



**Office for Oregon Health Policy
and Research**

**Oregon Health Information Technology
Environment Assessment**

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Oregon Health Information Technology Environment Assessment

TABLE OF CONTENTS

INTRODUCTION 1

ENVIRONMENTAL SCAN HIGHLIGHTS..... 2

 Ambulatory EHR Adoption 2

 Hospital & Health System EHR Adoption 5

 Health Information Exchange Activities 7

 IPAs and Health Plans 8

 Personal Health Record Adoption 9

 Electronic Eligibility and Claims Transactions 10

 Electronic Clinical Laboratory Ordering and Results Distribution 12

 Electronic Prescribing..... 14

 Other Health Care Delivery Settings 15

 Oregon State Government..... 16

 Telehealth and Telemedicine 18

 Other Oregon Assets to Advance HIT Adoption (partial list)..... 19

HEALTH INFORMATION EXCHANGE (HIE) ACTIVITIES REPORT..... 21

 HIE Terminology 21

 HIE Planning Efforts..... 21

 Integrated Health Systems 23

 Operational & Soon to be Operational HIEs 23

 Figure 1: Regional Coverage of Oregon HIE Efforts 25

 Appendix A: Abbreviations 27

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.

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	<p>2009 Survey: 65% of Oregon clinicians (physicians, nurse practitioners work in practices or clinics where EHRs are present compared to 44% nationally (CDC-2009)¹. 38% of surveyed practices and clinics have EHRs.</p> <p>By 2011 respondents forecast that 54% of practice organizations will utilize an EHR covering 80% of clinicians</p> <p>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.</p>	2009: Oregon remains well ahead of national adoption of EHRs. Barriers to adoption remain: cost, ROI & perceived value especially in solo and small practices.

¹ 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.

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) ² . 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

² DesRoches CM, Campbel EG, Rao SR, Donelan K, Ferris TG, Jha A, Kaushal R, Levy DE, Rosenbaum S, Shields AE, Blumentahl D. Electronic health records survey in ambulatory care -a national survey of physicians. NEJM, 359:1, July 3, 2008.

<p>FQHCs - Safety Net Clinics</p>	<p>25 FQHCs & other safety net clinics, 328 clinicians</p>	<p>2009 Survey: EHRs were in use by 60% of 25 responding organizations involving 65% of clinicians covered by the responses.</p> <p>By 2011, respondents forecast that 88% of the clinics would utilize an EHR serving 94% of the clinicians in FQHCs.</p>	<p>FQHC adoption enhanced by funding mechanisms for FQHCs and HRSA grant support.</p> <p>Most FQHCs without an EHR have implemented and EPM and are well positioned for EHR adoption.</p>
<p>Public and other clinics (public health, schools, mental health, tribal, college and other clinics)</p>	<p>44 clinics, 189 clinicians</p>	<p>2009 Survey: EHRs are in use by 23% of the 44 responding organizations involving 38% of clinicians covered by the responses.</p> <p>By 2011, respondents forecast that 46% of the clinics would utilize an EHR serving 62% of the clinicians in public and other clinics.</p>	<p>Major funding issues impact adoption of EPM and EHR systems in public and other clinics.</p>
<p>Hospital and health systems practices and clinics</p>	<p>50 practices, 2,616 clinicians</p>	<p>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.</p>	<p>Large health systems with owned or affiliated practices have made substantial EHR commitments.</p>
<p>EHR Products and Vendors</p>		<p>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.</p> <p>Not all products in use are certified (old versions) and not all product lines from a vendor with a certified product are certified.</p>	<p>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.</p>
<p>EPM Products</p>			

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.	Several health systems and hospitals upgrading systems. Delayed EHR implementation limits the potential for ARRA incentive payments.
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).	

Domain	Scope	HIT Adoption or Role in HIT Adoption	Adoption Gap or Comments
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.	

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 25).

Domain	Scope	HIT Adoption or Role in HIT Adoption	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)		<p>Several IPAs and affiliated organizations are involved in facilitating the adoption of EHRs.</p> <ul style="list-style-type: none"> - 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. 	

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		<p>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.</p> <ul style="list-style-type: none"> • 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. <p>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.</p>	<p>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.</p> <p>Further evaluation of the HRBO in light of ARRA and other HIE efforts in Oregon will be required.</p>
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

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	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 ³ . 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. ⁴	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.

³ 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)

⁴ Washington State Office of the Insurance Commissioner. Health Care Administrative Expense Analysis Blue Ribbon Commission Recommendation #6 Final Report, page 25 (11/26/07)

Domain	Scope	HIT Adoption or Role in HIT Adoption	Comments
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 HCLTF 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.

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	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.	

Domain	Scope	HIT Adoption or Role in HIT Adoption	Comments
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).	

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 15 th 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 19 th 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 11 th 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 36 th 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 27 th 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 generate 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 health 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	

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. Additional 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 health systems. The roles of BHIP in statewide HIT and HIE planning and need further analysis and discussion.

Domain	Scope	HIT Adoption or Role in HIT Adoption	Comments
DHS - Public Health		<p>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</p> <ul style="list-style-type: none"> - 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	

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.

Domain	Scope	HIT Adoption or Role in HIT Adoption	Comments
OHSU-DMICE		<p>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/</p>	<p>Interests include workforce development, regional extension centers and applied informatics.</p> <p>OHSU-DMICE is a partner organization in Oregon's Regional Extension proposal.</p>
Oregon Health Care Quality Corp		<p>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/</p>	<p>Interests include quality metrics from claims data and EHRs, HIE development, practice-based quality improvement, quality reporting metrics and consumer engagement.</p>

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.

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

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 PeaceHealth 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.

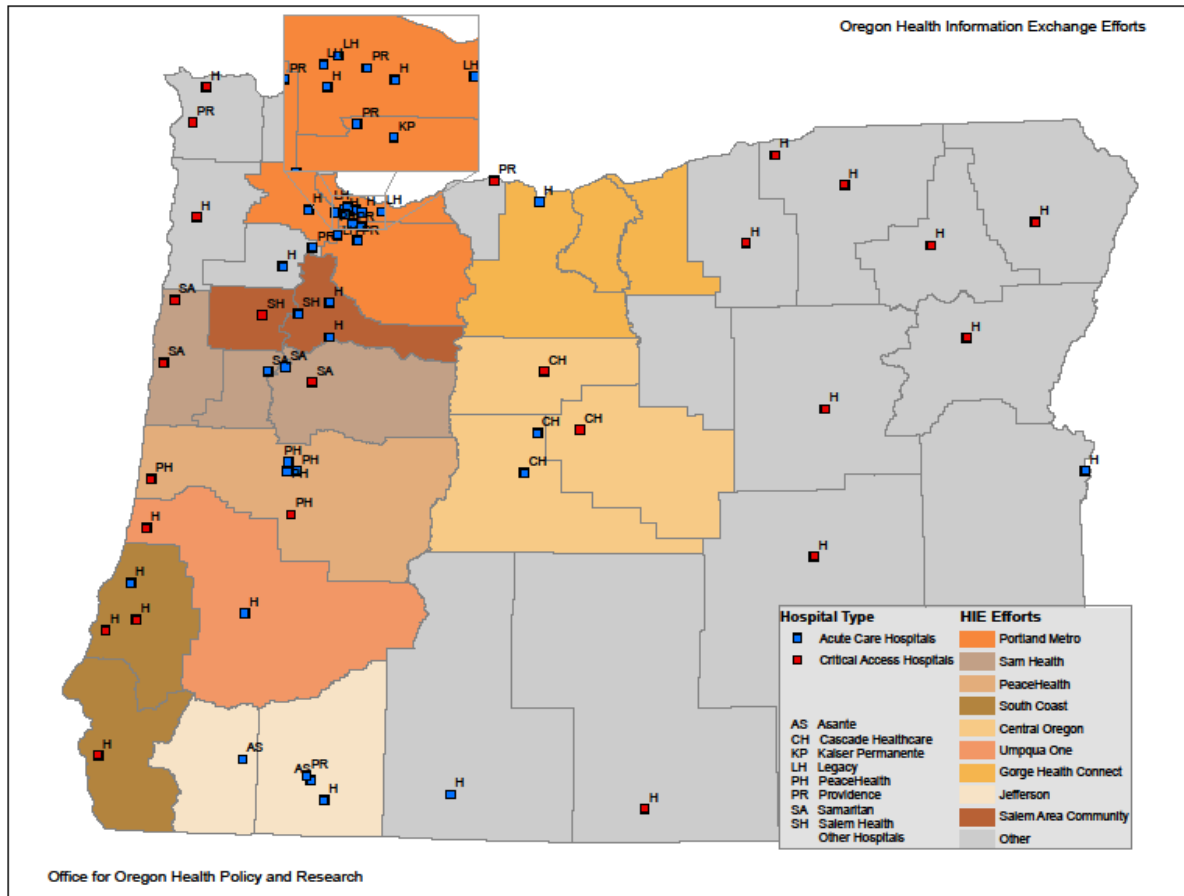
Providence Health & Services – Oregon Health Information Exchange: Providence is implementing a standards-based HIE to connect their inpatient EMR (McKesson), the outpatient EMR for their employed physicians GE Centricity), other clinical systems (Picis EDIS and others), and the EMRs of their affiliated 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.

Figure 1: Regional Coverage of Oregon HIE Efforts



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.

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).

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