

## Hawaii OpenVista ASP (Application Service Provider) Network

In 2004, President Bush signed an Executive Order calling for the implementation of interoperable Electronic Health Records (EHRs) in 10 years. EHRs are viewed as critically important to improving patient care, lowering healthcare costs, and providing the means to better monitor public health outbreaks. However, as identified in a 2004 report issued by the National Health Information Technology Coordinator, the adoption of EHRs was low and cost is one of the major barriers to widespread adoption.

Consistent with national studies, most of the healthcare providers servicing Medicaid and native Hawaiian populations in Hawaii do not have EHRs. The State of Hawaii seeks to facilitate the use and adoption of EHRs by clinics and clinicians through the establishment of the Hawaii OpenVista ASP (Application Service Provider) Network (HOVAN). The HOVAN is based on the use of Hui OpenVista, an open source version of the U.S. Dept. of Veterans Affairs Information Systems and Technology Architecture (VistA) system developed by the Pacific Telehealth and Technology Hui ("Hui"), a program of the VA and Dept. of Defense.

The primary goal of the HOVAN is to implement an innovative organizational and technical approach and model for providing and supporting EHR capabilities to Medicaid healthcare providers. This will lessen medical errors; provide and improve medication risk management; implement e-prescribing/pharmacy filling of orders to lessen costs; and implement lab interfaces to reduce redundant tests.

Specifically, the State of Hawaii, through a partnership of the Department of Human Services (DHS), the Department of Health (DOH), the University of Hawaii (UH) Telecommunications and Information Policy Group (TIPG) and UH John A. Burns School of Medicine (JABSOM) will establish a partnership to provide and support a low-cost model for EHR adoption by FQHCs, Native Hawaiian healthcare providers, and others.

The HOVAN will be established as a non-profit collaborative providing technical and clinical EHR support based on the Hui OpenVista software. During the project period, six clinics (including a federally funded HIV clinic, a federally funded geriatric center, two Federally Qualified Health Centers (FQHC) and three Native Hawaiian Health System providers) will be interconnected to the HOVAN through telemedicine links funded in part by the Universal Service Administrative Company. The ASP model will be used to maintain individual clinic EHRs on centrally located servers which can be accessed via each clinic's computer workstations. The HOVAN will interface with Practice Management Systems of clinics and automated pharmacy, laboratory, and imaging data will be implemented using (if available) software from CMS and other VistA developments. This innovative solution provides the clinic sites with access to a fully integrated EHR based on shared clinical applications and technical staff for implementation, maintenance, and enhancements to the system. Training in the use of Hui OpenVista will be provided by University of Hawaii physicians and clinical application coordinators. The total cost of the project is projected at \$3.16 million budgeted over two years.

The HOVAN will establish a means by which FQHCs and Native Hawaiian Health Care providers will be able to provide improved healthcare to Medicaid patients, incorporate the use of EHRs in clinical practices, establish a non-profit collaborative to improve patient care, and lessen costs. HOVAN will provide a model for implementation across the nation.

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# Hawaii OpenVista ASP (Application Service Provider) Network Project Narrative

The State of Hawaii proposes to establish the Hawaii OpenVista ASP Network (HOVAN) as an innovative solution for implementing a comprehensive electronic health record (EHR) system in clinics and independent healthcare providers serving Medicaid populations in Hawaii. The HOVAN will: (1) improve patient care and lessen errors through providing an EHR and automating clinical functions including pharmacy, laboratories, and imaging; (2) improve cost-effectiveness in the delivery of services through improved monitoring, services and clinical reminders (e.g., drug recommendations); and, (3) establish a cost-effective model to support widespread EHR system adoption, maintenance, and enhancements that will be required over the next decade.

There are several important and innovative aspects of the HOVAN. The HOVAN will be located at and operated by the University of Hawaii and will provide open source EHR capability (in an ASP environment) to clinics that serve large Medicaid populations.<sup>1</sup> The HOVAN will co-locate the ASP EHR with the telecommunications, distance learning, and operations infrastructure of the State Telehealth Access Network (STAN) to provide statewide education, training, and network support.<sup>2</sup> The project will then (1) implement the base EHR and automated enhancements in the clinics, including practice management, laboratory, pharmacy, and imaging interfaces and (2) develop clinical information modules for preventative health and chronic disease management. The project will seek to implement

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<sup>1</sup> All six clinics receive significant federal funding and provide services to Medicaid populations. Two are Federally Qualified Health Centers and three are part of the Native Hawaiian Health Care System. All six clinics receive considerable federal funding and have significant Medicaid patients.

<sup>2</sup> The State of Hawaii developed the State Telehealth Access Network in 1998 through the collaboration among the Hawaii Health Systems Corporation, University of Hawaii, and High Technology Development Corporation. The STAN currently cross-connects 45 discrete hospitals, clinics, and academic facilities through dedicated network connections. The network is extensively used for healthcare informatics, administrative teleconferencing, continuing medical and nursing education, and distance learning and is funded in part through the Rural Health Care Division of the Universal Service Administrative Company in accordance with the Telecommunications Act of 1996.

CMS Vista-Office EHR templates and other capabilities as they become available.<sup>3</sup> The project and application interfaces will be evaluated and a plan will be prepared to ensure a broad, statewide implementation with healthcare providers interested in using the Hui OpenVista. All software developed for this project will be made available to the CMS, Hui, and others as open source.

Hawaii has considerable experience and expertise in working with VistA and is well positioned to implement and sustain the HOVAN. The Pacific Telehealth and Technology Hui, a DoD and VA joint venture, developed Hui OpenVista from the VA Information System and Technology Architecture (VistA) and has beta-tested the ASP version of the system in two clinics.<sup>4</sup> Two private companies based in Hawaii are supporting two of the nine beta sites for the Centers for Medicare & Medicaid Services (CMS) Vista-Office EHR (VOE).<sup>5</sup> The Hui has initiated a project to examine the facilitating factors and barriers by implementing the Hui OpenVista in two Critical Access Hospitals in the Kauai region of Hawaii Health Systems Corporation,<sup>6</sup> the fourth largest public hospital corporation in the United States. The University of Hawaii has also developed the VistA Institute to provide training for VistA clinical application coordinators and system administrators.<sup>7</sup> The Department of Health and the University of Hawaii are also conducting a study on health information technology used by rural and remote hospitals and clinics and is developing an educational program in healthcare

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<sup>3</sup> The State of Hawaii is well aware of CMS VOE developments and will seek to use and/or collaborate on any available templates, interfaces, and other developments released by the CMS. Further, the State of Hawaii will provide all software and documentation developed under this agreement to the CMS and other organizations as open source resources.

<sup>4</sup> The ASP version of Hui OpenVista has been beta tested in the Geriatrics Clinic of the University of Hawaii School of Medicine and the Clint Spenser Clinic. The Physician Center at Mililani is testing the VOE in open source version. These clinics will be converted to the HOVAN.

<sup>5</sup> Mele Associates is supporting the Physician Center in Mililani, Hawaii and Blue Cliff Inc. is supporting the the Center for Women and the Family in Pendleton, Oregon. Both clinics are designated beta sites for the CMS Vista Office EHR. Blue Cliff was recently awarded a contract by the CMS through the Iowa Foundation for Medical Care to develop and test an interface with a reference laboratory in Oregon.

<sup>6</sup> The Pacific Telehealth and Technology Hui, Press Release, September 22, 2006. The research project is to explore facilitating factors and barriers to implementing EHRs in rural community health hospitals. The project will install Hui OpenVista in HHSC's West Kauai Medical Center, Samuel Mahelona, and HHSC clinics in Eleele, Kalaheo, and Waimea. The project is a partnership of the Mele Healthcare Informatics, the Hawai'i Health Systems Corporation (HHSC), Pacific Health Research Institute, the University of Hawai'i Telecommunications and Information Policy Group, and others.

<sup>7</sup> The Pacific Telehealth and Technology Hui funded the VistA Institute to provide education and training in healthcare informatics and system administrator and clinical applications coordinator training based on the VistA system.

informatics for rural and remote clinical and information technology professionals that will use Vista as its educational platform. Once the HOVAN has been established, it will be offered to all clinics and independent physicians.

The HOVAN will not only meet the needs of Medicaid clinicians in Hawaii, but also position healthcare providers in Hawaii to participate in Regional Health Information Organizations (RHIOs) as working models for patient information exchange and serve as a model for open source ASP sharing that can be replicated throughout the United States.

#### Statement of Project/Need

There is tremendous potential in EHR systems improving patient care and lowering healthcare costs. However, unfortunately, and consistent with national trends, healthcare providers serving Medicaid populations in Hawaii, especially Federally Qualified Health Centers and Hawaiian Healthcare System provider, do not have the financial resources, clinical support, and technical expertise to implement and support EHR systems. Proprietary solutions are often not financially or technically feasible for small, remote community-based health and specialty care clinics that serve Medicaid populations. Clinicians and staff at these facilities simply do not have the financial resources to implement and support comprehensive EHRs and are also having a major crisis in recruiting and retaining qualified providers and IT staff, especially in the rural and remote communities of Hawaii.

#### Project Justification

The HOVAN will contribute to improving the effectiveness and efficiency of the State's Medicaid program by establishing a non-profit, low-cost, approach to providing comprehensive EHR capabilities on a statewide basis through the use of the Hui OpenVista software in an ASP model. The implementation and demonstration of Hui OpenVista at six Medicaid clinics will strengthen State of Hawaii's capacity to meet the federally mandated quality standards for Medicaid managed care plans.

VistA and Hui OpenVista: VistA and Hui OpenVista has many built-in features that will assist healthcare providers in improving quality and efficiency of patient care. VistA is a proven healthcare information system for both in- and out-patient services used to maintain electronic health records and performance measures for 5.2 million patients seen at the Department of Veterans Affairs' network of 1,400 healthcare facilities. A comparison of VA patient care quality data with Medicare data from 2003, and with the best reported performance of other healthcare systems in the US, reveals that the VA care sets the benchmark for every one of the clinical performance indicators<sup>8</sup>. VistA and its derivatives (e.g. VOE and Hui OpenVista) are viewed as an emerging national-scale health information system that will help to increase the adoption of EHRs by independent physicians, clinics, and hospital systems.<sup>9</sup>

Since it has been developed by the VA and funded through taxpayer dollars, VistA has been made available to the public through the Freedom of Information Act (FOIA).<sup>10</sup> VistA contains more than 100 separate but integrated modules, including the Computerized Patient Record System (CPRS), an electronic health record (EHR) graphical user interface.

Hui OpenVista and the VA's VistA share the same features, functionality, scalability and reliability. The most significant difference is Hui OpenVista runs on an open source, nonproprietary operating platform whereas VistA operates on proprietary software which must be licensed.

VistA and its derivatives are capable of clinical reminders to prompt clinicians at the point-of-care to act on important health screenings based on a patient's particular health status. These clinical reminders are designed to meet clinical, best practice guidelines

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<sup>8</sup> HHS. Health IT Strategic Framework - Attachment 2: III. [The VHA Electronic Health Record](#).

<sup>9</sup> The CMS VisaOffice/EHR will be monitored and considered for adoption. At a minimum, modules and components of the VOE will be implemented as they are released by the CMS.

<sup>10</sup> The VA healthcare system is the largest integrated healthcare system in the nation, providing approximately 780,000 acute hospital admissions and over 35 million outpatient visits per year.

through easily satisfied criteria, such as scheduled laboratory tests, consistent patient education, and regular screening of health factors, all of which bring about lifestyle change and profound benefits to overall health. These reminders are satisfied using dialogues which subsequently populate the visit note and encounter information. With this capability resident in Hui OpenVista, information can be organized to advise clinicians of drug interactions, recommendations and treatment. The data can also be used for more efficient billing, statistical data mining, and tracking of health maintenance and trends on epidemiological and individualized levels. Clinical reminders will follow the U.S. Preventive Services Task Force A and B rated recommendations for health screening and the Centers for Disease Control and Prevention Guidelines for Immunizations.

The Chronic Care Model used by the community health systems encourages guideline driven care for patients with chronic disease and preventive health services. The CMS and many health plans including those in Hawaii are developing pay for performance provider incentive programs to reward providers who appropriately manage patients usually using Health Plan Employer Data and Information Set (HEDIS) measures as the core of the program. Hui OpenVista clinical reminders will be more fully developed to meet the needs of the Health Plans to improve National Committee for Quality Assurance (NCQA) and HEDIS measures and the needs of the providers to work with the Bureau of Primary Care in the Health Disparities Collaboratives. In addition, the EHR system allows population based reporting that will enable the State Medicaid to monitor care for Medicaid recipients.

Medication management is core to effective and efficient medical care. According to senate majority Leader Bill Frist (r-Tenn) 7000 U.S. residents die annually because handwritten prescriptions are misread at pharmacies. In October 2005, CMS and the Office of the Inspector General (OIG) of the Department of Health and Human Services proposed regulations to help accelerate the adoption and use of e-prescribing and EHR products. The

Hui OpenVista application provides the potential for an accurate medication list, e-prescribing, monitoring drug interactions, checking drugs against patient's allergies, and interfacing with health plan pharmacy formulary.

The ASP provides access to the patient information from authorized providers from any site with internet access 24x7. Hui OpenVista also provides the pharmacist with access to a complete medication list and drug interaction advisories to better manage medication. In addition to the clear opportunities to reduce medical errors, the addition of the health plan formularies will improve efficiency and reduce cost; and, required system improvements for ICD-10, interoperability requirements and systems advances within the VA will be less costly to implement in the Hui OpenVista ASP environment.

**Application Service Provider Model:** An ASP EHR system provides efficiencies in practice allowing providers to see more patients, the healthcare team to work more efficiently and the quality of care to effectively be monitored. In addition, the IT support is not dependent on IT resources at the individual health facilities because system wide maintenance and upgrades are conducted from a central location.

Hui OpenVista in an ASP environment addresses a number of critical barriers facing small and independent healthcare providers, especially when supported in a non-profit collaborative based in an academic institution like the University of Hawaii. The open source and ASP model substantially reduces cost and reliance on high-level IT personnel at a clinic.

The non-profit status of the support system provides assurance of sustainability and cost stability. The ASP will enable secure access from multiple remote locations (e.g., emergency room, physician home, etc.) to a fully integrated healthcare information system. The patient information in the HOVAN will be maintained in a separate and secure database at a central data center located at the University of Hawaii.

## Estimated Impact to Beneficiaries

Beneficiaries of this grant are from underserved populations on the island of Oah`u in Hawaii; close to 20,000 individuals receive comprehensive care at these six community-based healthcare facilities. Medicaid recipients range from 25-100 percent per site, whereas federally classified minorities served at each site range between 25-80 percent. Once the first phase of HOVAN has been implemented, the use will be opened to all clinics and independent physicians.

The Medicaid population in Hawaii is 13.5 percent of the population as compared to 13.6 percent nationally.<sup>11</sup> Yet, the costs to deliver care in Hawaii are among the highest in the nation. Thus, efforts to share resources are important, especially efforts that can improve health and efficiencies in the system.

The six clinics to be implemented during the two-year project include:

Clint Spencer Clinic a multi-specialty clinic focused on the care of HIV/AIDS and its complications. Clinic staff includes seven physicians and 13 clinical and research support personnel. The clinic is funded by the Department of Health and Human Services, National Institutes of Health through the National Institute of Allergy and Infectious Diseases.

The University of Hawaii Geriatric Medicine Program, founded in 1984, is one of four Geriatric Medicine Department programs in the United States. The UH Department of Geriatrics supports one geriatric clinic and 22 nursing homes throughout the state of Hawaii. With the help of nine physicians, who also serve as faculty, and the assistance of 12 fellows, these physicians are involved in providing clinical care and conducting research.

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<sup>11</sup> Kaiser Commission on Medicaid and the Uninsured, Kaiserstatehealthfacts.org, The Henry J. Kaiser Foundation

The Physician Center at Mililani is a family practice clinic and resident training site for the University of Hawaii School of Medicine Department of Family Medicine. The clinic's 31 clinicians, six medical assistants, and 15 administrative staff members serve 15,000 patients on the island of Oahu.

Ho`ola Lahui Hawai`i includes two clinics in Waimea and Kapaa on the island of Kauai. The two clinics are designated as both a FQHC and a HCHS provider. The clinics have 50 FTE clinicians and staff and serve a population of 7,500 during the past year. 25% of patients qualify for Medicaid, 33% are Native Hawaiian, and 35% are sliding fee scale.

Hui Malama Ola Na Oihi is a Hawaiian Healthcare Systems provider funded by the Health Resources and Services Administration (HRSA) that has two physicians and serves 2,000 native Hawaiians. The clinic was opened on October 12, 2006 and is rapidly growing.

The three University of Hawaii clinics named as participants in this project have all served as initial beta test sites for the ASP model of Hui OpenVista under funding from the Pacific Telehealth & Technology Hui, a DoD/VA joint venture and TATRC subsidiary<sup>12</sup>. Clint Spencer Clinic has been operating on Hui OpenVista since July 2004 and converted to the ASP model in March 2005 with all of the clinic's 250+ patients entered into the EHR. The University of Hawaii Geriatrics Department became a pilot site for the Hui Hui OpenVista ASP prototype in April 2005 and continues as an ASP subscriber today with approximately 840 patients entered into the EHR system. The Physician Center at Mililani has been operating Beta VOE on an ASP since June 2006.

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<sup>12</sup> Pacific Telehealth & Technology Hui pioneered the development of Hui Hui OpenVista, an open source version of Vista, [www.pacifichui.org](http://www.pacifichui.org)

Having successfully implemented the beta version of Hui OpenVista, these clinics are now looking to upgrade to the current version and expand the EHRs functionality to include implementation interfaces to laboratory and pharmacy to address medication risk management; and upgrade the Hui OpenVista application to the next release.

Two of the clinics are Federally Qualified Health Care providers and three are part of the federally recognized Hawaiian Health Care Systems located in the underserved areas of Kauai and Hawaii. All six clinics are full-service outpatient clinics that rely heavily on government funding. The HOVAN will provide the clinics with an affordable, low-maintenance means to access an established EHR and safeguard patient information.

#### Proposed Goals and Outcomes

The overall goal of the project is to improve the efficacy and efficiency of healthcare services to Medicaid patients in Hawaii through the adoption of electronic health records. The implementation of HOVAN at the six Hawaii state and federally qualified health centers will build a foundation for ensuring that clinics and independent physicians are positioned to use EHRs to lessen medical errors, provide and improve access to clinical reminders to improve medication risk management; implement e-prescribing and pharmacy filling of orders to lessen costs; and implement laboratory interfaces to minimize the need for redundant tests.

The HOVAN will establish an operational model to provide comprehensive EHR capabilities and support to clinicians in a cost-effective model for adoption and sustainability. The project also builds a base for an interoperable health information infrastructure that allows records to follow the patient and clinicians.

In the long term the HOVAN will provide a capability to enable the other FQHC, Native Hawaiian, and independent physicians with an inexpensive but comprehensive EHR. Additionally, as CMS and other federal agencies develop standards for processing, the HOVAN

will systematically enable the providers to respond to federally mandated quality standards for Medicaid managed care plans. The State of Hawaii is confident that the HOVAN will be able to respond to the emerging national requirements and mandates for EHRs.

### **Description of the Magnitude of the Transformation/System Change**

The magnitude of system change is monumental when viewed at both the clinic and healthcare system levels. For the FQHCs and Native Hawaiian clinics, the use of an EHR will require significant transformation in clinical practice. Not only will clinicians need to learn how to use Hui OpenVista and all of its applications, clinicians and staff will need to provide considerable time to actively participate in the planning, testing, implementation, and training in the system. The order of magnitude of change is significant for health care providers.

On a system level, the widespread adoption of an EHRs will also be monumental for healthcare providers serving Medicaid patients in Hawaii. Nationally, 85 percent of medical information is still recorded and stored on paper. Hawaii is no different. However, through the HOVAN, the State of Hawaii will establish a comprehensive EHR system capability that can be sustained and enhanced. To achieve the objective of interoperability, there will be many changes that will be required in the future. The HOVAN will be positioned to adopt these standards and lessen the burden on the clinics to implement the changes. Further, as the use of the HOVAN expands, the State will be positioned to implement enhancements that will help to ensure that the Medicaid patient are receiving care and that the services and drugs provided comply with national standards and State regulations.

### **Description of Sustainability of the Project**

The HOVAN is based on a shared, non-profit, organizational user cost model using open source software that significantly lessens the cost of system support, maintenance, and enhancements. As such, the HOVAN will be sustainable after the project funding has been

expended. Upon completion of the project, the HOVAN will be supported by user fees from clinics, and other clinics and physicians that wish to join HOVAN. The structure of the fees will be based on cost-recovery of operations and support. The HOVAN will be managed within the same administrative structure as the State Telehealth Access Network that interconnects hospitals and clinics throughout the State of Hawaii.

## Evaluation Plan

The Hawaii Hui OpenVista ASP Network project will be evaluated by the Department of Health, Department of Human Services, and the Health Policy Group of the University of Hawaii. The evaluation will be based on the project outcome objectives (see Goals, p.9) to assist in improving healthcare delivery, the adoption of EHRs by healthcare providers, and improving the efficiency and effectiveness of the Medicaid Program.

The evaluation will use qualitative and quantitative methods to determine if the project is achieving its objectives. The quantitative evaluation will be conducted through pre- and post- analysis of clinical outcomes and cost factors (e.g., e-pharmacy and lab tests). The qualitative evaluation will be based on focus groups and a survey of providers.

The project will comply with all required reporting requirements that include information on the specific uses of the grant, an assessment of the quality improvements and clinical outcomes of the project and estimates of cost savings resulting from the implementation of the project.

## Description of Project Implementation Readiness

The State of Hawaii is well prepared and qualified to implement the Hawaii OpenVista ASP Network. The HOVAN will build upon: (1) the extensive experience developed in Hawaii in the development of Hui OpenVista and through serving as a beta site for CMS VOE; (2) the network infrastructure of the State Telehealth Access Network (STAN) that provides interconnectivity among many hospitals and clinics throughout the State; and (3) the co-

developments that are occurring through the implementation of Hui OpenVista in two hospitals and three clinics of the HHSC; and (4) the collaborative of non-profit organizations that are committed to improving the healthcare of underserved populations. During the two year period, the Hawaii OpenVista ASP will provide EHR capabilities to six clinics serving Medicaid and Native Hawaii populations.

### Project Timetable

The project will be managed by the University of Hawaii and includes six major tasks to establish the HOVAN. The major tasks and timeline follows in Figure 1.

Task One will establish the HOVAN servers at the University of Hawaii and integrate it with the State Telehealth Access Network. The Hui OpenVista software will be upgraded to support ASP functionality and to add new features, functions, enhancements and fixes to bring them in line with the current release of the VA's FOIA Vista.<sup>13</sup> Existing beta sites will be converted to the HOVAN and Medicaid patients will be identified in the patient registration subsystem. Network connections will be established with the clinics and video teleconferencing systems will be installed with the STAN to facilitate meetings and for education, training, and system support. Key project personnel will meet with the CMS and the Iowa Foundation for Medical Care to determine the status of emerging software developments for pharmacy, laboratories, and imaging. Administrative agreements will be executed.

Task Two will focus on developing and implementing approaches for practice management system and building several interfaces as may be appropriate. An important consideration for all healthcare providers is to manage their practices. An EHR needs to interface with practice management to ensure that there are efficiencies in the system.

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<sup>13</sup> Since the original release of Open Source Vista, VA has made significant improvements to the system through a series of patches. In order to take advantage of the VA's development effort these patches have to be applied to the current installed systems. The benefits will include improved access to patient health information, simpler user interfaces, improved vitals data collection and graphing capabilities, updated ICD and CPT codes, and other improvements to registration, scheduling, pharmacy and labs. The tasking in this phase will update the existing applications used by the current clients and/or transfer the existing patient information to an upgraded Open Source Vista system.

Task Three will fully develop the pharmacy application to work outside the relatively controlled VA system. The private practice environment presents a number of challenges to integrate clinical information systems with pharmacy and health plans. The pharmacy interface will involve the hubs and insurers that process pharmacy transactions.

Task Four will integrate the Hui OpenVista system with the two major laboratory services in Hawaii. Currently both labs use an HL-7 interface to electronically share data with their large customers, specifically the hospitals. The laboratory interface will allow both lab result transmission and lab order entry by the provider. VistA has the ability to monitor order entry to reduce duplicate lab ordering and provide reminders when labs should be ordered for appropriate disease monitoring. Again VistA both reduces cost and improves quality.

Figure 1 - Hawaii OpenVista ASP Network (HOVAN) - Project Timeline

| Task ID | Task Name                                     | Year 1   |    |    |    | Year 2 |    |      |    |  |  |  |  |
|---------|---|--|----|----|----|--------|----|------|----|--|--|--|--|
|         |   | Q1   | Q2 | Q3 | Q4 | Q1     | Q2 | Q3   | Q4 |  |  |  |  |
| 1.0     | Establish Hawaii Open Vista ASP Network       | XXXXXXXXXX                                       |    |    |    |        |    |      |    |  |  |  |  |
| 1.1     | Transfer Beta Users                           | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 1.1     | Plan FQHC and Native Hawaiian Clinics         | XXXXXXXXXX                                       |    |    |    |        |    |      |    |  |  |  |  |
| 1.2     | Implement FQHC and Native Hawaiian Clinics    | XXXXXXXXXXXXXX                                   |    |    |    |        |    | XXXX |    |  |  |  |  |
| 1.3     | Clinical and Technical Implementation Support | XX XXX |    |    |    |        |    |      |    |  |  |  |  |
| 2.1     | Practice Management Plan                      | XXXX XX  |    |    |    |        |    |      |    |  |  |  |  |
| 2.2     | Practice Management Development               | XXXXXXXXXXXXXXXXXXXXXXXXXXXX                     |    |    |    |        |    |      |    |  |  |  |  |
| 2.3     | Practice Management Implementation            | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 3.1     | Pharmacy Upgrade-Plan                         | XXXX XX  |    |    |    |        |    |      |    |  |  |  |  |
| 3.2     | Pharmacy Upgrade-Develop                      | XXXXXXXXXXXXXXXXXXXXXXXXXXXX                     |    |    |    |        |    |      |    |  |  |  |  |
| 3.3     | Pharmacy Upgrade-Install/Test/Implement       | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 4.1     | Laboratory Upgrade-Plan                       | XXXX XX  |    |    |    |        |    |      |    |  |  |  |  |
| 4.2     | Laboratory Upgrade-Develop                    | XXXXXXXXXXXXXXXXXXXXXXXXXXXX                     |    |    |    |        |    |      |    |  |  |  |  |
| 4.3     | Laboratory Upgrade-Install/Test/Implement     | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 5.1     | Imaging Upgrade-Plan                          | XXXX XX  |    |    |    |        |    |      |    |  |  |  |  |
| 5.2     | Imaging Upgrade-Develop                       | XXXXXXXXXXXXXXXXXXXXXXXXXXXX                     |    |    |    |        |    |      |    |  |  |  |  |
| 5.3     | Imaging Upgrade-Install/Test/Implement        | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 6.1     | Preventive/Chronic Care Upgrade-Plan          | XXXX XX  |    |    |    |        |    |      |    |  |  |  |  |
| 6.2     | Preventive/Chronic Care Upgrade-Develop       | XXXXXXXXXXXXXXXXXXXXXXXXXXXX                     |    |    |    |        |    |      |    |  |  |  |  |
| 6.3     | Preventive/Chronic Care Upgrade-Install       | XXXX   |    |    |    |        |    |      |    |  |  |  |  |
| 7.0     | Annual Reports                                | XXXXXX   |    |    |    | XX XXX |    |      |    |  |  |  |  |

Task Five will implement an Imaging interface with ConnectWeb, used by the Hawaii Health Systems Corporation. The upgrade will enable the clinicians to view DICOM images.

Task Six will develop preventive care and chronic care monitoring templates for use with Hui OpenVista. These will be developed by the clinics and UH School of Medicine.

Task Seven will focus on evaluation and reporting. The establishment of the HOVAN provides an important opportunity to evaluate an organizational approach and the costs for supporting a comprehensive EHR for Medicaid healthcare providers.

### Summary

The Hawaii OpenVista ASP Network is a non-profit collaborative that will use Hui OpenVista to provide clinics and independent providers that serve Medicaid populations in Hawaii with a comprehensive EHR capability. Hawaii has had considerable experience and expertise in working with VistA and is well positioned to implement and sustain the HOVAN. The HOVAN will help to lessen the EHR implementation gap and serve as a model that can be replicated throughout the United States.

### Budget

The proposed budget to initiate the HOVAN in the State of Hawaii includes the cost of personnel to establish the servers and Hui OpenVista software; modify the Hui OpenVista and its application templates; hire contractors to program the practice management, pharmacy, laboratory, imaging, interfaces; provide modest supply and travel costs; provide training for clinicians and their staff; and, purchase the network equipment and network costs for the project. The network equipment includes the servers, routers, switches and other technology to implement the HOVAN. The network equipment also includes video conferencing systems at each site that will be used for HOVAN application system planning, training, and project management purposes.

## Project Budget - Hawaii OpenVista ASP Network

|  | FY07               | FY08               | Total              |
|--|--------------------|--------------------|--------------------|
| <b>Personnel/Fringe benefits</b>             |                    |                    |                    |
| Principal Investigator (10% time)            | \$0                | \$0                | \$0                |
| HOVAN Manager (1)                            | \$95,000           | \$95,000           | \$190,000          |
| Physician Consultants UH JABSOM (2)          | \$40,000           | \$40,000           | \$80,000           |
| Systems Administrator (1)                    | \$64,000           | \$64,000           | \$128,000          |
| Network Admin & Tech Support (1)             | \$53,000           | \$53,000           | \$106,000          |
| Vista Application Specialists (3)            | \$380,000          | \$380,000          | \$760,000          |
| Clinical Application Coordinator (1)         | \$120,000          | \$120,000          | \$240,000          |
| Researcher/Evaluation (.5)                   | \$55,000           | \$55,000           | \$110,000          |
| <b>Total Personnel</b>                       | <b>\$807,000</b>   | <b>\$807,000</b>   | <b>\$1,614,000</b> |
| <b>Contractual Cost</b>                      |                    |                    |                    |
| Base System Transfer                         | \$100,000          |                    | \$100,000          |
| Practice Management Interface                | \$200,000          | \$100,000          | \$300,000          |
| Pharmacy Interface                           | \$140,000          | \$125,000          | \$265,000          |
| Laboratory Interface                         | \$140,000          | \$100,000          | \$240,000          |
| Imaging Interface                            | \$140,000          | \$100,000          | \$240,000          |
| <b>Total Contractual Cost</b>                | <b>\$720,000</b>   | <b>\$425,000</b>   | <b>\$1,145,000</b> |
| <b>Supplies</b>                              | <b>\$4,000</b>     | <b>\$4,000</b>     | <b>\$8,000</b>     |
| <b>Travel (Neighbor island and Mainland)</b> | <b>\$13,000</b>    | <b>\$13,000</b>    | <b>\$26,000</b>    |
| <b>Equipment</b>                             |                    |                    |                    |
| Servers and Network Equipment                | \$60,000           | \$30,000           | \$90,000           |
| VTC Equipment                                | \$48,000           |                    | \$48,000           |
| <b>Total Equipment Costs</b>                 | <b>\$108,000</b>   | <b>\$30,000</b>    | <b>\$138,000</b>   |
| <b>Other Costs</b>                           |                    |                    |                    |
| T1 install + 12 months                       | \$26,500           | \$24,000           | \$50,500           |
| Off-Site Training Room                       | \$10,000           | \$10,000           | \$20,000           |
| Citrix Licences                              | \$17,600           | \$17,600           | \$35,200           |
| <b>Total Other Costs</b>                     | <b>\$54,100</b>    | <b>\$51,600</b>    | <b>\$85,700</b>    |
| <b>Subtotals</b>                             | <b>\$1,706,100</b> | <b>\$1,330,600</b> | <b>\$3,016,700</b> |
| <b>Overhead</b>                              | <b>\$85,305</b>    | <b>\$66,530</b>    | <b>\$151,835</b>   |
| <b>Totals</b>                                | <b>\$1,791,405</b> | <b>\$1,397,130</b> | <b>\$3,188,535</b> |

### Notes on the Budget

1. The personnel costs reflects above includes fringe benefits.
2. The Principal Investigator of the project at the University of Hawaii is reflected at 10% but does not show in the Medicaid Budget since it is not required. Although the Medicaid Transformation Grant does not require a match, the following are some of the matching costs that will be provided: Principal Investigator (\$20,000 per year); STAN VTC Technology Support (\$40,000 per year); and others. The project will also benefit and collaborate from the Kauai OpenVista project of the Hui and developments by the CMS in pharmacy, laboratories and imaging.