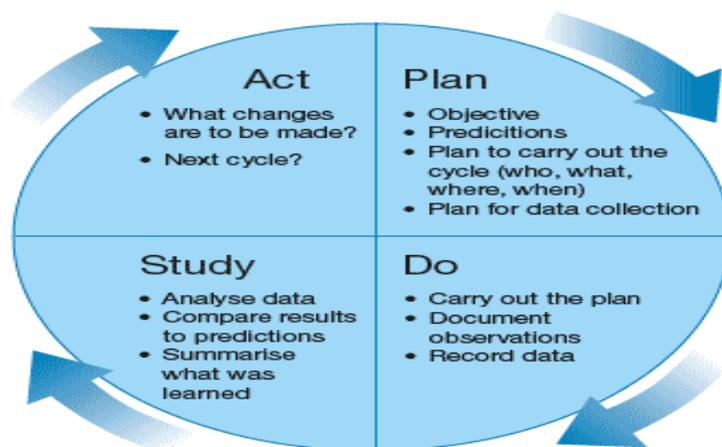


Maryland CQI Plan

Infrastructure for Driving Improvements:

Methodology:

Maryland's Continuous Quality Improvement (CQI) Process will be structured around the common CQI method, Plan, Do, Study, Act (PDSA). This method begins with the Plan phase, wherein objectives are decided upon, predictions are made, plans for the current cycle are designed, and data collection methods are ensured. Next, during the Do phase, plans are carried out with careful consideration in collecting data and observations about the effects of any given action. During the Study phase, data and observations are analyzed to learn, simply stated, what is working and what is not in relation to the questions being addressed and the CQI process itself. From this, summaries and reports are generated to inform each participant in the process and any outside observers. In the final phase, Act, discussions are held and decisions are made applying information gathered in previous phases to best improve the program in the next cycle. From here, the planning phase begins anew. The cycle is illustrated in Figure 1 below.



¹ Figure 1

Evidence has shown that this model: ²

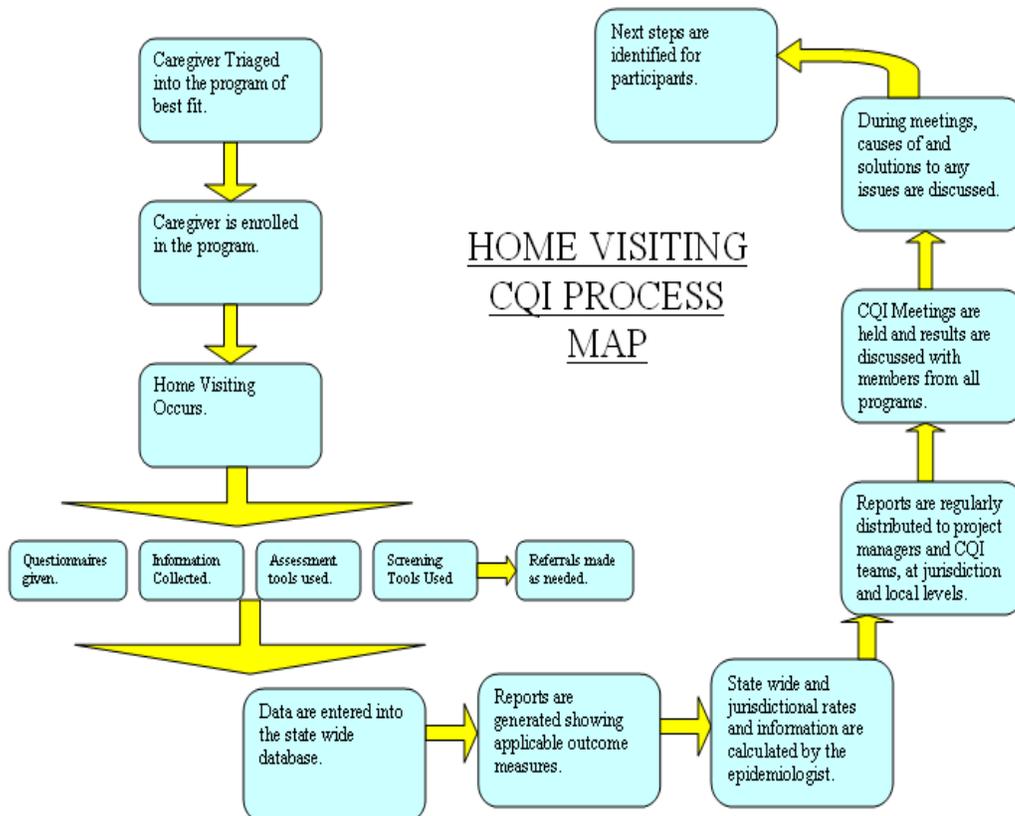
- Is applicable to all types of organizations and to all groups and levels in an organization
- Provides a framework for the application of improvement methods and tools guided by theory of knowledge:
 - Encourages planning to be based on theory

¹ Adapted from the Stritch School of Medicine, Loyola University Health System. Observed on 9/20/2012: <http://www.stritch.luc.edu/lumen/MedEd/softchalkhdht/CMEFacDevWebPage/CMEFacDevWebPage10.html>

² Ronald Moen and Clifford Norman, "Evolution of the PDCA Cycle," Observed on 9/20/2012: <http://pkpinc.com/files/NA01MoenNormanFullpaper.pdf>

- Theory leads to appropriate questions which provide the basis for learning.
- Questions lead to predictions which guide the user in identifying the necessary data, methods and tools to answer the questions relative to the theory in use.
- Emphasizes and encourages the iterative learning process of deductive and inductive learning.
- Allows project plans to adapt as learning occurs
- Provides a simple way for people to empower themselves to take action that leads to useful results in the pragmatic tradition of learning.
- Facilitates the use of teamwork to make improvements

The entire Home Visiting process resembles the following chart, which will be a useful guide in providing a map to be used during CQI process



This map provides an illustration of both the home visiting process, and how CQI is utilized therein. When problems occur, the issue can be identified and pinpointed by step in the process. This is useful for describing the problem accurately, seeking out causes, and developing solutions.

CQI is an outcome driven process, and as such, the Maryland MIECHV CQI process will focus primarily on the 35 benchmark measures of health required by the federal government. There are two other important outcomes which fit into CQI processes and will be integrated in Maryland by focusing on enrollment and retention

rates of participants in the model programs. In order for home visiting to be successful and effective in changing behavior, the home visiting intervention relies heavily on a client’s willingness and dedication to work cooperatively with home visitors to improve outcomes. If clients are refusing to enroll or leaving programs early, this is a problem as they will not be receiving the assistance they need, and other positive outcomes become non-existent. Through the use of CQI, Maryland will be able to recognize problems, attempt different solutions, and ensure clients and families are getting the assistance they need.

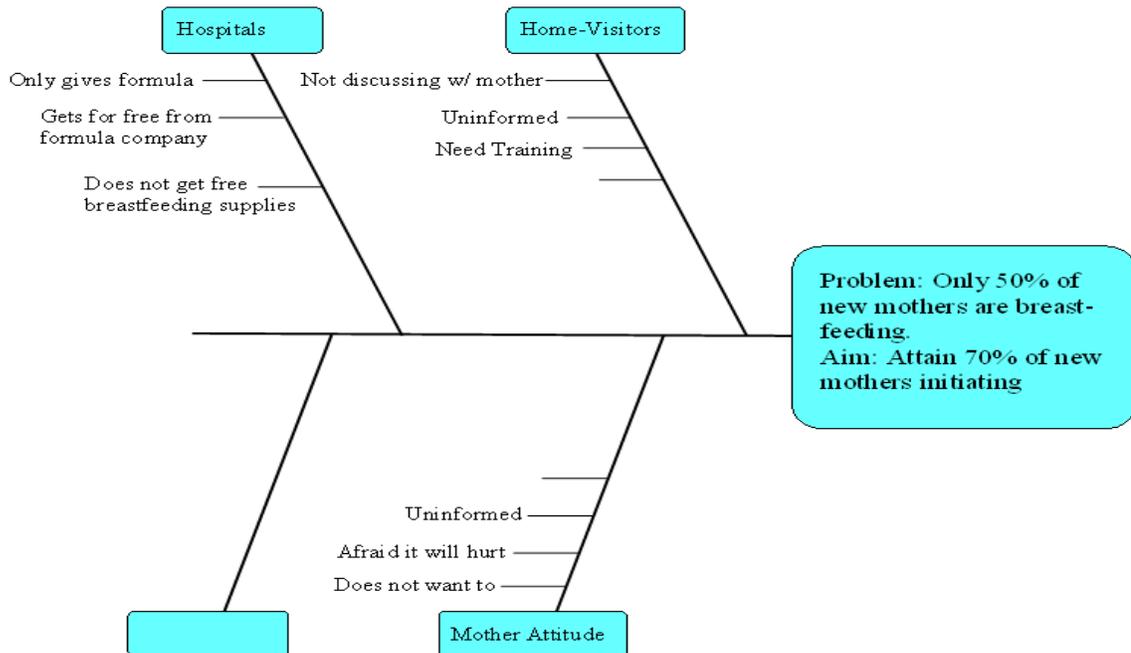
In Maryland, CQI processes will occur primarily at the site level, with assistance and guidance from the State. Tests of change will occur at the State level as needed. Informed by data and reports disseminated from the State Epidemiologist and local supervisors, each site CQI team will be able to locate and begin processes on problems. Sites will be expected to report current projects and solutions on a monthly basis to the State team leader. The State team will act as the administrative decision makers for the CQI process stated above. Most of the tests of change will take place at the home visiting sites; however, certain issues may necessitate attention and organization at the State level. For example, if mothers are not breastfeeding due to a tendency for hospitals to give out formula to new mothers, the State team will be in a unique position to work with hospitals and work toward solving the problem, which may be difficult or impossible for individual site teams. If the State team begins a process, the sites will still be involved by informing the process, and using their own relationships to assist in creating and testing solutions. For example, one of our sites is located at Sinai hospital, and working with that site, Sinai would likely be more willing to assist the State in solving the aforementioned issue. The entire CQI process will resemble the following chart:

1. Discovery: Discover the issue through reports, data analysis, observation, or sites reporting issues to the State.					
2. Research the issue: Discuss the problem with sites to accurately define the problem.					
3. Identify the problem: Following SMART criteria (specific, measurable, actionable, relevant, and time-bound) we will create an aim statement based on the defined problem.					
4. Root Cause Analysis: Work with sites to discover the true cause of this problem.					
5. Decide whether the problem should be addressed at the State or site level based on the cause and potential solutions. It could be a State, jurisdiction, or site specific issue.					
6a. State Issue: State led PDSA cycle			6b. Site Issue: Site led PDSA cycle		
7a. Plan: State will further study the cause, requesting assistance from sites and other related parties as necessary. A solution will be developed.			7b. Plan: The site or sites in question will further study the cause, requesting assistance from the State and other related parties as necessary. A solution will be developed.		
8a. Do: Tests of change will be implemented			8b. Do: Tests of change will be implemented		
9a. Study: Solutions will be evaluated for effectiveness in a time-bound manner depending on the scope and magnitude of the test. For example, less-frequently collected, longer-term benchmarks may be evaluated quarterly, while benchmarks where data is collected on a regular basis maybe evaluated monthly. This will be done by looking at outcome data.			9b. Study: Solutions will be evaluated for effectiveness in a time-bound manner depending on the scope and magnitude of the test. For example, less-frequently collected, longer-term benchmarks may be evaluated quarterly, while benchmarks where data is collected on a regular basis maybe evaluated monthly. This will be done by looking at outcome data.		
10a(i). Act: Adopt: Solution was effective: The	10a(ii). Act: Abandon: Solution was ineffective: PDSA cycle	10a(iii). Act: Adapt: Solution was ineffective, however	10b(i). Act: Solution was effective: Sites will	10b(ii). Act: Solution was ineffective: PDSA cycle will refresh,	10b(iii). Act: Adapt: Solution was ineffective, however

State will create a report of the CQI process and effectiveness of solutions to disseminate to sites and other interested entities.	will refresh, choosing a different solution. This will be done with changed assumptions or lessons learned from prior cycles.	with small changes, this strategy may be effective: PDSA cycle will refresh based off of the same strategy with the necessary changes.	create a report detailing the CQI process, findings and solutions. This will be sent to the State for dissemination to other sites and interested entities.	choosing a different solution. This will be done with changed assumptions or lessons learned from prior cycles. Report will be sent to the State for documentation purposes.	with small changes, this strategy may be effective: PDSA cycle will refresh based off of the same strategy with the necessary changes.
11. The problem, findings, process, solutions, and evaluations will be documented and kept at the State level. Results from CQI processes will be shared with home visiting sites, as well as other State agencies interested in the results. Each cycle will be described using a consistent, multi-paged file that provides descriptive information about the process, for easy reference.					

Tools and strategies that the State of Maryland plans to utilize include the following:

- **Root Cause Analysis:** This is a process used to identify the factors that resulted in the nature, the magnitude, the location, and the timing of outcomes. Once these factors are identified, logic can be used to figure out what behaviours, actions, inactions, or conditions need to be changed to prevent recurrence, or to make improvements. Teams will use the process map as the logic model for the outcome in question, and best practice strategies discovered through available research and looking at what other states and sites have done. Maryland plans to use Fishbone Diagrams for the purpose of root cause analysis.



As the sample model above indicates, this method involves thinking about and listing all the potential causes of a problem. After listing the potential causes, data and other evidence are used to deduce how each potential cause is influencing the outcome in question, the magnitude therein, and why this is happening. In our example above, it seems as though there are two root causes that explain why breastfeeding initiation is so

low. First, hospitals are giving out free formula without giving out free breastfeeding supplies, thereby encouraging mothers to use formula. Second, some of the home visitors require training about breastfeeding so they feel more comfortable discussing it with the mothers. Mothers do not seem to want to initiate breastfeeding in this case, but the cause therein is that they do not understand. It is the hospital and home visitors' job to help them understand, and the solution will come through one or both of those two avenues.

- Once the true causes of the deficiency are identified, research of existing literature will take place surrounding the problem to find best practices, or solutions that other organizations or CQI teams have attempted in working with this specific outcome. This information will be used in the design for any solution focused changes that take place. As other methods of root cause analysis are discovered, through trainings and experience with the process, Maryland will utilize different strategies based on outcome, preference, and effectiveness.
- Within Maryland, all CQI processes will be recorded, organized using standardized forms (**see Attachment A**), and disseminated so each CQI site can see every process and solution that has been attempted, how it was attempted, and the result therein. To research other states, CQI teams will be expected to use all available resources, such as databases, journal subscriptions, and Google scholar, to find evaluations and studies to inform the process.
- Benchmark Outcomes: The benchmark requirements of the home visiting system provide a spectacular mechanism for looking at outcomes. Given this, and the outcome based reports that will be provided to sites and jurisdictions, it will be relatively straightforward for data specialists and other team members to notice and begin processes on faltering outcomes.
- CQI Reporting Rubric: At the State level, a reporting rubric is being created (**see Attachment A**) that will allow both sites and the State to organize their thoughts, concerns, motivations, and outcomes of CQI processes. Each cycle that occurs will require this worksheet to be filled out. Once completed, at the end of a PDSA cycle, these files will be sent to each site and the State in order to share information. Some of the information included on each report will be the benchmark in question, the issue, the goal statement, what improvement strategy was decided upon and why, and the outcome of the process. More detailed information will be asked about each step in the process and any suggestions for future work on the outcome in question. This will provide CQI teams with a source of quick access information, to see what has been done for each issue, as well as more detailed information about the process. Sites and the State will keep these files as electronically on a local computer in order to easily access them whenever necessary. Any member of the CQI team can fill this out, so long as all the required information is present.

Involvement of Key Stakeholders:

Stakeholder input is regularly sought out and internalized at the State level. Problem solving is best accomplished and informed by diverse groups of people with different backgrounds, expertise, and knowledge within the Home Visiting system.

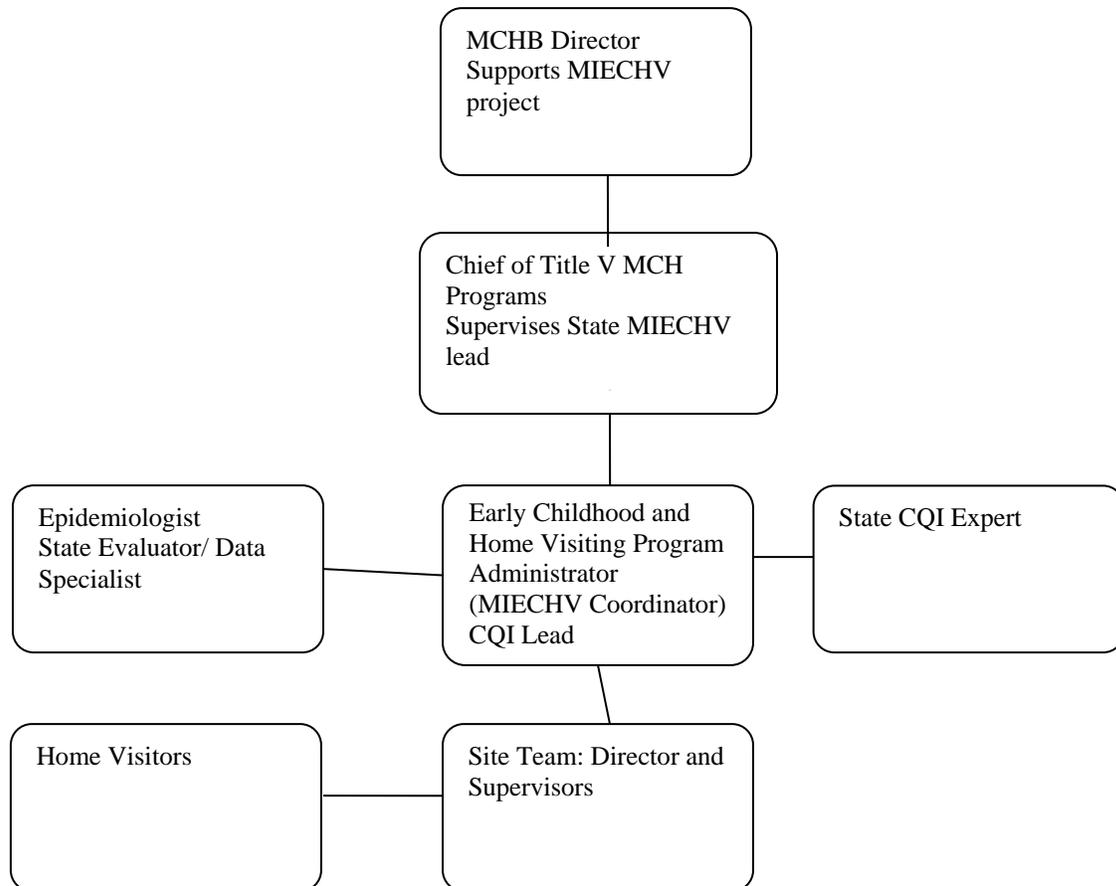
At the most recent stakeholder meeting, which focused on the topic of CQI, a lack of coordination between State agencies was noted as an issue. Many attendees wanted one database created for reporting purposes that can be used across the State in a system that requires a way to track, store, and report data across programs (i.e., home visiting, education, human services, etc.). Suggestions included a focus on benchmark data and snapshot reports for program managers and stakeholders. At the time of this meeting, the home visiting statewide data system was not yet in place.

Following the advice from our meeting, the State has implemented a number of strategies to ensure stakeholders are kept up to date and in a position to inform decisions made concerning CQI. As required by the MIECHV grant, and with input and guidance received from stakeholders, the statewide data system is currently operational. While the kinks of the new system have not been entirely worked out, baseline data has been collected and is being disseminated to sites to inform CQI processes. Currently, the State epidemiologist creates screenshots of data-entry errors, and then provides step by step instructions to each site in order to address the issue, if that is the problem. This is done monthly to provide quick, practical information, allowing the problem to be attended to in a timely manner. If simple data-entry is not the issue, the State CQI team, through their investigation will be able to determine the root cause of these errors and work to improve the outcomes. The information is sent through email. Similar errors have been repeated with some data entry personnel creating the impression that they had no knowledge of the solutions provided to address their issues. Perhaps, a more personal approach such a web conferences and/or conference calls will be more effective. Combined with the current site level monthly CQI, Maryland is confident that this will ensure a layered system of support.

In addition to these types of large, structured meetings, quarterly technical assistance is also provided to site level Home Visiting Staff. These meetings are held on a quarterly basis and allow sites, localities, and the State to share findings, best practices, information, concerns, or issues they are having with the ETO data system and the MIECHV grant and process a whole. The meetings occur to address concerns as they arise, but to also include data, CQI and training needs as standard agenda items. Representatives from every site and locality are welcome to attend for an opportunity to discuss questions and concerns with State representatives. While not specifically tailored to discuss it, they provide opportunity a dual purpose related to CQI. First, they allow the State to effectively disseminate updates, news, information, and CQI findings and strategies. Email and phone conferences are useful for this as well, but there are certain kinds of information best explained in person. Secondly, these meetings allow information to flow up the hierarchy, informing the State of any problems and solutions about the entire home visiting process, including CQI. State representatives of the

MIECHV team make themselves available for discussion on a 1v1 basis with sites or to tackle issues as a group. It is expected that the State leaders of programs will partner to address collection of data across agencies and programs for feasibility of a larger system. In addition to these meetings, both site level members and jurisdictional members are allowed and encouraged to contact State members directly with any issues, problems, ideas, or solutions.

Leadership and Accountability Structure:



The leadership and accountability structure for CQI processes will follow the above flowchart. At the State level, the head of the department provides assistance and guidance when necessary for home visiting and CQI processes. Working under the director, the Chief of Title V programs in the office provides oversight and information to several grant projects including MIECHV. The Chief of Early Childhood and Home Visiting acts as administrative head of the Maryland MIECHV program and is the primary CQI contact for jurisdictions and sites at the State level. As the leader of the State CQI team, she provides leadership, guidance, assistance, and supports MIECHV CQI efforts, as well as the point of contact between the State and the sites, and between different sites if necessary. Additionally, this individual is responsible for ensuring messages are communicated effectively from the State to the sites.

All reports and data required for accountability to the federal government are reported to State epidemiologist who collects data, analyzes it, and provides reports and recommendations to the sites. On the State team is also a CQI expert who will assist in informing the process as well as any potential solutions.

At the site level, directors and supervisors lead CQI processes being both responsible for reporting up the accountability chain and working with home visitors in CQI teams. Issues and findings will be reported to the State.

Forming CQI Teams:

The organizational structure of the teams for Maryland may look like the list below. Maryland is thinking that there should be two separate teams that may meet together at times, but should be separate in terms of levels of detail: State and site specific teams.

State Level Team Members:

Purpose: The State team will meet monthly to assess statewide data collection, processes in place for communication, quarterly technical assistance needs for sites and coordination of home visiting at the State level. Using the CQI process mentioned above, the team will be able to address areas of need and support the home visiting programs as concerns arise.

State Team Responsibilities: The State CQI team will meet on a monthly basis to review existing data, discuss current projects, and to decide upon new ones as identified by either the State or the sites. Projects will be selected as challenges are flagged and brought to the attention of the CQI teams that are reviewing data prior to and during each meeting. The team will also provide oversight and direction for all CQI initiatives statewide and lead new projects identified under the Plan Do Study Act (PDSA) cycle. State level projects will be selected if an outcome deficiency pattern is noticed across many sites. This process is supportive, not punitive, providing an opportunity to analyze State level data, disseminate findings, and collect information to inform the CQI project and enact state-level decisions and actions based on findings. The State will provide continued support and technical assistance to site CQI teams through quarterly meetings and regular contact.

State Team Members: The MIECHV coordinator, chief of MCH partnerships, and State MIECHV epidemiologist make up the State team. Additionally, State and local administrators will support the project depending on the outcome in question and the administrator's specialty. As concerns arise, State team members will invite partners from the list above with the specific area of expertise being evaluated to review the PDSA cycle and problem solve short and long term solutions. The expertise of these partners will ensure the problem identified is reviewed by experts in the area being flagged for correction. For example, if we find that domestic violence becomes an area of

concern, we would bring in the director of women's health as well as our domestic violence local partners to inform the process.

CQI Lead: MIECHV Coordinator will be the organizer of CQI processes. Responsibilities will include planning meetings and events, overseeing evaluators and epidemiologists working on CQI, existing as a point of contact for other teams' questions and concerns, and disseminating reports and other information. The MIECHV Coordinator will be the facilitator during State CQI Team meetings, assigning documentation responsibilities to other members of the CQI team who may be the CQI expert, the epidemiologist, or office research staff. The Coordinator will share the results with the site teams through email, Quarterly TA meetings and person to person meetings.

CQI Expert: The State team will include two experts in the area of CQI processes. These experts are informing the State implementation by providing suggestions and guidance on how to best organize and implement CQI in Maryland. As the State moves into regularly performing CQI, these experts will attend State CQI meetings, and continue to regularly inform the process. Although both of these individuals have been identified, funding needs to be identified to support this partnership.

Evaluator/Epidemiologist: In charge of collecting data, performing analysis and generating reports for other teams and team members. This person or persons will often be the first step in the process, noticing outcome related shortcomings and problems with the data quicker than other members. They will be expected to quickly bring this to the CQI lead's attention and to help inform the process from a data-driven perspective.

Site Team Members:

Purpose: Data will be collected, reviewed and used for "on the ground" learning and corrections to be implemented. Supervisors will use the data to improve program as well as help staff see opportunities for improvement. Individual home visitors will be able to see differences and areas of improvement to make real time corrections to visits. This is where tests of change will actually occur, and as such, site team members will have the most important responsibilities in relation to CQI. They will be responsible for testing and evaluating improvement projects thereby ensuring fidelity to the selected strategy throughout the process. Regardless of whether strategies met the necessary goal or not, these teams will be expected to document their work and actions and report results on a regular basis to the State team in the person to person meetings. For consistency of process and information sharing, this will be done using the CQI reporting rubric that is currently being organized by the State, and will be required shortly after the completion of a PDSA cycle (See Attachment A).

Site Team Responsibilities: Site teams will be expected to meet on at least a quarterly basis to start; however, as the process becomes more familiar, they will be required to meet on a monthly basis. The sites teams are responsible for collecting data, entering it into the State data system, and reviewing data (i.e., home visitors can look at their own

data; supervisors can look at data across their staff) on a monthly basis. After reviewing data, they will begin the PDSA cycle, documenting plans, strategies, and document findings using the CQI rubric. Sites have the ability to review and make changes as needed, but can also request assistance from the State team to support any changes that need to be made. Findings will be documented and reported using the same rubric, and shared with others using email and/or during CQI meetings. If applicable, these findings may be retested for validity or use in other areas of the State. If the solution is ineffective, it will be adapted or abandoned and another cycle will begin, testing a different solution. If the solution seems like it may be effective with a few tweaks or changes, it will be adapted, and evolve to be tried again

Site Team Members: The site teams consist of: site directors, who will in most cases have the authority to make the necessary changes for CQI; supervisor(s); home visitor(s); and, data entry personnel. As the team works on CQI projects, these positions are sufficient to carry out tests of change; however, in some cases the model developer may be called in to inform the process and make changes needed. The supervisors and program director will make decisions about potential strategies that they may need to test. However, as stated above, there may be a need to involve the model developer if the process in question may affect the evidence based fidelity to the model. Each site has a strong working relationship with the model developer and can use the expertise of the model developer for feedback and process review. Site teams will be expected to have a CQI Lead whose responsibilities include overseeing the process and communicating with the State and other site teams. Sites will have other CQI team members as they deem necessary. Over time, the State will gather information on the structure of each individual site CQI team for documentation.

Building a Culture of Quality:

A culture is an integrated system of learned behavior patterns which are characteristic of the members of a group or society as a whole. Within an organization, the culture influences many of the views members take on many different topics. By ensuring a culture of quality, members at every level of the MIECHV system will perform their responsibilities with a level of excellence. This culture is essential for CQI processes to function as intended, as it will allow organizational members and CQI teams to recognize areas for improvement and give them the will to find the best solutions. There are six main components to strong a culture of quality, and the Maryland MIECHV program is doing the following to ensure success:

Attitude: Members of the MIECHV system strive to reach target goals and outcomes, rather than focusing on simply doing the best job they can do. The importance of Home Visiting and the tremendous positive effects it has for clients is visible at all levels, providing meaning and buy-in for everyone to do high quality work. Currently, there are no targets for the benchmark data, and sites have a varying level of familiarity with target setting. Targets will be set by the State with input from the sites. This collaborative target setting will ensure buy-in from each site CQI team, as well as consciousness of the unique differences and challenges that each site faces. This will be done primarily

through regular email contact, which already often takes place between site members and State representatives, as well as occasional conference calls, person to person meetings and quarterly TA meetings. Through this regular contact, sites will have input into the decision that are made as well as the targets that are set. This will ensure greater buy-in and a strong opportunity to build consensus around the target set for improvement. The State will make clear to sites that CQI is not a punitive process, and underperformance is not a negative. It is a learning process, designed to make improvements, not punish shortcomings. Given the evidence based nature of each site, these outcome focused ideals are ingrained in the culture. Within some sites, this may not be the norm, but the State team will provide every assurance that no one will be punished for any shortcomings.

Transparency: Complete transparency is difficult to maintain. We have an MOU with the Department of Human Services which allows an exchange of data to obtain the rate of child abuse and neglect among participants. We can not, however, share this with individual sites. This is the only benchmark information that can not be shared due to its sensitive nature. State trend data is available, but providing site trend data is impossible. In addition, NFP will not allow all the data they collect to be shared across their program except for benchmark data. While we are most interested in benchmark data, other data can be helpful for observing correlations or root causes of the problem. However, when able, all information is shared with the sites and State. The State hosts quarterly Technical Assistance meetings every three months for the express purposes of allowing sites to share findings, best practices, information, concerns, or issues they are having. While not specifically geared towards CQI, the technical assistance meetings provide an opportunity for the representatives from the State and sites to come together and share information. Criticisms of current practices and solutions are welcome, as this is the best way to work through issues. Additionally, all information and findings will be disseminated through the use of list-serves to CQI teams as well as regular email and phone contact. Using the CQI reporting rubric, this information will be archived electronically and disseminated to all sites for easy access, providing a history of what has been done in Maryland. Sites will be expected to keep a folder containing all PDSA cycles that have taken place in Maryland. This will ensure lessons learned from past cycles inform any future CQI decisions, without repeating strategies or approaches that did not succeed in the past.

Data: The Federal Government requires all MIECHV programs to collect benchmark data on 35 important areas related to maternal and child health. This information is collected through the State operated ETO data management system; all sites who receive funding though MIECHV are required to enter data into the ETO State data system. The MIECHV epidemiologist then prepares monthly reports. These reports are tailored specifically toward individual sites. This data quality report provides and disseminates information about missing data, entry errors, and outliers in the data. The MIECHV reports will allow for trending data over time and will show performance in relation to the target. The epidemiologist, in collaboration with the ETO administrator, will create these trend reports as well as other graphs in ETO. In addition, quarterly reports are created to address the benchmark constructs. The State plans to start by looking at the

process measures that are currently available in ETO. These reports are ETO specific and restricted to the MIECHV benchmarks. The sites will not be able to produce any reports in ETO because of their user level but reports produced by the epidemiologist will be shared with all sites. While the State has yet to set targets, the infrastructure is being prepared for high quality CQI.

Commitment: In a similar fashion to attitude, commitment is ensured mainly through the visible positive effects that home visiting has for its clients. Home visitors and administrative staff receive regular training, both in person and computer based, pertaining to important or recent discoveries or foci. Most recently, many home visitors received Social Emotional Foundations in Early Learning training from the Maryland Promise Resource Center. Administration at each level provides support through supervision and information to frontline workers. In many programs, cases are reviewed regularly in a team-based setting to provide guidance, advice, and feedback. As mentioned above reports are generated monthly to provide individual site feedback. Many home visiting programs are already familiar with using data to make improvements. These organizations and sites are beholden to many other groups that require quality data-driven improvement, such as their national model offices, local management boards, and other State and federal agencies. In regards to commitment to using data for improvement, many site leaders, supervisors, and home visitors will be trained with Jack Moran to familiarize with or improve existing knowledge of CQI processes. This training, scheduled for the fall of 2013 focuses on the 10 principals of public health and how to best approach them using the Plan Do Study Act cycle. It involves a cultural assessment, ensuring that participants accept and understand the importance of CQI processes, followed by a train the trainer series, where participants will learn about the skills, strategies, and tools needed for conducting high quality CQI. While not every CQI team member and home visitor will be able to attend, it is anticipated that each site will have at least two representatives to take their lessons back and help teach colleagues to improve their skills in CQI. In addition, the jurisdictions will have an opportunity to send a member who can provide additional support to the sites in their jurisdiction.

Current Culture: The current culture is already extremely quality oriented. Each program that receives funding through the MIECHV Grant Program is a nationally accredited, evidence based program as evaluated by the US Department of Health and Human Services. Each organization's mission is well focused on furthering the goals of Maternal and Child Health through home visiting. High quality performance is expected out of every individual, and each employee receives at least an annual performance review to assist them in making improvements to their work. Because the programs are accredited, they require rigorous adherence to the model to ensure fidelity. Each program claims to have a data-driven CQI plan in place, and as such, expanding their plans to include State level teams should not be difficult or challenging for the sites. Currently, each site uses data from reports (noted above) to make decisions for improvement; however, sites also make decisions based on opinions, anecdotal evidence and trends seen by the home visitors.

As Maryland works toward a culture that values data and makes data driven decisions, the sites will continually move in the direction of using data and trends even more frequently to inform how they make decisions. Therefore, even if something is anecdotal, when it becomes a theme across families, home visitors, or sites, then it also becomes useful data.

The sites value learning from things that are not as effective. To more clearly assess underperformance, one site has developed a tool to more accurately represent the number of currently active clients including weighted caseloads. Sites may be at low capacity, but have a high weighted caseload. For example, a site may be at 54% site capacity, but because of the difficulty of the cases, they are at 90% maximum weighted caseload. This jurisdiction plans to use both site capacity and weighted caseload to get a clear picture of how well each site is doing. In addition, the reported numbers do not take into account how many clients were discharged and how many clients enrolled. Some of the sites are doing a great job of recruiting pregnant women for home visiting. However, once they are recruited and screened they often end up being referred to a different site. This model will be reviewed by the State team and hopefully rolled out to the other jurisdictions as an additional CQI tool. This system involves funneling clients through a central intake system where their case is measured on a vulnerability index. Once this information is collected, the central intake system can evaluate the case and make the appropriate referral based on program eligibility, program capacity, and client need.

Outcomes: Outcomes observed include the 35 required federal constructs as well as a number of administrative measures designed to ensure effectiveness in the program. As the MIECHV program evolves, continuous process improvements will require that strategies be tested to see if they can help improve outcomes related to a specific performance measure in our benchmarks. All sites claim to have an understanding of the benchmark outcome measures. This was assured because through many technical assistance and stakeholder meetings, sites and jurisdictions were taken through ETO system, and made comments and inquiries concerning data collection and use. These questions were answered, and improvements to the system were made until everyone had an understanding. Targets have not yet been set for outcome measures, but the State is currently discussing this issue with sites and jurisdictions.

Leverage of Current Resources:

Other expertise in CQI in State: In addition to internal design and research on the topic of CQI, the State has sought out experts and expert knowledge to help inform the development and implementation of the process.

At the State level, the CQI will include at least one expert in the area of CQI processes. This expert will be consulted regularly to inform any decision made or information gathered in the CQI process. Additionally, the Office of Home Visiting has regular contact with a Maryland State Employee who specializes in designing and assisting with the implementation of CQI for many State programs. These individuals

will provide guidance and advice during the outset of the CQI process and be contactable should their assistance be required in the future. Primarily, they will assist the State in creating a CQI rubric to disseminate to site level teams. We hope that this rubric will be a practical tool that helps the teams begin and implement PDSA cycles. It will also help ensure consistency across CQI teams, as well as provide an effective and common mechanism that will allow teams to report current proceedings to the State. The State will work jointly with these individuals to inform the CQI process and provide expertise when evaluating the correction plan and results. Working jointly will help more rapidly identify differences as they appear, so that questions can be asked and addressed immediately as well as provide an opportunity to hear varying perspectives.

In partnership with Jack Moran and the Public Health Foundation, the State will offer a training on quality improvement processes for Title V, early childhood, and home visiting program staff in Maryland. Because of the overlapping priorities and linkages within these programs, it seemed a natural fit to offer the training to partners who can continue to offer support to each other after the training is conducted. Up to 50 persons will be trained to further assist the MIECHV CQI process and assist Maryland in moving this plan forward. This training focuses on the PDSA cycle as it relates to public health. It involves a cultural assessment, ensuring that participants accept and understand the importance of CQI processes, followed by a train the trainer series, where participants will learn about the skills, strategies, and tools needed for conducting high quality CQI.

MIS Systems:

State-Wide Data System in Place:

The Maryland MIECHV utilizes Efforts-to-Outcomes (ETO) software, a product of Social Solutions Inc. ETO is a PC, web-based software compatible with Internet Explorer, preferably version 8. Prior to data collection, data entry personnel from all local sites were trained in the use of the software, and plans are being made to offer training on a monthly basis should new employees require it. Entering data into the ETO system is a requirement for all sites provided funding through MIECHV. The Home Visiting epidemiologist and the ETO administrator, Patrick O'Connor, are available for technical assistance. Issues beyond their expertise are referred to personnel at Social Solutions.

Other Systems being used:

Apart from the data required by HRSA, local sites have always collected other data required by their home visiting models. A significant amount of this data is entered into other data systems depending on the local sites. These include Program Information Management System (PIMS) Version 6, FamilyWise by Datatude Inc., E-Clinical Works (eCW), and Child Outcomes Planning and Assessment (COPA). With the exception of PIMS, all the aforementioned programs are web-based and are compatible with Internet Explorer. FamilyWise is also supported by Firefox and Safari. An unlimited number of users per site can be logged on to COPA and ECW simultaneously, whereas one person can be logged on to FamilyWise.

Data Collection and Entry:

All data is collected by home visitors at the appropriate times during standard visits. Data is entered into the various systems by a number of personnel with different expertise. These include program support technicians, home visitors themselves, and data entry personnel.

For ETO, the State epidemiologist was trained prior to implementation of the system, and provided a number of trainings to all personnel who would be entering data into the system. Maryland developed a user guide for the benchmark process and assisted the process of navigating the ETO system by cross walking the benchmarks for the three models used. The frequency of additional trainings varies by system. In some cases, training is available as needed and in others, it is on a monthly basis (particularly when there are changes to the system) through emails and webinars. There are instances where formal training is not given (i.e. supervisors with prior knowledge offer instruction to their employees on the job). Technical support is available by phone/email from the companies that produce the software in question. In addition, some sites have an onsite person who can address their needs, and may also call their models' national offices for assistance.

Unfortunately, due to the multitude of databases being used in the State, some sites have to input the same data multiple times. There is no bridge between databases at the moment, but this is a known problem, and solutions are being explored to cease this inefficiency.

If there are indicators of interest for CQI purposes that are not included in the MIECHV benchmarks, the epidemiologist will work with the data entry personnel at the various sites to obtain the necessary data on a regular basis. For example, some aspects of service utilization are not captured in the MIECHV database; however, it can be useful to determine retention rates and adherence to the program model.

Reports and Communication:

Service utilization data and certain MIECHV constructs will be tracked monthly to trend data over time. The data collection points are such that not all constructs will have data every month. Examples of such constructs are those that are collected at 12 months post enrollment. Data for each construct will be displayed for the entire state and by site/jurisdiction to determine difference in progress. This will enable comparisons so that sites/jurisdictions can draw on the strengths of counterparts.

There will be limitations to using some of the current benchmark data at the initial stages especially at the local level. There may be few or no clients that fit into the target population for certain constructs. As the amount of data increases, it will be possible to stratify by race/ethnicity, and age group.

Apart from the aforementioned outcome measures, incomplete assessments, retention rates and reasons for leaving the program will also be tracked monthly³ for the State MIECHV program as a whole and by site/jurisdiction. This will help identify sites that have issues with retaining clients, and lead to inquiries as to why retention of clients may be a problem.

The nature of the ETO data system restricts who can produce reports. ETO has standard reports, however, when sites require other customized reports, a special request has to be sent to the ETO administrator.

Targets:

The Maryland MIECHV team will set targets based on data from a number of sources. Since MIECHV data is limited at this point, the State team will solicit past data from local sites for the pertinent constructs to observe past trends, and examine local sites' current targets if any. In addition, where possible the team will utilize data from statewide epidemiological reports e.g., PRAMS, Maryland's Child Death Report. The Healthy People 2020 goals will also be considered as a form of guidance on how to establish targets.

Alignment and Integration with Benchmarks:

Incorporation of benchmark data into CQI:

The primary goal of the data collection and analysis will be for the State to understand the progress being made by the MIECHV programs in providing services and meeting the needs of home visiting program enrollees. Additionally, this benchmark data can and will be used for CQI purposes when appropriate.

The initial analysis will involve identification of any data outliers, so that any problems with data collection and transmittal can be identified and corrected quickly. The next phase will involve the aggregation of the data across programs to establish statewide baseline values for each construct. The data will then be disaggregated by home visiting program to analyze differences between the programs. Any substantial differences between sites and programs may be telling of a problem, or area of improvement where CQI can take place.

The data analysis will then progress to disaggregation of the service utilization and benchmark data by many of the demographic variables captured, including income level, race/ethnicity, household composition, children's age, language spoken, and pregnancy status. The most detailed analysis will involve comparing the benchmark and service utilization data by various demographics across home visiting programs. This

³ Although sites input data, it may not always be on a monthly schedule. Over the course of the MIECHV program, sites will be encouraged to input data on a more regular basis to ensure most recent data is available for use in CQI.

will provide even more information in which to pinpoint problems, and investigate solutions using CQI.

As the data are transmitted to the State at least quarterly, it will be possible to perform trend analysis to detect changes over the course of each year, and then over the three years for which the MIECHV program is asked to measure improvement. This quarterly data analysis will provide the best information for Continuous Quality Improvement (CQI), because the results will be available at the State level. After review of each quarter's results, it will be possible for programs to identify areas where changes might be needed in order to improve service utilization or the delivery of interventions. In addition, issues with the data will be discussed at quarterly technical assistance (TA) meetings. All home visiting data will be kept secure behind a firewall and subject to the full security policies of the Institute and DHMH. No data on individuals or families will be released or reported, except for the purpose of performing data linkages. Data transferred between agencies for this purpose will be strongly encrypted. All State staff members involved with data management and analysis will be required to take human subject protection training.

The epidemiologist will check the system monthly to review the sites' data, and subsequently provide feedback on data entry errors and missing data.

Sites have access to their data in real time from both the ETO data system as well the data system required for their model developer for accreditation. This immediate access will assist them in working on an improvement project in real time. Sites have access to reports in their own data systems, as well as ETO. This allows sites to bring problems immediately to the State's attention for support or further guidance.

Building and Sustaining CQI Infrastructure:

Plan for increasing capacity, expanding CQI, and incorporating CQI into day to day work:

The easiest manner in which to add a CQI process to the MIECHV system would be to simply sew it on as another arm of the system. However, much like adding a third arm to a sweater, this would be ineffective, impractical, and obviously terrible from an outside perspective. For CQI to be effective at making improvements, the thread must be woven throughout the entire MIEHV system. Maryland recognizes this fact, and has set out to incorporate CQI into the day to day workings of every person involved in MIECHV.

In its simplest form Continuous Quality Improvement has four steps. First it asks, "What is working here, what is not, and how can we solve the problem," in order to locate and describe areas where improvements are needed. Second it takes ideas and tests them, in an attempt to solve the problem. Third it evaluates the test, again seeing what worked, what didn't, and what was accomplished. Fourth it acts, taking information gained from the process and using it to make any more necessary changes. This step

could be full implementation across sites and jurisdictions, if the strategy or intervention was successful. It could be re-testing the solution with a different geographic location or home visitor. Or, if the strategy does not work out, this step could be beginning a new cycle, focusing on another strategy to solve the problem. When the problem is solved, CQI teams will begin looking for new problems and trying different solutions. Maryland has asked that all members of the MIECHV team keep this process in mind during their regular activities. The process is intuitive, which is one of the reasons why it is so effective, and with small guidance from supervisors and CQI team members, workers have already begun to recognize and use the process on a daily basis.

Additionally, to ensure that managers and workers are familiar and skilled with CQI processes and strategies, training will soon be provided by working with Jack Moran and The Public Health Foundation as mentioned prior.

As the experience with the process and system grows at the State level, rubrics and standard documents will be designed in order to assist sites and localities in recognizing areas of improvement, reporting the facts surrounding the issue, and recommending ideas for solving the issue. Throughout this growth, the State will seek input from more experienced colleagues, such as the CQI team within the Department of Health and Mental Hygiene, experts, stakeholders, and other team members. Maryland recognizes this is a fluid process and as such is willing to modify this plan as needed to fit the changing needs to the home visiting sites and State priorities.



Memo

To: CQI Site Team Leads

From: State of Maryland CQI Coordinator

Date: [Date]

Re: CQI Reporting

As CQI processes and plans are rolled out at the State Level it will be necessary to start documenting and tracking all the CQI efforts and processes that take place at each site. Below this memo is a CQI reporting rubric which will need to be reported after each test of change and cycle. It is designed so to give a short overview and summary of the process, such that CQI teams will be able to quickly search through and refer to past tests of change. Each site will be expected to store this information, share it with the state, and store the reports of other sites, which will be disseminated to other sites by the state.

In addition to these few page summaries, we ask that you use/ fill out, and attach some form of PDSA worksheet. This will provide more detailed information that can be accessed, studied, and learned from should other sites wish to begin similar processes. Attached in this email are a few samples of approved worksheets, but if you wish to create or find your own, that is also acceptable. However, for consistency of reporting, the reporting rubric must be filled out and provided at the beginning of each report.

CQI Reporting Rubric

Jurisdiction: _____

Starting Date: _____

Completion Date (or ongoing): _____

Program: _____

Site: _____

Construct/ Outcome of Interest:

Aim Statement:

Solution Tested:

Solution Results:

PDSA Details

In this section, please provide more details on the logic and reasoning that influenced the CQI process at each stage. Feel free to expand by providing pictures, maps, or greater details than the space allows.

Plan:

Background information: _____

Aim Statement Logic: _____

Root Cause Analysis Strategy: _____

Change Concept Tested: _____

Do:

Reasoning behind Testing this Solution: _____

Number of Families Included in the Test: _____

How Families were selected for Participation: _____

Study:

Did the results match your prediction: _____

Evaluation strategy: _____

How much improvement was made: _____

Act:

Adopted, Abandoned, or Adapted: _____

Has the process map changed? If so, please provide the new map: _____

Future plans based on the results: _____

In addition to filling out these sections, please attach any PDSA worksheets