Abstract

The Department of Human Services (DHS) of the State of Hawai‘i through its agency responsible for the administration of the Hawai‘i Medicaid Program, the Med-QUEST Division (MQD), submits this proposal to design, develop and implement an electronic health record system targeting EPSDT eligibles (ages 0-20) and adults Aged, Blind, and Disabled (ABD) who will be transitioned from the current Fee-For-Service (FFS) delivery system to Medicaid managed care (MMC). The DHS proposes to implement a Privacy Rule compliant Web Portal Enhanced Electronic Health Record and Information Exchange System (E-EHRIEX) for statewide access by Medicaid providers and MMC health plans. The E-EHRIEX is separate from the Hawai‘i MMIS and will maintain beneficiary specific data derived from MMIS FFS claims and MMC encounters. The system will also support supplemental health care information from providers either through the web portal or an electronic interface. The E-EHRIEX will generate reports back to primary care providers and health plans on a timely and regular basis for macro and practice level quality monitoring. Initially, the E-EHRIEX will serve 71% of the Medicaid population with the potential to serve all beneficiaries of the program.

The implementation will be conducted in two (2) phases. Each phase will consist of development and deployment activities which will enable providers and health plans to access MMIS and supplemental data as well as for MQD to being monitoring and tracking quality service provision. The first phase will support EPSDT eligibles and the second phase will support the ABD population. The budget request for this proposal is $1,815,000.00, which will cover all costs related to software development, acceptance testing, system deployment, training and evaluation. As these goals are achieved, the following resultant outcomes can be realized:

- Establish a baseline of the fulfillment of EPSDT comprehensive services by provider for performance monitoring and target remediation at the provider or practice level.
- Improve care coordination through the medical home by enabling providers to identify and communicate their needs electronically through the web portal or through electronic interface to QUEST Care Coordinators and FFS contracted agencies.
- Increase the performance of EPSDT as it relates to participation in EPSDT comprehensive screening exams, immunizations, dental referrals, through the provision of timely provider performance information.
- Validate the ability for “adult medicine” providers to complete the EPSDT comprehensive screening exams.
- Provide a baseline of supplemental data and derived medical history for all ABD clients receiving Case Management through DHS.
- Provide enough data to ABD managed care plans to develop a strategy for prioritizing and implementing assessments for their enrollees.

The data and information provided in this project benefits all stakeholders of the State Medicaid Program. For the first time, MQD will have qualitative health care and service delivery EPSDT performance data and will be able to utilize it in a timely manner to identify and address negative health outcomes through provider training and focused quality monitoring. Providers will also be able to implement practice level quality improvement activities through the use of their data. MQD will also be able to compile health status data on ABD beneficiaries to facilitate a smooth transition to Medicaid managed care. Through the monitoring and identification of preventive care schedules, adherence to these schedules through the existing care coordination network, can only lead to a healthier Hawai‘i.

Hawai‘i Enhanced Electronic Health Record and Information Exchange (E-EHRIEX)

1. Statement of Project/Need

Description of Project

The Department of Human Services (DHS), Med-QUEST Division (MQD) is the Medicaid Agency for the State of Hawai‘i. Over the next two years, the state will realize its final implementation phase of its 1115 Waiver which will move the remaining Fee-For-Service (FFS) population of the Aged, Blind and Disabled (ABD) into the state Medicaid managed care program, QUEST. It is in this stage of pre-implementation that MQD has been able to look back and identify the strengths and challenges of the QUEST program over the last 13 years and utilize current technology to address those needs and avoid additional challenges posed by the ABD implementation.

At the start of 2007, the MQD served through both QUEST and FFS 199,215 beneficiaries. Over 51% of these beneficiaries are under the age of 21. This number will continue to grow as the state has expanded eligibility through its S-CHIP program. The hallmark of the EPSDT program is the Medical Home concept which is an approach to providing comprehensive primary care. A Medical Home is defined as primary care that is accessible, continuous, comprehensive, family centered, coordinated, compassionate, and culturally effective. The Medical Home was conceptualized in Hawai‘i and is now embraced around the world. Earlier this year, the American College of Physicians, American Academy of Family Physicians, American Academy of Pediatrics and American Osteopathic Association together, endorsed the Medical Home as the standard of care for all individuals. This concept best supports the needs of individuals with chronic illness and disability and is being used as the framework for the managed care paradigm

for the ABD population in Hawai‘i. As the Medical Home has its’ roots in pediatrics, it is logical to extend that infrastructure designed to support the EPSDT Medical Home can be generalized to serve the larger ABD population accordingly.

The Scope of this proposal is to design, develop and implement as part of a two staged deployment a Privacy Rule compliant Web Portal Enhanced Electronic Health Record and Information Exchange (E-EHRIEX) for statewide access by providers and health plans. The E-EHRIEX will maintain beneficiary specific data derived from FFS claims and encounters as well as supplemental data provided by providers either through the web portal or an electronic interface. The E-EHRIEX will generate reports back to primary care providers and health plan on a timely and regular basis for macro and practice level quality monitoring. The two stages of deployment consist of Stage 1: Full EPSDT Implementation and Stage 2: ABD Implementation. The E-EHRIEX will allow providers with the appropriate authorization to see a historical context of a person’s medical history across health plans or FFS designation. This will enable providers to better identify needed services, interventions and implement preventive protocols.

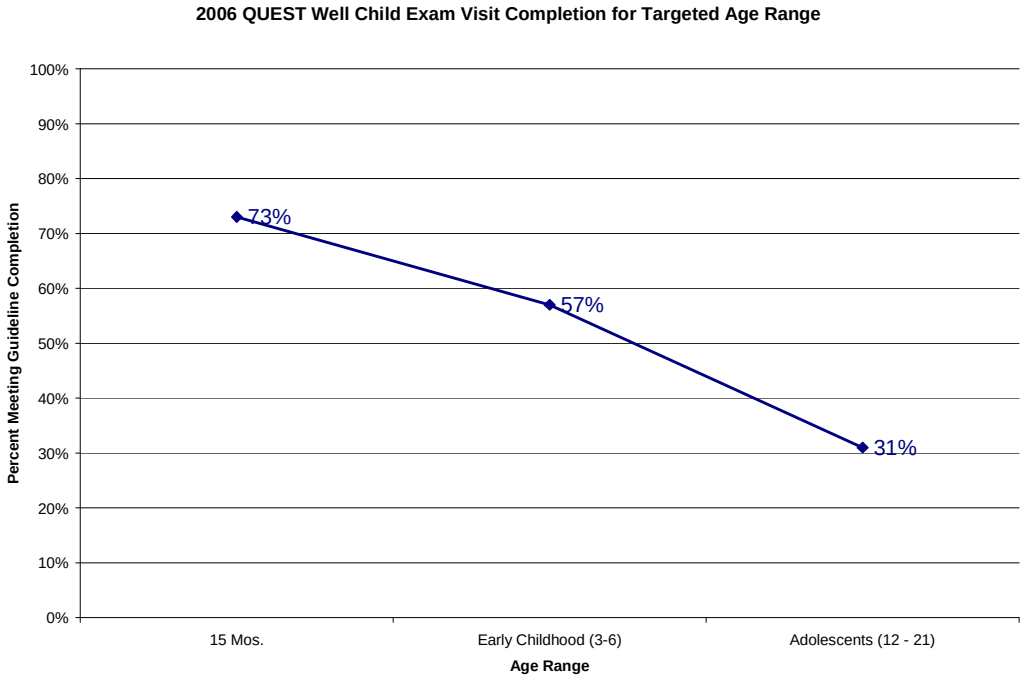
Project Need

The need for the system is grounded in both quantitative and qualitative data.

The number of children in QUEST receiving comprehensive EPSDT well child screening examinations as prescribed by the guidelines decreases as children get older.

The participation and utilization data show that families of infants and toddlers tend to partake of the EPSDT well-child screening examination benefits, more often than those of older children. While these “early” visits are very important in validating milestones addressing developmental concerns, visits at the older age range are just as important in maintaining child

health and providing the necessary opportunities for surveillance which is cornerstone to



preventive care.

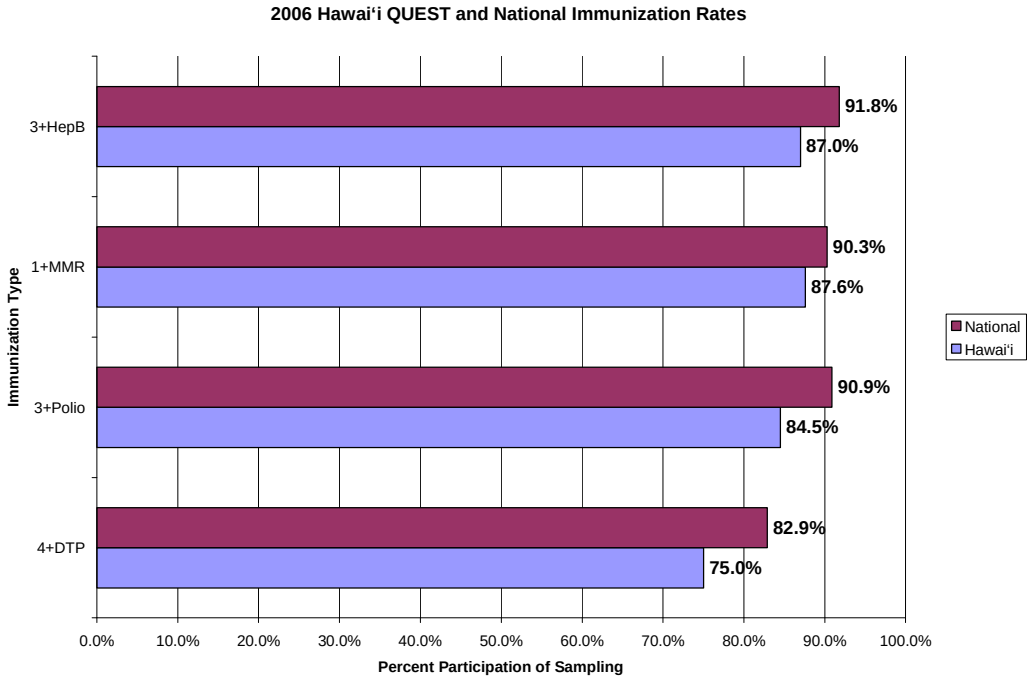
In 1994, Hawai‘i began its 1115 Managed Care Waiver, QUEST, and established the EPSDT periodicity schedule (EPS). In its formation, each managed care plan was allowed to determine the format of medical information obtained during the EPSDT comprehensive visits. The EPS and subsequent revisions were based on guidelines from the American Academy of Pediatrics. Although the framework for visits was established in the EPS, the participation in these visits decreases as the child ages. Most providers do not have a tickler or tracking system within their practice to be able to identify easily children who are due or over due for their preventive well-child visits. Providers have also expressed difficulty in contacting families and getting them in for the EPSDT exams. Care coordination has been a service provided by the QUEST plans but it

has been dependent upon 1) the provider knowing it exists and 2) the provider initiating contact with the QUEST plan over the telephone.

Effective July 1, 2007, all EPSDT providers will be required to submit service level information, referral and care coordination needs on a standardized form (Hawai‘i EPSDT Exam Form) which will be used across the QUEST and FFS programs. This paper-based solution does not accommodate the needs of providers with electronic medical records, nor does it provide a historical perspective if the child has seen more than one provider for well-child care.

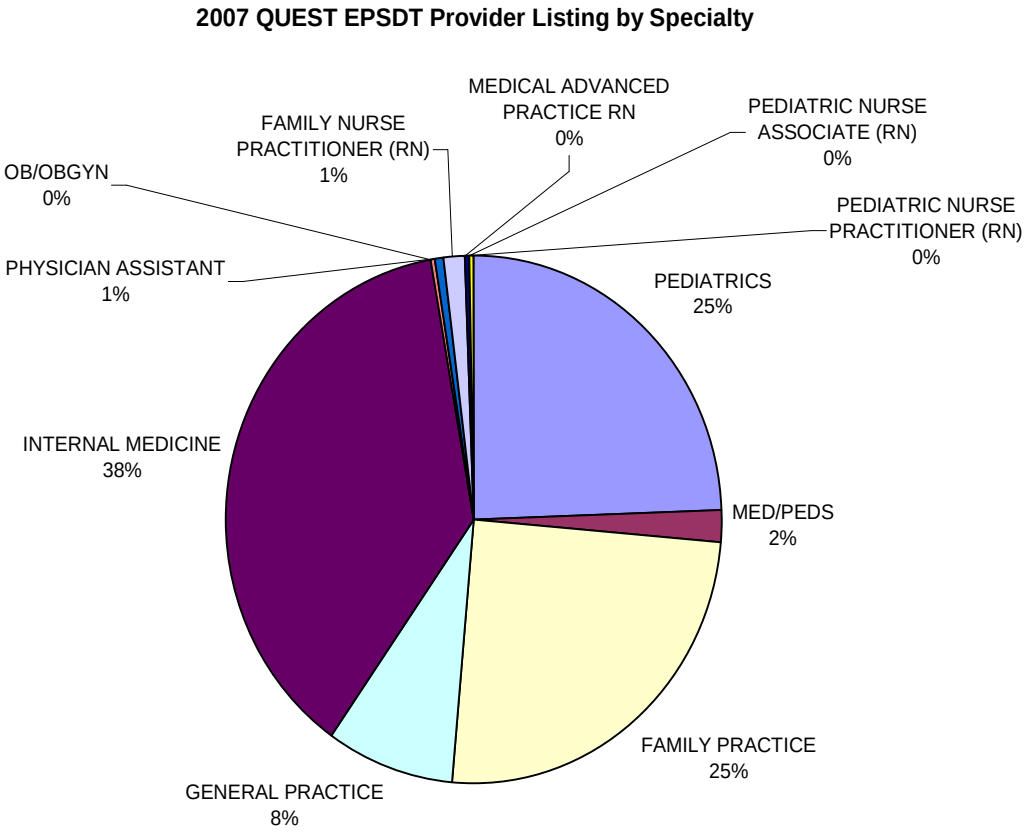
The immunization rates of children in QUEST are below the national average.

Hawai‘i is considered a border state and is a gateway from and to the Pacific. In recent times, Hawai‘i has been the site of tuberculosis and other preventable outbreaks. In looking at immunization rates at a point in time when our children are more likely to participate in the EPSDT well-child comprehensive screening visit, our numbers reported by the health plans are below the national average reported by the Center for Disease Control.



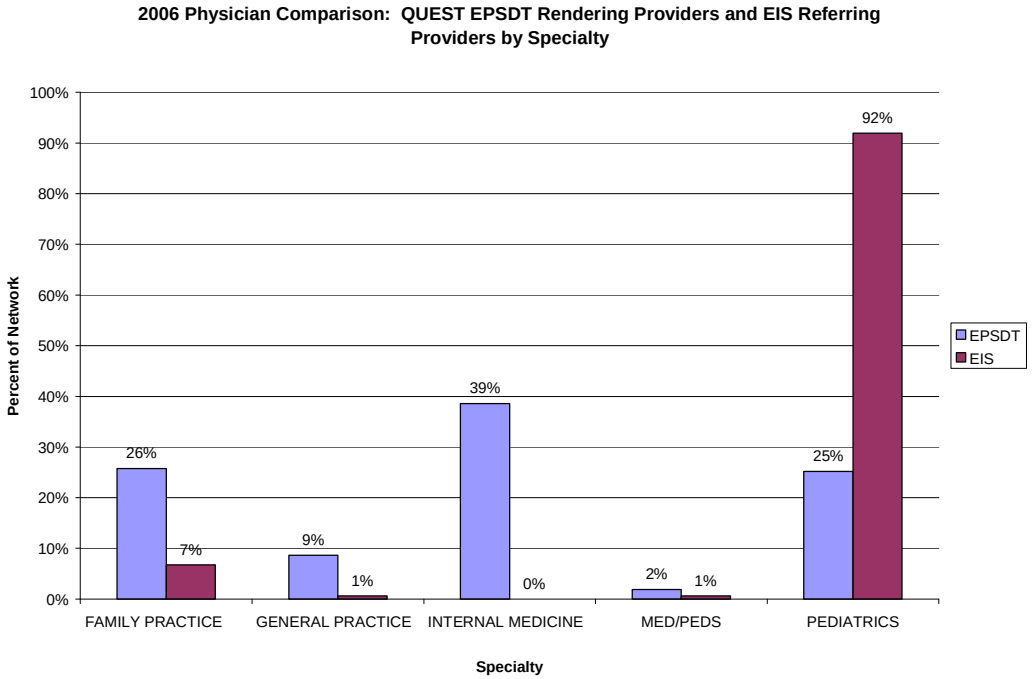
There is no centralized online registry for immunizations in our state. As a result, providers are dependent upon family recall of immunizations. Providers who are unable to administer immunizations during the EPSDT well-child comprehensive screening visit must bear the burden of trying to schedule and contact the family to return for a "catch up" visit.

47% of the QUEST EPSDT providers include physicians without formal training in pediatric preventive care beyond medical school.



While the EPS defines what is required as part of each visit, how the visit is performed is based upon the knowledge and training of the provider. Requirements related to standardized developmental screening, identification of childhood overweight, age appropriate anticipatory guidance, and the use of audio equipment for hearing screening are just a few of the targeted areas of performance as identified by the New Freedom Initiative's grantee in Hawai'i . There

currently is no baseline data to determine if "adult medicine" physicians are able to complete the EPS as envisioned by the state. There is also no systematic way to identify the number of children receiving primary care by specialty. There is further concern that "adult medicine" providers may not have the natural referral network to "pediatric specialists" or programs for children as it is not the dominant part of their practice. For example, only 16% of the QUEST EPSDT Providers have made a direct referral to the state Early Intervention Service System (EIS) of care for children with or who are at risk for developmental delay (ages birth to 3). Because of Hawai'i's broad eligibility definition for Early Intervention, which includes the environmentally at risk, it is expected that more QUEST providers would be referring to the program. The proportion of referring providers by specialty to EIS is incongruent to the proportion of EPSDT primary care providers by specialty.



As the ABD population moves into managed care, the lack of an integrated health record and information exchange will prompt health plans to perform redundant assessments which may have already been performed by state case managers and community providers.

There are approximately 40,000 beneficiaries that will be moved into managed care. All of whom, by definition as being ABD, have a chronic disease or a condition which could benefit from the management strategies offered by managed care health plans. Without access to medical information or patient history, health plans will be forced to conduct comprehensive assessments in a very short period of time which will be labor intensive. Many of the ABD beneficiaries are also served by other state and community based programs, which require ongoing assessments for program participation. There is no centralized repository or the infrastructure to confer this information.

Project Innovation

The innovation to the project lies in its ability to take information that exists and is available (encounter and claims history) and converts it into a format that is easily migrated to a HIPAA compliant, secured web server, which can be accessed with the appropriate clearances by primary care and direct treatment providers, as well as health plans. The innovation is further demonstrated by expanding the capability of the provider to augment the health record to include supplemental information that is important to the delivery of quality service which cannot be derived from claims or encounter data. This supplemental information includes but is not limited to Body Mass Index, baseline blood pressure and body temperature, special needs indicators, immunizations, information related to advanced health care directives, guardianship, communication, preferred language, etc. The web portal gives providers an opportunity to exchange information using a common and familiar interface and provides access to information

regardless of the health plan enrollment or FFS participation. Providing electronic interfaces to receive this supplemental data electronically from providers further supports their ability to use their own electronic medical record systems. By focusing on EPSDT during the first stage, it will allow MQD to gain experience in the information exchange aspect, the ability to gather supplemental data from providers, and training; and take those "lessons learned" into the second stage deployment for the ABD.

2. Project Justification

Access to data will be the primary vehicle for improving the effectiveness and efficiency of the State Medicaid program. This will be through direct access through the web portal to the E-EHRIEX which will be the centralized repository of claims/encounter history and the supplemental beneficiary level information as well as through provider reports. The web portal will allow primary care providers to review the medical history of new patients, whereby eliminating the need to re-immunize or re-do baselines tests that have already been performed. These same providers will also be able to key into beneficiaries who have under-utilized their preventive health benefits and arrange for catch up services during that visit.

A significant portion of the supplemental data will come from the Hawai‘i EPSDT Exam Report Form. This form will provide health indicators for monitoring by the state and the health plans as well as requests for care coordination assistance as an extension to the medical home. Examples of requests for care coordination include: arranging transportation, scheduling/keeping appointments, coordinating multiple appointments, obtaining dental or specialty care, obtaining foreign/sign language translation, managing medical condition and/or medications, as well as providing assistance to families needing additional assistance in following a plan of care. Providers will be able to enter data through the web portal, on

hardcopy, or transmit the data electronically. They will also be able to access the data of previous visits as well as images of the previously submitted forms. The data retrieved from the forms will be transmitted to Health Plan Care Coordinators and FFS contracted agencies that coordinate directly with the family and provide feedback to the PCP. This will enable EPSDT primary care providers redirect their previous efforts in "chasing patients" into total patient care.

Data provided back to PCPs as profiles will provide for the practice a comparison against the provider network as a whole. By quantifying the health indicators from the Hawai‘i EPSDT Exam Report Form as a statewide average and a practitioner specific total, this information can be provided as feedback to the PCP as quality improvement data which can be used to enhance quality of care. For example, as reflected in the data presented earlier, Internists and almost all of the General and Family Practice providers would receive reports indicating that they made zero referrals to EIS, but that 9% of the QUEST/FFS population as a whole has been referred. It is anticipated that this kind of data would prompt the PCP to look closely at their practice to see if they are indeed identifying children with or at risk for developmental delay appropriately.

Likewise, national guidelines and other benchmarks can be provided in comparison to the beneficiary utilization data available on the web as part of the E-EHRIEX to identify gaps in preventive care. This will become critical as the ABD population moves into managed care, as individuals with disabilities are less inclined to receive preventive care, vision and hearing screens, routine pap smears and mammograms, and dental care. As the new ABD managed care health plans build a medical home around their enrollees, they will be able to target in quickly on these gaps and have enough information to manage directly co-occurring disorders and comorbidities.

3. Project Goals and Outcomes (15 points)

Goals

There are two goals for the E-EHRIEX Project: 1) to implement a HIPAA Privacy Rule compliant Web Portal Enhanced Electronic Health Record and Information Exchange (E-EHRIEX) for statewide access by providers and health plans whose information is based upon Encounter/Claims history and supplemental information from providers and 2) to provide feedback via electronic reports to Primary Care Providers on specific targeted performance indicators (Provider Profiles) across health plans and FFS programs.

Anticipated Outcomes

As these goals are achieved, the following resultant outcomes can be realized:

- Establish a baseline of the fulfillment of EPSDT comprehensive services by provider for performance monitoring and target remediation at the provider or practice level.
- Improve care coordination through the medical home by enabling providers to identify and communicate their needs electronically through the web portal or through electronic interface to QUEST Care Coordinators and FFS contracted agencies.
- Increase the performance of EPSDT as it relates to participation in EPSDT comprehensive screening exams, immunizations, dental referrals, through the provision of timely provider performance information.
- Validate the ability for "adult medicine" providers to complete the EPSDT comprehensive screening exams.
- Provide a baseline of supplemental data and derived medical history for all ABD clients receiving Case Management through DHS.

- Provide enough data to ABD managed care plans to develop a strategy for prioritizing and implementing assessments for their enrollees.

Technological Standards

This project will meet HIPAA compliance from both the technological and operational aspects of the plan. E-EHRIEX will incorporate claims and encounter extracts from HPMMIS using industry standard transaction sets (e.g., x12, NCPDP, etc.). The development team will seek compliance with the Medicaid Information Technology Architecture standards for the web portal. All software development will follow traditional life cycle methodology and industry best practices and will be modeled after the New Mexico and Montana implementations of the Medicaid Transformation Grant funded electronic health record projects. The design of the previous awarded projects was developed with the intention that the design would be portable and could interface with any certified MMIS system. Using the tried and true methodology and design being pioneered right now in these two states, Hawai‘i has a significant vantage point to gain knowledge from these efforts.

4. Estimate of Impact to Beneficiaries

The deployment of E-EHRIEX will be statewide. The potential outreach would affect 100% of children (102,501) and ABD adults (40,348) who are served by QUEST and FFS programs. As it relates to the overall State Medicaid program, these two groups consist of 71% of the total population served.

5. Description of Magnitude of the Transformation/System Change

The ability to implement E-EHRIEX is a significant step towards transformation for the state of Hawai‘i as it will serve 71% of the Medicaid beneficiaries. Once the architecture, infrastructure and utilities are developed, MQD will be in the position to have the system utilized

on behalf of all beneficiaries. MQD has been very successful in it's collaboration to design and implement the Hawai'i EPSDT Exam Report Form. While there are similar projects being initiated by commercial health plans in Hawai'i, no one else is capturing this level of data or providing any feedback to the primary care providers. E-EHRIEX provides for the very first time an opportunity to establish benchmarks for care and treatment for all children in the QUEST and FFS Programs as well as a way to measure and monitor these quality indicators easily, and on a timely basis. The Department of Health (DOH) which administers the state's uninsured program is very interested in obtaining the same dataset utilizing the same architecture for their contracted providers. If the DOH were to deploy the E-EHRIEX, through interagency agreement, both DOH and DHS would be able to compare aggregate data comparing the two populations. This activity would provide the necessary data to affect policy change and program development at the highest level within the state.

The E-EHRIEX architecture would benefit other states seeking to capture service level information on EPSDT well child visits as well as those states that are considering the inclusion of the ABD population into their Medicaid managed are programs. There are very few states that have done so on the scale that Hawai'i is, and to have tools developed that are portable can further facilitate the process.

6. Description of Sustainability of the Project

The E-EHRIEX Project will achieve all development and deployment activities within the two year grant period. Once the system is deployed, it will be in maintenance which would only consist of migrating the encounter/claims data to the system, maintaining hardware and insuring that as standards emerge related to electronic health records, the system remains compliant. These costs would be minimal and integrated into system operations and the Fiscal Agent

contract. At the end of the grant period, provider training will be assumed as part of the health plan responsibilities and will also be written into the scope of the ABD health plan contracts.

7. Evaluation Plan

The project will utilize traditional quantitative and qualitative evaluation measures including:

- System use: access by providers, counts, frequency, length of visit, system response time
- Data quality: completion of required and optional supplemental data fields, data entry integrity errors, data submission and transmission timeliness
- Satisfaction: surveys, focus groups
- Clinical decision making: claims analysis for redundant services and compliance with preventive care schedules
- Care coordination: claims analysis for preventive service participation, length of time for referral fulfillment, immunization rates

The project will comply with the statutory reporting requirements of the new section 1903(z)(3)(c)(ii) and (iii) and produce an annual report detailing implementation tasks/timelines with milestones and status. The report will describe the specific uses of the grant funds and the status of improvement in outcomes.

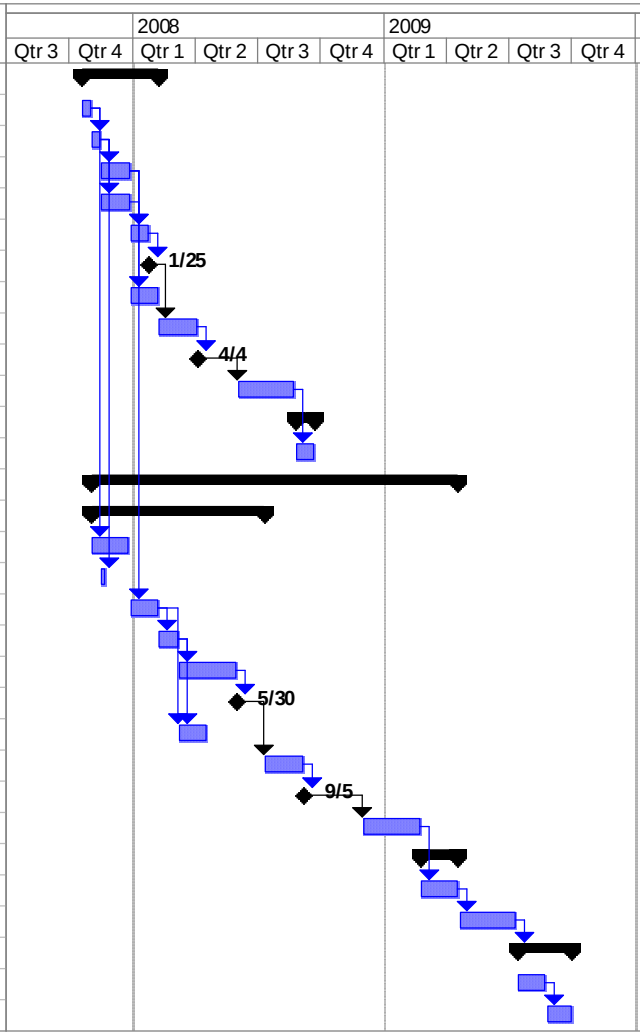
8. Description of Project Implementation Readiness

MQD has already completed the first phase of stage one, to identify the data set of the Web Portal Information Exchange for EPSDT. The following work plan includes implementation tasks and the corresponding milestones to be accomplished during the grant cycle.

9. Contact Information

The primary contact for this grant application is the MQD Acting Administrator, Lois Lee.

ID	Task Name	Duration	Start	Finish
2	**Design and Development**	**81 days**	**Thu 10/18/07**	**Thu 2/7/08**
3	Requirements Analysis	10 days	Thu 10/18/07	Wed 10/31/07
4	Database Design	10 days	Fri 11/2/07	Thu 11/15/07
5	Software Development	30 days	Fri 11/16/07	Thu 12/27/07
6	Data Conversion	30 days	Fri 11/16/07	Thu 12/27/07
7	Unit Testing	20 days	Fri 12/28/07	Thu 1/24/08
8	User Acceptance Testing	10 days	Fri 1/25/08	Thu 2/7/08
9	Operational Readiness	30 days	Fri 12/28/07	Thu 2/7/08
10	Training	2 mons	Fri 2/8/08	Thu 4/3/08
11	Deployment	1 day?	Fri 4/4/08	Fri 4/4/08
12	Evaluation	3 mons	Mon 6/2/08	Fri 8/22/08
13	**Quality Improvement**	**20 days**	**Mon 8/25/08**	**Fri 9/19/08**
14	System Modifications	1 mon	Mon 8/25/08	Fri 9/19/08
15	**Phase 2: ABD Implementation**	**382 days?**	**Thu 11/1/07**	**Fri 4/17/09**
16	**Design and Development**	**181 days**	**Thu 11/1/07**	**Thu 7/10/08**
17	Requirements Analysis	2 mons	Thu 11/1/07	Wed 12/26/07
18	Database Design	5 days	Fri 11/16/07	Thu 11/22/07
19	Software Development	30 days	Fri 12/28/07	Thu 2/7/08
20	Unit Testing	20 days	Fri 2/8/08	Thu 3/6/08
21	Data Conversion	60 days	Fri 3/7/08	Thu 5/29/08
22	User Acceptance Testing	30 days	Fri 5/30/08	Thu 7/10/08
23	Operational Readiness	30 days	Fri 3/7/08	Thu 4/17/08
24	Training	2 mons	Fri 7/11/08	Thu 9/4/08
25	Deployment	1 day?	Fri 9/5/08	Fri 9/5/08
26	Evaluation	3 mons	Mon 12/1/08	Fri 2/20/09
27	**Quality Improvement**	**40 days**	**Mon 2/23/09**	**Fri 4/17/09**
28	System Modifications	2 mons	Mon 2/23/09	Fri 4/17/09
29	Overall Integrated Evaluation	3 mons	Mon 4/20/09	Fri 7/10/09
30	**Final Quality Improvement**	**58 days**	**Mon 7/13/09**	**Wed 9/30/09**
31	System Modifications	30 days	Mon 7/13/09	Fri 8/21/09
32	System Documentation	28 days	Mon 8/24/09	Wed 9/30/09



10. Budget and Budget Justification

Estimated Budget Total $ 1,815,000.00

BUDGET	FFY 2007	FFY 2008
Personnel/Fringe benefits	0.00	0.00
Contractual cost, including consultant contracts	1,000,000.00	815,000.00
Supplies	0.00	0.00
Equipment	0.00	0.00
Other costs	0.00	0.00
Estimated Funding Requirement for each Year	$1,000,000.00	$815,000.00

MQD has chosen to outsource the development, implementation, data conversion, operation and training of the E-EHRIEX Project. MQD project staff will provide their services as an in-kind. Limitations imposed by the state legislature make it difficult to add state positions, the process to establish a short term state position, recruit and hire personnel may exceed the length of time for the contract. The budget justification for Contractual costs for each year is as follows:

FFY 2007: Software Development (including Requirements, Business Processes Analysis, Web Form Design, Testing, User Acceptance Testing), Data Model, Database Development, Database Administration, MMIS Data Conversion Utility Development, MMIS Data Conversion, Data Analysis, Web Portal Implementation, Training, Technical Support. The budget for the first year will also include the use of hardware, server storage, and software licensing.

FFY 2008: Software Development (Business Processes Analysis, Web Form Design, Testing, User Acceptance Testing) Database Administration, MMIS Data Conversion Utility Development, MMIS Data Conversion, Data Analysis, Training, Web Portal Revision, Technical Support. The budget for the second year will also include the use of additional server storage.