls) is offered to authorized Roseburg VA representatives, as well as first responder summary information (face sheet form) to local EMS (ambulance, fire, police) personnel. The HIE now contains information on about 220,000 lives.

PACS – Imaging Collaborations and Exchange: Picture archiving and communication systems (PACS) are computers, commonly servers, dedicated to the storage, retrieval, distribution and presentation of images. A number of hospital and imaging centers are collaborating to facilitate the availability and electronic exchange of medical images.

Asante Health System PACS Collaboration: Asante provides PACS services (Fuji PACS) for its hospitals in Grants Pass and Medford, and Oregon Advanced Imaging (Medford). Other Fuji PACS system users include Grants Pass Imaging and Medford Medical Clinic, which have their own PACS systems but can access the Asante PACS system with appropriate security.

Cascade Medical Imaging (CMI): A joint venture, between Central Oregon Radiology and Cascade Healthcare Community that provides imaging and PACS services for central and eastern Oregon, covering 33,000 square miles and serving just over 300,000 people. CMI and the Bend Memorial Clinic are able to access and exchange images. The CMI PACS network currently serves 16 physical locations (hospitals and clinics) in Deschutes, Jefferson, Crook, Harney, Grant, Lake, Wallowa and Wheeler counties. The network serves 3,208 referring physicians with 2,304 users actively using the system.

Oregon Community Imaging (Salem): A cooperative arrangement among community healthcare organization to facilitate the access and exchange of medical images with an imaging repository for participating practices. Current participants include Salem Hospital, Salem Radiology Consultants, West Valley Hospital (Dallas) and Mission Medical Imaging. The network has established virtual private network (VPN) connections with OHSU, Legacy Health Systems, Silverton Hospital and Salem Clinic to support the transfer of images between facilities. Imaging access and exchange for Salem area NextGen EMR users is under development.

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Samaritan Health PACS: A system used as a common imaging repository by the five Samaritan Health hospitals and their affiliate practices and clinics located in Linn, Benton, and Lincoln counties. The Corvallis Clinic utilizes the Samaritan Health PACS system under an ASP arrangement with its own dedicated imaging database. Images can be exchanged as appropriate.

South Coast: A community PACS is based at Lower Umpqua Hospital (Reedsport) also serves Coquille Valley Hospital (Coquille) and Southern Coos Hospital (Bandon)

➢ Figure 1: Regional Coverage of Oregon HIE Efforts

Oregon Health Information Exchange Efforts

Hospital Type

- ■ Acute Care Hospitals
- ■ Critical Access Hospitals

AS Asante
CH Cascade Healthcare
KP Kaiser Permanente
LH Legacy
PH PeaceHealth
PR Providence
SA Samaritan
SH Salem Health
 H Other Hospitals

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| HIE Efforts | Sam Health | South Coast | Umpqua One | Jefferson | Other |
| Portland Metro | PeaceHealth | Central Oregon | Gorge Health Connect; Hood River | Salem Area Community | |

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➢ Appendix A: Abbreviations:

AMH: Addiction and Mental Health Division

CAH: critical access hospital

COEMR: Central Oregon EMR

COIPA: Central Oregon IPA

CVE: chartered value exchange

DCBS: Department of Consumer and Business Services

DHS: Department of Human Services

DMAP: Division of Medical Assistance Programs

DMICE: OHSU Department of Medical Informatics & Clinical Epidemiology

EHR: electronic health record

EMR: electronic medical record

EPM: electronic practice management system

FCHP: fully capitated health plan

FQHC: federally qualified health center

HIIAC: Health Information Infrastructure Advisory Committee

HIE: health information exchange

HIO: health information organization

HIT: health information technologies

HITOC: Health Information Technology Oversight Council

HRB: health record bank

HRBO: Health Record Bank of Oregon

IPA: independent practice association

MPI: master patient index

OAHHS: Oregon Association of Hospitals and Health Systems

OHA: Oregon Health Authority

OHP: Oregon Health Plan

OHPB: Oregon Health Policy Board

OHPR: Office for Oregon Health Policy and Research

PHR: personal health record

QIO: quality improvement organization

RHC: rural health center

RHIO: regional health information organization

RLS: record locator service

SBHC: school-based health center

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State of Oregon
Department of Human Services

Medicaid Health Information Technology (HIT) Planning Project

Oregon Medicaid HIT Planning Advance Planning Document (HIT P-APD)

Submitted to the Centers for Medicare and Medicaid Services

February 1st, 2010

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Appendices are not included here.

Introduction and Background

➤ I. Introduction

The delivery of health and human services in Oregon is in the midst of a major structural, conceptual, and information technology (IT) transformation. In the summer of 2009 the Oregon state legislature passed historic legislation to promote comprehensive health care reform, including a major Medicaid expansion and health care delivery system reforms intended to expand access, promote quality, and contain costs. Many of these reforms rely on the secure exchange of health data to be effective. These laws also change the structure of Oregon's state health and human services department by creating two state agencies; the Oregon Health Authority and the new Department of Human Services. The Oregon Health Authority (OHA) contains all the health-related programs and is overseen by the newly created Health Policy Board and the Department of Human Services (DHS) is comprised of human services programs. Both entities will share administrative, support, and information technology (IT) services. Oregon's transformation sets the stage for a new vision of shared services supported by a client-centered, integrated DHS/OHA services information system.

Oregon's DHS/OHA leaders have a vision for integrating service IT systems, which will largely impact the Medicaid program given that Medicaid clients in Oregon are the largest consumers of nearly all other DHS/OHA services, including mental health; self sufficiency; aged and physically disabled services; Women, Infants & Children (WIC); child welfare; and food stamps. See Appendices B and C for a graphical representation of the overlap of program services for DHS/OHA clients. In addition to services, DHS/OHA requires Medicaid providers to participate in public health surveillance reporting.

Current IT systems fall short of the DHS/OHA vision of integrated and coordinated services information. In particular, Medicaid consumers lack access to their health records. Providers are frustrated by the lack of access to client-specific public health data to ensure appropriate care, reduce duplicative services, and monitor the health of their patients. DHS/OHA workers in each program are frustrated by the lack of access to relevant data on their clients regarding services or health information gathered by another DHS/OHA program. Integration of DHS/OHA IT systems will reengineer this fractured system, save costs for the state, improve health care and human services delivery, and improve the health of Oregonians served by Medicaid and other DHS/OHA programs.

Oregon's Medicaid providers are ready for health information exchange. Oregon has six operational or soon-to-be operational local health information exchanges (HIEs), several more in the planning stages, and eight major integrated health systems with exchange capability between hospitals and affiliated clinics. Of Oregon's 58 hospitals, 47 have implemented Electronic Health Records (EHRs), and the rest plan to implement EHRs in the next few years. Oregon's clinicians have adopted EHRs at a higher rate than those in other states: 66.6% of Oregon office-based physicians are using any EHRs compared to 43.9% nationally, and 29% of Oregon physicians use a fully functional EHR, compared to 6.3% nationally.[30]

Oregon is uniquely positioned to maximize the opportunity presented by the federal Centers for Medicare and Medicaid Services (CMS) to engage in the development of a comprehensive, coordinated State Medicaid Health Information Technology (HIT) Plan that recognizes the HIT needs of Oregon's Medicaid clients, providers, and DHS/OHA programs. As part of the Medicaid HIT plan, Oregon will seek to focus on improving quality by building a health information technology infrastructure and exchange capability that supports the meaningful use of healthcare information technology by both providers and consumers. CMS approval of this Medicaid HIT Planning Advance Planning Document (HIT P-APD) will secure 90 percent enhanced federal financial participation (FFP) for Oregon's planning activities that will lead to the development of Oregon's State Medicaid HIT Plan (SMHP) that is also inclusive of meaningful use and quality plans.   The SMHP will be a key component of the overall State HIE Strategic and Operational Plans developed by Oregon's Health Information Technology Oversight Council (HITOC) as part of the federal Office of the National Coordinator (ONC) State HIE Cooperative Agreement Program.

Oregon acknowledges that we are making a significant planning investment in terms of both personnel and contract expertise to create our SMHP. This supports our philosophy that the planning aspects for a successful HIT infrastructure as well as a functional HIE is a very important part of establishing a successful ongoing HIT program.

DHS/OHA projects that Oregon's Medicaid HIT Planning Project will cost $3,922,418 and **requests ninety percent (90%) in FFP, estimated to be $3,530,176** with the State's share estimated at **$392,242**.

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[30] Preliminary results from Oregon's 2009 EHR provider survey (soon to be published) compared to CDC results from: Hsaio CJ, Beatty PC, Hing E, Woodwell D, Rechtsteiner E, Sisk JE. Electronic Medical Record/Electronic Health Record Use by Office-based Physicians: United States, 2008 and Preliminary 2009. Health E-Stat, December 2008. http://www.cdc.gov/nchs/data/hestat/emr_ehr/emr_ehr.pdf.

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➤ II. Background

DHS/OHA is currently engaged in a number of key initiatives that will need to be aligned with the Medicaid HIT Planning Project. DHS/OHA understands the importance of aligning the Medicaid HIT Planning Project with these initiatives to promote a coordinated planning strategy and the efficient use of funding made available through CMS and the ONC.

A. Medicaid HIT Efforts

- **MMIS Certification:** DHS/OHA implemented a new Medicaid Management Information System (MMIS), in December 2008. Oregon is using the legacy certification review process, but has also created a bridge to the current MITA-based process. The intended approach allows Oregon to leverage Certification activities to progress components of the MITA State Self Assessment.

- **MITA State Self Assessment (SS-A):** The MITA (Medicaid Information Technology Architecture) SS-A project is in process with a current planned completion date of 10/1/2010. The project will be coordinated with planning efforts associated with the Medicaid HIT Planning Project.

- **5010 / ICD-10 Planning:** DHS/OHA is creating a P-APD to remediate the MMIS to support the 10th revision of the International Classification of Diseases (ICD-10) as well as the 5010 version of the X12 HIPAA transactions. The changes associated with 5010/ICD-10 will be considered and coordinated as part of the MITA SS-A project as well as the Medicaid HIT Planning Project.

- **Health Record Bank of Oregon (Medicaid Transformation Grant):** The Health Records Bank of Oregon (HRBO) is a project funded under a Medicaid Transformation Grant to develop and build a personal health record bank that will electronically store Medicaid clients' health information and make it available on a secure Web site. HRBO will be an online, standardized, widely available and secure means by which Medicaid beneficiaries can access recent and historical laboratory results, imaging reports, dictated reports, and other patient data, and share this information in clinical situations in which it is not currently available.

B. ONC funded HIT efforts:

- **HITOC State HIE Planning and Development:** Oregon's Health Information Technology Oversight Council (HITOC) was legislatively created in July 2009 as part of Oregon's comprehensive health reform (see section C below). The HITOC will lead Oregon's efforts to develop and implement a statewide health information exchange (HIE). This project is currently underway and will result in State HIE Strategic and Operational Plans as required by the Office of the National Coordinator (ONC) of HIT, State HIE Cooperative Agreement Program Funding Opportunity Announcement (FOA). The State HIE planning and the State Medicaid HIT Planning projects will run along similar timelines, with a state HIE strategic and operational plans due to the ONC during the summer of 2010 and SMHP due to CMS in early fall 2010. The Medicaid HIT Planning project team will interact regularly with the HITOC team throughout the development of the State Medicaid HIT Plan to ensure a coordinated planning strategy, synchronize contractor resources, prevent duplicative efforts, and develop a consistent and coordinated approach to provider communications and outreach.

- **Health Information Technology Regional Extension Center (HIT REC):** The Oregon REC will be responsible for assisting Medicaid providers with the selection, implementation and meaningful use of EHRs. The Medicaid HIT Planning project team and the HITOC team will work closely with the REC around provider outreach and education efforts.

- **Broadband Expansion:** Oregon Health Network (OHN) is the designated state entity for the Federal Communications Commission (FCC) communication infrastructure funding to expand broadband to rural and underserved areas.

C. Transformation of State Health and Human Services and Comprehensive Health Reform Initiatives: As mentioned earlier, the Oregon legislature passed historic health reform legislation in June 2009. These laws change the structure of Oregon's state health and human services department, expand Oregon's Medicaid program, and implement initiatives to transform Oregon's health care delivery system intended to expand access, promote quality, and contain costs.

- Transformation of State Shared Services and IT Architecture: Rick Howard, DHS/OHA's Chief Information Officer, has proposed a vision of rational, service-based architecture for state information technology systems including eligibility determination systems. Oregon will seek opportunities to pilot test this vision over the next several years. Oregon sees the State Medicaid HIT planning effort as a major driver towards achieving the Oregon vision of a seamless Health and Human Services delivery model and Enterprise Architecture. The DHS/OHA Transformation team is in the process of implementing the transformation of Oregon's health and human services agencies, which will include a shared office of information technology within a shared administrative services unit.

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- **All Payer Data Reporting Program:** Oregon is in the process of implementing an all-payer, all claims database (APAC). Throughout the development of the State Medicaid HIT Plan we will look for opportunities to use the APAC to advance provider adoption of EHRs. This may include tracking EHR adoption and capturing data to support planning components pertaining to meaningful use. Medicaid data will be synchronized between MMIS and the APAC so as to be included in the APAC for Oregon's analysis of cost and quality trends.

- **Other DHS/OHA HIT Efforts:** In addition to providing medical care to Oregonians through the Medicaid program, DHS/OHA provides public health, behavioral health, long-term care and home health services, child welfare, self sufficiency and other services to Oregonians who participate in Medicaid. Information systems for these services and programs typically do not connect to one another, resulting in fragmented, inefficient care. In addition to developing a vision of shared services (described above), DHS/OHA programs seek enhancements within their systems to connect providers and hospitals to program data that will ultimately benefit Oregonians.

Ultimately, through the combined efforts of these initiatives, Oregon envisions a strong, integrated HIT and HIE to support meaningful use of EHRs within the provider community, thereby improving quality and health care outcomes and reducing overall health care costs.

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Section 1:
Statement of Need and Objectives

➤ I. Purpose

Create a State Medicaid Health Information Technology (HIT) Plan (SMHP) that serves as the strategic vision to enable the State to achieve its future vision by moving from the current "As-Is" HIT Landscape to the desired "To-Be" HIT Landscape, including a comprehensive HIT Road Map and strategic plan to be implemented by the year 2014.

➤ II. Objectives

The planning effort will result in a comprehensive SMHP that meets the following objectives:

- Describes the current Medicaid HIT landscape, defines a vision for the future HIT landscape, identifies the gap between the two, and defines a business and technical roadmap for achieving that vision;

- Describes the administration of the incentive program including:

  – Administration of payments, including identification of eligible providers, systems modification necessary to pay providers, and monitoring mechanisms;

  – Meaningful use criteria development and reporting mechanisms; and

  – Meaningful oversight, including routine tracking of meaningful use and reporting mechanisms;

- Pursues initiatives to encourage adoption of certified Electronic Health Record (EHR) technology to promote health care quality and the exchange of health care information under Medicaid, while ensuring privacy and security of data provided to its data exchange partners; and

- Demonstrates how Medicaid HIT will integrate:

  – With the Medicaid Information Technology Architecture (MITA) To-Be Roadmap;

  – Within the larger state Health Information Exchange (HIE) strategic and operational plan; and

  – Within Oregon's vision for comprehensive health reform and transformation of Oregon's public service delivery to a shared services integrated IT architecture.

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Section 2: Project Management Plan

➤ I. Planning Activities

Oregon Medicaid will work in close coordination with the Health Policy Board and the Oregon Health Authority Transformation team, the Health Information Technology Oversight Council (HITOC) and Oregon statewide Health Information Exchange (ORHIE) project, the HIT Regional Extension Center (REC), Medicaid Management Information System (MMIS) Certification, Medicaid Information Technology Architecture State Self-Assessment (MITA SS-A), 5010/ICD-10, All Payer All Claims Database, Broadband, Behavioral Health, Public Health, Long Term Care, and Health Records Bank of Oregon (HRBO) project teams throughout the planning effort to encourage a coordinated planning strategy and to prevent duplication of efforts.

The Medicaid HIT Planning Core Team will report to a project manager who ultimately reports to the Medicaid Director. The team will consist of project coordinators to align strategic objectives, conduct information sharing sessions, synchronize contractor resources where appropriate, coordinate provider outreach, include subject matter experts in work group sessions and distribute deliverables for review and feedback for the purpose of creating the SMHP. Federal Participation Dollars requested in this P-APD will only be used for planning activities directly related to Medicaid Services. The project manager will closely monitor all team activities and allocate costs not related to direct Medicaid Services to other funding sources. Oregon seeks make to a significant planning investment in terms of both personnel and contract expertise to create our SMHP. This supports our philosophy that the planning aspects for a successful HIT infrastructure as well as a functional HIE is a very important part of establishing a successful ongoing HIT program.

See Appendix A for a project organizational chart and Appendix D for a matrix of staff and contractor roles related to the following planning activities.

Project Start Up
- **HIT P-APD:** Deliver HIT P-APD to CMS, Review/update HIT P-APD with CMS as needed

- **Convene staff and contractors:** Determine and assign roles and responsibilities; convene project teams and select workgroup members. Convene and coordinate with State Medicaid HIT Plan (SMHP) Steering Committee. Hire HIT project staff: develop and post job announcements, conduct interviews, process hiring paperwork, configure work spaces; Hire Contractors: develop and release RFPs jointly with HITOC/ORHIE project, evaluate RFP submissions, sign contracts;

- **Develop project structures:** develop goals, objectives and guiding principles for the project; develop project work plan detailing tasks and timelines; Create a project collaboration environment and document control policies

- **Establish administrative structures:** refine budget and set up budget codes and reporting, develop process for travel planning and assistance

Communication and Coordination (ongoing)
- **Stakeholder education/communication:** Identify key stakeholders, meet with key stakeholders to kickoff the planning effort and communicate goals and objectives, recruit stakeholder volunteers to participate in workgroups where appropriate, establish a website related to Medicaid HIT planning

- **Coordination:** Establish lead contacts with Regional Extension Centers, HITOC, and other related ONC-funded and internal DHS/OHA projects; participate in HITOC meetings; coordinate contracting with HITOC where appropriate; convene joint team meetings monthly

Conduct Current HIT Landscape Assessment
- **Assess/update current information:** collect information that was recently gathered by the HITOC and assess its applicability to the State Medicaid HIT Plan; update assessment of projected ARRA incentives to identify providers that qualify and the estimated incentive amounts

- **Gather new information:** contractor to develop, field, and analyze Medicaid provider survey, to include Behavioral Health, Public Health, and Long Term Care components; assessment of Medicaid Managed Care Organizations' capacities; assessment of the scope and status of specific initiatives underway, including the Health Records Bank of Oregon; All-Payer, All Claims Database; Behavioral Health Integration Project; public health reporting; etc.

- **Draft document:** Draft current HIT landscape section of State Medicaid HIT Plan

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Develop Vision of the HIT Future
- **Background:** research innovative State and National HIT/HIE initiatives

- **Develop vision:** convene internal state workgroup and/or Medicaid HIT stakeholder discussion groups; convene external workgroup and/or Medicaid HIT stakeholder discussion groups: Providers, consumers, advocates, others

- **Draft document:** Draft vision of Medicaid HIT landscape for State Medicaid HIT Plan

Perform a Gap Analysis
- **Perform a policy gap analysis** that compares the As-Is Environment with the To-Be Environment and identifies the specific areas that do not meet DHS/OHA' future vision

- **Perform a technical gap analysis** that compares the As-Is Environment with the To-Be Environment and identifies the specific areas in the As-Is Environment that do not meet DHS/OHA' future vision

- **Draft document:** Draft document with results of gap analyses

Define Specific Actions to Implement the Incentive Program and track Meaningful Use
- **Incentives program business roadmap:** Convene workgroup, develop criteria to identify eligible professionals and hospitals, define action steps for calculating and processing payments, solicit input on draft criteria and action steps, finalize

- **Track and monitor meaningful use:** Convene workgroup and contract for data and quality consultant, identify options for tracking meaningful use, develop draft meaningful use criteria and recommendations for tracking mechanism, solicit internal and external feedback, finalize criteria and tracking recommendations

- **Incentives program technical roadmap:** Convene workgroup, develop technical specifications required to implement the incentives program, allow reporting of and tracking of meaningful use criteria

- **Incentives program technical roadmap:** Convene workgroup, identify steps needed to prevent erroneous payments, develop oversight policies and procedures, identify penalties and enforcement mechanisms, solicit input on draft steps and policies, finalize

- Workgroups will also identify system and process changes that will be needed for the successful implementation of the program

Define Specific Actions to Implement EHR Adoption Initiatives
- **Provider outreach, education, and communications:** Convene a team to be responsible for coordinating and developing all provider outreach, education and communications. These resources will work closely with the HITOC and the REC teams to share contractor resources, avoid duplication of effort, and support a coordinated approach to provider communications and outreach. Contractor to conduct provider focus groups, develop communication strategy and messaging, and develop communication materials

- **Privacy and Security planning:** Convene a team to work with legal consultants and a stakeholder workgroup to evaluate and propose privacy and security policies, building off the work of Oregon's Health Information Security and Privacy Collaboration (HISPC) efforts. Deliverables will include data use agreements and other legal documents, and a privacy and security plan for inclusion in the SMHP, as well as policies and recommending changes to existing state laws, regulations and policies

- **Provider EHR loan program:** The HITOC and State Medicaid HIT Planning team will work with the REC to identify mechanisms to promote EHR adoption across all Medicaid providers in Oregon. Oregon will explore whether a provider EHR loan program would be a meaningful and feasible mechanism to address barriers faced by Oregon providers who current lack EHR systems. Oregon will use a contractor to assess needs and analyze the feasibility of a provider EHR loan program for providers who lack the resources to purchase EHR systems.

- **Community Behavioral Health HIT planning:** The Community Behavioral Health HIT Plan, to be included in Oregon's SMHP, will focus on activities to promote EHR adoption for community addictions and mental health providers delivering Medicaid services. Activities include an environmental scan of behavioral health providers' use of EHR, planning for the release of a public option Community-Electronic Behavioral Health Record, linking community providers to the Behavioral Health Integration Project within the Oregon mental health state hospital system, working with the HITOC to develop a behavioral health component to the state HIE strategic and operational plan, and working with the HITOC around standards definitions for data transfer.

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- **Public Health HIT planning:** The Public Health HIT plan, to be included in Oregon's SMHP, will focus on promoting and enhancing Medicaid provider use of EHRs to exchange public health data effectively and easily through Oregon's HIE, thus improving health outcomes and reducing costs. In particular, Oregon will plan for systems upgrades, interfaces, and new systems to address four areas: enhancing mandated disease reporting systems, providing a read/write module for immunization registry, developing a Family Health Profile quality tracking and follow-up alert system as an extension of the Medicaid EPSDT data, and sharing public health registry data with providers via Oregon's health information exchange.

- **Long Term Care HIT Planning:** The Long-Term Care HIT plan, to be included in Oregon's SMHP, will focus on interoperability of health and social service delivery records that will enhance the quality and efficiency of long-term care services for Medicaid clients.

Define Specific Actions to Implement Initiatives to Promote Electronic Data-Sharing to Improve Outcomes

- **Organizational HIT Capacity:** Convene a team to develop an HIT Organizational Capacity and Implementation Plan component of Oregon's SMHP, to assess the organizational needs and develop an HIT Program Office. This plan will include a technical assessment of DHS/OHA HIT systems and propose a plan to build a shared IT architecture that will support a transformed health and social service delivery system in Oregon. Specific tasks include: contracting for an organizational capability assessment, to include HIT Office Planning, HIT staffing capacities and gaps, and development of state staff training on quality standards reporting and EHR adoption

- **ORHIE Statewide HIE Planning:** As mentioned throughout this document, the Medicaid HIT planning project will work closely to align and synchronize resources with the HITOC's statewide HIE planning process. Medicaid HIT Planning team members and Medicaid subject matter experts will participate in the development of Medicaid portion of the state HIE plan. Further, the state HIE will support Medicaid providers and will connect DHS/OHA programs to providers to allow for the exchange of health-related data. Due to the direct benefits of the state HIE on Oregon's Medicaid HIT plans, Oregon is requesting P-APD funding to include the Medicaid portion of Oregon's state HIE planning process. This proportion is estimated at 39% of state HIE planning costs, based on Oregon's FFP for health planning activities used by the Office of Oregon Health Policy and Research (OHPR). OHPR is the DHS/OHA office that staffs the HITOC as well as the health reform efforts and other health policy and planning efforts.

- **Local HIE Planning Development Grants:** These competitive grants for Oregon's local HIE planning efforts will include 3 awards of $35,000 each for HIEs to complete planning needed to become operational, and 5 awards of $10,000 each for operational HIEs to plan interface applications that would enable linking to Medicaid reporting systems and/or to incorporate Medicaid providers into the HIE. Specific tasks include: developing and releasing a notice of grant opportunity, convening a grant review panel, reviewing applications, awarding grants, and monitoring funds and grant activities

- **Health Records Bank of Oregon (HRBO):** As described in the background section of this document, the HRBO will provide personal health records bank for Medicaid clients in Oregon through a Medicaid Transformation Grant. Oregon is requesting P-APD funding to supplement the HRBO planning project with an assessment for sustainability options that will incorporate the new environment in which the HRBO exists today and identify options for sustaining this project after its current funding ends.

- **National Exchange of Health Information:** As part of the planning process, Oregon will incorporate services such as Nationwide Health Information Network (NHIN) CONNECT gateway exchange health information with other national health systems (such as those administered by the Veteran's Administration) through standards, protocols, legal agreements, specifications, and services that enables the secure exchange of health information over the internet.

Prepare Medicaid HIT Roadmap

- Develop content: identify and prioritize areas that will need to be addressed in a State Medicaid HIT Roadmap; identify key milestones, identify interdependencies and risks; define the roles of the Medicaid and other DHS/OHA agencies; develop measureable benchmarks and oversight plan; coordinate with HITOC to ensure that the Medicaid HIT Roadmap is aligned with the State Strategic and Operational plan for statewide HIE

- Draft document: Draft Medicaid HIT roadmap for State Medicaid HIT Plan

Prepare State Medicaid HIT Plan (SMHP) and Implementation Advance Planning Document (IAPD) Documents
- **Develop content:** Develop an implementation budget based on the Medicaid HIT Roadmap

- **Draft the State Medicaid HIT Plan (SMHP)** that includes 6 sections: the environmental assessment; vision of the future; steps to implement the incentives program; steps to implement the provider EHR adoption initiatives; and steps to coordinate with and implement the Medicaid-integrated HIT/HIE projects; and a Medicaid HIT Roadmap

- **Draft the Implementation Advance Planning Document (IAPD)** that requests 90% FFP to implement the State Medicaid HIT Plan

- **Finalize and submit documents:** Obtain consensus and finalize the SMHP and IAPD, submit to CMS

➤ II. Project Organization

This section describes the Medicaid HIT Planning Project Organization that will support the planning activities and successful development of the State Medicaid HIT Plan. The project organization includes State executives and knowledge experts throughout the Department of Human Services as well as contracted resources.

See Appendix A for a project organization chart that depicts the organizational structure for the Medicaid HIT Planning Project as integrated within the Statewide HIT planning structures, and Appendix D for a matrix of staffing and contractor roles by project activity. The Project organizational structure and key personnel for the Medicaid HIT Planning Project will include:

Project Sponsors – Project sponsors will be responsible for providing overall direction for the planning project and approving the State Medicaid HIT Plan. Sponsors include:

- Judy Mohr Peterson (Medicaid Director)

- Rick Howard (Chief Information Officer, DHS/OHA)

State Medicaid HIT Plan (SMHP) Steering Committee – Members of the advisory committee will meet regularly to advise and provide input into the Medicaid HIT planning process, and ensure coordination with other HIT planning and implementation efforts underway. Advisors may also participate in work group sessions to support the development of the State Medicaid HIT Plan. Advisor participation will be essential to achieving a unified approach to HIT/HIE and help promote efficiency. The Advisory Committee will include representatives from MMIS, HITOC, MITA, Behavioral Health, Public Health, and Long Term Care. The State-Designated Medicaid HIT Point of Contact will participate in SMHP Advisory Committee meetings.

State-Designated Medicaid HIT Point of Contact
Aaron Karjala (Deputy Chief Information Officer, DHS/OHA)
Contact information: 503-559-3022, aaron.karjala@state.or.us.

Medicaid HIT Planning Team – The Medicaid HIT planning team will work closely with program and policy subject matter experts and advisory committee members to carry out all aspects of the State Medicaid HIT Planning project. In particular, the Medicaid HIT planning team will work closely with the HITOC and ORHIE statewide HIE planning team. For specific breakdown of planning team roles, see Appendix D.

- **Medicaid HIT Planning Project Manager** –The Medicaid HIT planning project manager will be selected upon approval of this PAPD and will report ultimately to the Oregon Medicaid Director. The HIT planning project manager will be responsible for all project management related activities including work planning, communication planning, issue management, and project status reporting. The HIT project manager will also have overall responsibility for coordinating the development of the State Medicaid HIT Plan and serve as the liaison with the SMHP Steering Committee and Project Sponsors. To ensure the Medicaid HIT Planning project begins as early as possible, DHS/OHA anticipates hiring a temporary contractor to fill this position initially.

- **Core Medicaid HIT Planning Staff** – In addition to the Project Manager, DHS/OHA will recruit and/or hire a core team of eight staff to carry out and facilitate the planning activities, staff workgroup meetings, develop requirements for contractors, conduct research and develop materials, work closely with contractors and committees to develop content, prepare deliverables, and coordinate amongst the public and private EHR and HIE initiatives that relate to the SMHP development. These staff will include a mix of HIT systems analysts and business systems analysts.

- **Subject Matter Experts** –Subject matter experts will participate in work group sessions to support the development of the State Medicaid HIT Plan. Policy experts will provide relevant input regarding current programs and policies and how those policies will be impacted by the new program and future vision.

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- **Contractors** – To inform and facilitate the planning process, DHS/OHA anticipates hiring contractors for the following purposes: advise on HIT strategy, facilitate stakeholder and workgroup processes, conduct financial assessments and environmental scan activities (provider survey, landscape assessment, gap analysis, EHR adoption initiatives assessments), conduct data and quality metrics analysis, conduct technology architecture assessments, analyze organizational HIT capacity, advise on privacy and security plan and develop legal documents, and conduct market research and develop provider education strategies and messaging.

Incentive Program Development: DHS/OHA anticipates using workgroups and strategy teams around the following specific projects.

- **Assessing the Current Medicaid HIT Environment and Gap Analysis Team** – This group will work with a contractor to research and describe current environment of Medicaid HIT. After the vision is developed, this group will return to the environmental analysis and analyze the gap between the current and future landscapes.

- **Developing the Vision of the Future Medicaid HIT Landscape** – This workgroup will develop a robust vision of Medicaid HIT in the next five years.

- **Incentive Program Business Development** – This workgroup will define actions steps to identify eligible professionals and hospitals, establish the policy and business processes to process payments and prevent duplicate payments, and identify system and process changes that will be needed for successfully implementing the program.

- **Meaningful Use: Data and Quality** - Data and quality analysts will provide input into the new incentive payment program as it relates to quality and the tracking and reporting of meaningful use.

- **Incentive Program Technical Development** – This workgroup will define the technical systems architecture specifications and requirements for implementation of the incentive program and the reporting of meaningful use.

- **Incentive Program Oversight Mechanisms Development** – This workgroup will define the oversight mechanisms to ensure that the incentive program only provides incentives to providers who achieve meaningful use.

Provider EHR Adoption Initiatives: DHS/OHA anticipates using workgroups and strategy teams around the following specific projects, defined under the Planning Activities section of this document.

- Provider Outreach and Communications

- Privacy and Security Plan Development

- Provider EHR Loan Program

- Community Behavioral Health HIT Planning

- Public Health HIT Planning

- Long-Term Care HIT Planning

Initiatives to Promote Electronic Data-Sharing to Improve Outcomes: DHS/OHA anticipates using workgroups and strategy teams around the following specific projects, defined under the Planning Activities section of this document..

- DHS/OHA Transition and Organizational Capacity HIT Planning

- Local HIE Plan Development Grants

- HITOC and ORHIE Planning

- Health Records Bank of Oregon (HRBO) Planning

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➢ III. Project Schedule

This section describes the schedule and milestones for the completion of key events as well as DHS/OHA' vision of CMS' role throughout the planning process. **Oregon expects that a State Medicaid HIT Plan and an Implementation Advance Planning Document would be ready for CMS review no later than October 30, 2010.**

KEY EVENTS / DELIVERABLES	TARGET COMPLETION DATE	CMS ROLE
Submit the Medicaid HIT P-APD to CMS (Deliverable)	2/1/2010	
Obtain CMS Approval of the Medicaid HIT P-APD	2/15/2010	Approval
Project Start-Up	4/01/2009	
Conduct Current HIT Landscape Assessment – As-Is Environment	4/15/2010	
Develop Vision of the HIT Future – To-Be Environment	5/15/2010	
Perform a Gap Analysis	6/15/2010	
Define Specific Actions to Implement the Incentive Program	8/01/2010	
Define Specific Actions to Implement the Provider EHR Adoption Initiatives	8/01/2010	
Define Specific Actions to Implement the Medicaid-Integrated HIT/HIE Projects	8/01/2010	
Prepare Medicaid HIT Roadmap	8/28/2010	
Submit State Medicaid HIT Plan (Deliverable)	9/28/2010	
Obtain CMS Approval of State Medicaid HIT Plan	10/15/2010	Approval
Submit HIT Implementation Advance Planning Document (IAPD) (Deliverable)	10/15/2010	
Obtain CMS Approval of HIT IAPD	10/30/2010	Approval

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Section 3: Proposed Project Budget

➢ I. Resource Needs

a. State Resources

Personnel: State resource costs are based on the effort that state staff will be required to provide to manage and participate in the planning activities. This estimate is based on the projected timelines and resources that will be required to complete the State Medicaid HIT Plan deliverable within the timeframe provided in the P-APD. DHS/OHA is projecting an estimate of $1,212,952 in state resource costs for planning activities. These costs include salary and fringe benefits.

Supplies and Services for New FTE: DHS/OHA anticipates hiring up to 14.5 FTE to conduct the planning activities proposed in this P-APD. Budget estimates for supplies and services for new FTE include one-time purchases such as computers and furniture, and monthly costs such as supplies and services associated with equipping new staff. DHS/OHA anticipates a total of $247,656 for these new staff.

Other state resources: DHS/OHA anticipates $20,000 in supplies, meeting costs, and printing costs.

b. Contractor Costs

DHS/OHA will engage contractors to support the project throughout the planning and phases since it does not have enough staff with the knowledge and expertise to execute a project of this complexity and importance. DHS/OHA estimates this cost to be $2,357,810 for all of the Medicaid HIT planning activities.

c. State Travel Costs

DHS/OHA staff will travel within state to attend meetings with providers and other HIT/HIE stakeholder groups as the State Medicaid HIT Plan is being developed. State staff also expect to attend Medicaid HIT/HIE and related national conferences. Travel costs are estimated to be $27,000.

d. Multi-State Collaboration Participation

DHS/OHA would like to participate in the National Association of State Medicaid Director's multi-state collaborative. DHS/OHA believes the information, trainings and workgroups that will be provided by the collaborative will provide DHS/OHA with many benefits, such as lessons learned, as we develop our State Medicaid HIT Plan. Collaboration dues are $8,000.

The Oregon Department of Human Services certifies that it has available its share of the funds required to complete the activities described in this HIT P-APD. The State requests approval to proceed with federal funding at the above levels.

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➢ II. Estimated Budget for Planning Activities

The following table provides a breakout of the estimated costs by budget category and planning activity.
This table also presents the percentage of FFP being requested and the projected Federal and State allocations

Medicaid HIT Planning Project Estimated Budget

	ESTIMATED STATE COSTS	ESTIMATED CONTRACTOR COSTS	TOTAL COSTS	% OF FFP	STATE SHARE	FEDERAL SHARE
DHS/OHA STAFFING*						
• Medicaid (DMAP)	$799,774		$799,774	90	$79,977	$719,796
• Behavioral Health (AMH)	$105,994		$105,994	90	$10,599	$95,395
• Public Health (PHD)	$230,366		$230,366	90	$23,037	$207,329
• Long Term Care (SPD)	$76,818		$76,818	90	$7,682	$69,136
• New FTE services & supplies	$247,656		$247,656	90	$24,766	$222,890
Subtotal staffing:	*$1,460,608*	*$0*	*$1,460,608*	*90*	*$146,061*	*$1,314,547*
INCENTIVES PROGRAM						
• Contractors		$702,800	$702,800	90	$70,280	$632,520
Subtotal Incentives Program:		*$702,800*	*$702,800*	*90*	*$70,280*	*$632,520*
PROVIDER ADOPTION OF EHR INITIATIVES: CONTRACTORS						
• Provider outreach and communications planning		$170,000	$170,000	90	$17,000	$153,000
• Privacy and security planning		$150,000	$150,000	90	$15,000	$135,000
• Provider EHR loan program planning		$50,000	$50,000	90	$5,000	$45,000
• Behavioral Health		$150,000	$150,000	90	$15,000	$135,000
• Public Health		$60,000	$60,000	90	$6,000	$54,000
• Long Term Care		$30,000	$30,000	90	$3,000	$27,000
Subtotal EHR Adoption Initiatives:		*$610,000*	*$610,000*	*90*	*$61,000*	*$549,000*
MEDICAID-INTEGRATED HIT/HIE PROJECTS: CONTRACTORS						
• OHA/DHS Shared-services IT architecture planning		$350,000	$350,000	90	$35,000	$315,000
• Statewide HIE (ORHIE) planning		$472,788	$472,788	90	$47,279	$425,510
• Local HIE planning development grants		$172,222	$172,222	90	$17,222	$155,000
• Health Records Bank of Oregon sustainability planning		$50,000	$50,000	90	$5,000	$45,000
Subtotal Medicaid HIT Projects:		*$1,045,010*	*$1,045,010*	*90*	*$104,501*	*$940,509*
OTHER COSTS:						
• Misc (meeting costs, printing)	$20,000		$20,000	90	$2,000	$18,000
• State Travel Costs	$27,000		$27,000	90	$2,700	$24,300
• Multi-State Collaboration	$8,000		$8,000	90	$800	$7,200
Subtotal Other Costs:	*$49,000*	*$0*	*$49,000*	*90*	*$4,900*	*$44,100*
Total	**$1,564,608**	**$2,357,810**	**$3,922,418**	**90**	**$392,242**	**$3,530,176**

*Note, All proposed staff are within or detailed to the Oregon Medicaid Program

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Section 4: Assurances

The State of Oregon assures that the proposed State Medicaid HIT Planning Project will meet all applicable state and federal regulations including:

☒ Yes ☐ No   1) Procurement Standards (Competition/Sole Source) 45 CFR Part 95.613

☒ Yes ☐ No   2) Security/HIPAA Compliance 45 CFR Part 164

☒ Yes ☐ No   3) Software Ownership, Federal Licenses and Information Safeguarding 45 CFR 95.617

☒ Yes ☐ No   4) Information safeguarding/Access to Records 42 CFR Part 431.300

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Appendix J: Acronyms and Glossary

➤ Acronyms

ACH	acute care hospital
ACU	Alzheimers care unit
ALERT IIS	Immunization Information System
ALF	assisted living facility
APAC	all payer all claims data reporting program
ARRA	American Reinvestment and Recovery Act
CAH	critical access hospital
CCHIT	Certification Commission for Health Information Technology
CDC	U.S. Centers for Disease Control and Prevention
CMS	U.S. Centers for Medicare and Medicaid Services
DCBS	Oregon Department of Consumer and Business Services
DCIPA	Douglas County Individual Practice Association
DHS	Oregon Department of Human Services
DURSA	data usage and reciprocal sharing agreement
EHNAC	Electronic Healthcare Network Accreditation Commission
EHR	electronic health record
ELR	electronic laboratory report
EPM	electronic practice management
eRX	electronic prescribing
FQHC	federally qualified health center
HHS	U.S. Department of Health and Human Services
HIE	health information exchange
HIIAC	Health Information Infrastructure Advisory Committee
HIO	health information organization
HISPC	Health Information Security and Privacy Collaboration
HIT	health information technology
HITECH Act	Health Information Technology for Economic and Clinical Health Act
HITOC	Oregon Health Information Technology Oversight Council
IDN	integrated delivery network
IHS	Indian Health Service
IPA	independent practice association/independent physicians association
LIMS	Laboratory Information Management System
LITS	Laboratory Information and Tracking System
MHIT	Medicaid Health Information Technology
MITA	Medicaid Information Technology Architecture
MMIS	Medicaid Management Information System
MPHIE	Metropolitan Portland Health Information Exchange

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MTG	Medicaid Transformation Grant
MU	meaningful use
NF	nursing facility
NHIN	National Health Information Network
OCHIN	(community health center collaborative uses acronym only)
OED	Oregon Employment Department
OHA	Oregon Health Authority
OHFB	Oregon Health Fund Board
O-HITEC	(name of Oregon regional extension center)
OHP	Oregon Health Plan
OHPB	Oregon Health Policy Board
OHSU	Oregon Health & Science University
ONC	U.S. Office of the National Coordinator for Health IT
OPUC	Oregon Public Utility Board
ORHQN	Oregon Rural Healthcare Quality Network
ORPHEUS	Oregon Public Health Epi-User Systems
PACS	Picture Archiving and Communication System
P-APD	Medicaid Planning Advanced Planning Document
PPACA	Patient Protection and Affordable Care Act
QCorp	Oregon Health Care Quality Corporation
RCF	residential care facility
REC	regional extension center
SDE	state designated entity
SMHP	State Medicaid HIT Plan
SPHI	specially protected health information
SSA	U.S. Social Security Administration
VA	U.S. Department of Veterans Affairs

➢ Glossary

American Recovery and Reinvestment Act (ARRA)
ARRA refers to the American Recovery and Reinvestment Act, also known as the 'stimulus bill' that was signed into law on February 17, 2009. It includes $787 billion in economic stimulus for the United States economy.

Centers for Medicare and Medicaid Services (CMS)
As one of the major operating components of the Department of Health and Human Services, CMS' mission is to ensure effective, up-to-date health care coverage and to promote quality care for beneficiaries.

Certification Commission for Healthcare Information Technology (CCHIT)
Three leading HIT industry associations – the American Health Information Management Association, the Healthcare Information and Management Systems Society and The National Alliance for Health Information Technology formed CCHIT as a voluntary, private-sector organization to certify HIT products. http://www.cchit.org/

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Electronic Health Record (EHR)
An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed and consulted by authorized clinicians and staff.

Governance entity
A general term used in the strategic and operational plans to refer to the governing body for health information exchange in Oregon.

HITECH Act
The Health Information Technology for Economic and Clinical Health (HITECH) Act is a subset of ARRA that is an 'act within the act' embedded in the ARRA legislation -- about $34 billion in funding -- which is specifically aimed at helping health care providers obtain meaningful use of health information technology (HIT), including electronic health records and care coordination through health information exchange (HIE).

Health Information Exchange (HIE)
The movement of health care information electronically across organizations. HIE provides the capability to electronically move clinical information between disparate health care information systems while maintaining the meaning of the information being exchanged. The goal of HIE is to facilitate access to and retrieval of clinical data to provide safe, timely, efficient, effective, equitable, patient-centered care."

Health Information Infrastructure Advisory Committee (HIIAC)
HIIAC was established in May 2008 by Executive Order 08-09. HIIAC concluded its work in August 2009. It was tasked with making policy recommendations to: reduce barriers to health information exchange, while maintaining privacy and security of individuals' health information; establish an appropriate role for the state in maintaining and building health information infrastructure; facilitate the adoption of infrastructure standards and interoperability requirements; facilitate collaboration between statewide partners; and develop evaluation metrics to measure the implementation of health information technology and the efficiency of health information exchange in Oregon.

Health Information Organization (HIO)
Organization providing oversight and governance of HIE between its members.

Health Insurance Portability and Accountability Act of 1996 (HIPAA)
The law Congress passed in 1996 to make sure that health insurance would not stop when he or she changed employers. It also requires that health information be kept private and secure.

Health Information Security and Privacy Collaboration (HISPC)
HISPC was a national project to assess privacy and security laws and business practices with regard to the exchange of electronic health information that began in 2006 and ended July 2009. Oregon was one of the original 34 states and territories participating in this collaboration.

Health Information Technology (HIT)
Certified EHRs and other technology and connectivity required to meaningfully use and exchange electronic health information.

Health Information Technology Oversight Council (HITOC)
The Health Information Technology Oversight Council is a statutory body of governor-appointed, senate- confirmed citizens, tasked with setting goals and developing a strategic health information technology plan for the state, as well as monitoring progress in achieving those goals and providing oversight for the implementation of the plan. HITOC is currently coordinating Oregon's public and private statewide efforts in electronic health records adoption and the eventual development of a statewide system for electronic health information exchange. HITOC will help Oregon meet federal requirements so that providers may be eligible for millions of federal health information technology stimulus dollars. HITOC builds on the past work of the Health Information Infrastructure Advisory Committee (HIIAC) and the Health Information Security & Privacy Collaborative (HISPC).

HIE Registry
A centralized, standardized and comprehensive index of HIE participants within the state. Participants may include HIOs, independent provider groups or individual providers, hospitals, clinics, public health organizations, and health plans.

House Bill 2009 (HB2009)
In June 2009, the Oregon Legislature passed HB2009 establishing the Oregon Health Authority (OHA) and Oregon Health Policy Board (OHPB), which are leading the work to improve the affordability and quality of health care for all Oregonians.

Nationwide Health Information Network (NHIN)
The Nationwide Health Information Network is a set of standards, services and policies that enable secure health information exchange over the Internet. Several Federal agencies and healthcare organizations are already using NHIN technology to exchange information amongst themselves and their partners.

NHIN Direct
NHIN Direct is a project to expand the standards and service definitions that, with a policy framework, constitute the NHIN. Those standards and services will allow organizations to deliver simple, direct, secure and scalable transport of health information over the Internet between known participants in support of Stage 1 meaningful use.

OCHIN
A non-profit collaborative of 32 West Coast and Midwest community health centers with a combined database of nearly 1 million individual patients. In addition to providing practice management and electronic medical records software and services to community-based clinics, the collaborative also partners with governmental, university and community-based organizations to improve population health. Partner organization to Oregon's Regional Extension Center, O-HITEC.

Oregon Department of Human Services (DHS)
The Oregon Department of Human Services is the state's health and human services agency. It delivers cash assistance and self-sufficiency, child welfare, Oregon Health Plan, addiction (alcohol, drug, gambling) and vocational rehabilitation services, and services for seniors and people with disabilities. DHS contracts with county governments for many mental health and public health services. Its mission: Helping people to become independent, healthy and safe.

Oregon Health Authority (OHA)
The Oregon Health Authority (OHA) is a new state agency created by House Bill 2009. By July 2011, most health-related programs in the state will be joined together to form the Health Authority. Although the state is in the planning stages for organizing the new agency, work to change the health care system has already begun. The OHA is overseen by a nine-member, citizen-led board called the Oregon Health Policy Board. Members are appointed by the Governor and confirmed by the Senate.

Oregon Health Fund Board (OHFB)
The Oregon Health Fund Board, a seven-member, citizen board was established in June 2007 by the passage of the Senate Bill 329, the Healthy Oregon Act. The board was chartered with developing a comprehensive plan to ensure access to health care for Oregonians, contain health care costs, and address issues of quality in health care. The board was supported in its efforts by hundreds of volunteers serving on six committees and two workgroups. In November 2008, the board submitted a comprehensive action plan, "Aim High: Building a Healthy Oregon," to Governor Kulongoski and the Oregon Legislature, providing a blueprint for reforming Oregon's health care system.

Oregon Health Policy Board (OHPB)
The nine-member citizen Board serves as the policy-making and oversight body for the Oregon Health Authority. It is responsible for improving access, cost and quality of the health care delivery system, and the health of all Oregonians. OHPB was established through House Bill 2009.

Oregon Office of Health Information Technology (OHIT)
The newly formed Office of Health Information Technology linking Oregon Health Authority and Department of Human Services strategies for expanded HIT in Oregon. It will accelerate the necessary planning, communication, coordination and policy changes needed to advance current and future health and human service reform goals through the enabling use of information technology. This coordination will take place across the agencies within OHA and DHS, as well as with local government entities and private sector stakeholders, leading to more efficient use of public and private sector funds, better use of health data for policy decisions and ultimately, improved health outcomes. enterprise capabilities and shared services architecture within current and future health information technology plans.

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Office of the National Coordinator for Health Information Technology (ONC)
Provides leadership for the development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of health care and the ability of consumers to manage their care and safety. The National Coordinator also serves as the Secretary of Department of Health and Human Services (HHS) advisor on the development, application and use of Health Information Technology (HIT) and coordinates the department's HIT programs. http://www.os.dhhs.gov/healthit/

Personal Health Record (PHR)
A collection of health and health-related information that is controlled and owned by an individual.

Planning Advance Planning Document (P-APD)
One type of federally required document that is used by states to inform federal agencies of their intentions related to federally funded programs, and request approval and funding to accomplish their needs and objectives. The term APD refers to a Planning APD, Implementation APD, or to an Advance Planning Document Update.

Regional Extension Center (REC)
The HITECH Act authorizes a Health Information Technology Extension Program. The extension program consists of regional extension centers and a national Health Information Technology Research Center (HITRC). The regional centers will offer technical assistance, guidance, and information on best practices to support and accelerate health care providers' efforts to become meaningful users of Electronic Health Records (EHRs). In Oregon, OCHIN runs the REC, which is known as O-HITEC.

State Designated Entity (SDE)
A not-for-profit organization with broad stakeholder representation on its governing board designated by the state as eligible to receive awards under the Office of the National Coordinator for Health IT Cooperative Agreement.

U.S. Department of Health and Human Services (HHS):
The agency directed by law to administer programs involving health care, Medicare, Medicaid, family and children's services, financial self-sufficiency programs, and other human service programs of the Federal government. The federal government department that has overall responsibility for implementing HIPAA.

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Appendix K: Endorsement Letters

➢ **Organizations and Individuals Providing Letters of Support to ONC:**

Acumentra Health

Asante Health System

Bay Area Hospital

Bay Area Community Informatics Agency

Coquille Valley Hospital

DCIPA (Physicians of Douglas County)

Department of Corrections

Division of Medical Assistance Programs (State Medicaid Director), Department of Human Services/Oregon Health Authority

Dr. Bruce Goldberg, Director, Department of Human Services; Director-Designee, Oregon Health Authority

Good Shepherd Health Care System

Gorge Health Connect, Inc.

Healthcare Information and Management Systems Society Oregon (HIMSS)

Idaho Health Data Exchange, Inc.

Kaiser Permanente

Lane Individual Practice Association

Mid Rogue Independent Physicians Association

Mid Valley Independent Physicians Association

Northwest Portland Area Indian Health Board

OCHIN and Oregon Primary Care Association

O-Health Information Technology Extension Center (REC)

Oregon Academy of Family Physicians

Oregon Association of Hospitals and Health Systems

Oregon Coalition of Health Care Purchasers (OCHCP)

Oregon Health Care Quality Corporation

Oregon Health Network

Oregon Health & Science University, Department of Medical Informatics and Clinical Epidemiology, School of Medicine

Oregon Health & Science University

Oregon Medical Association

Oregon Nurses Association

Office of Rural Health

Providence Health & Services

Public Health Division, Department of Human Services/Oregon Health Authority

Representative Mitch Greenlick, Chair, House Health Care Committee

Salem Health

Southern Coos Hospital & Health Center

St. Charles Health System

State Senator Laurie Monnes Anderson, Chair, Senate Health Care Committee

Tuality Healthcare

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