Managing your Assessment, Feedback, Incentives, eXchange (AFIX) program:

AFIX Standards for program coordinators

2nd Edition

Centers for Disease Control and Prevention
Immunization Services Division

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Introduction

Continuous Quality Improvement (CQI) is an approach to quality management that builds upon traditional quality assurance methods by emphasizing the organization and systems. It focuses on the process and promotes the need for objective data to analyze and improve processes. CQI usually involves a common set of characteristics including a link to an organization's strategic plan; a quality improvement team; training; mechanisms for selecting improvement opportunities; a process for analysis and redesign; and an organizational culture that supports continual learning, systems, and process improvement.

AFIX (Assessment, Feedback, Incentive, and eXchange) is a continuous quality improvement (CQI) process that is used to improve provider practice and raise immunization coverage rates. The AFIX Standards are organized into two levels: Level I (required) and Level II (recommended). These standards are intended for use by the grantee program staff overseeing the AFIX program. They are designed to assist the AFIX Coordinator in implementing, managing, and evaluating the AFIX program. Within each level there are six program components, including program operations, assessment, feedback, incentives, exchange of information and program evaluation.

A Level I AFIX Program is a program that is systematically implementing the basic grant requirements of the AFIX program. A Level II Program is recommended and focuses on improving existing protocols and increasing activity, as well as developing plans for additional objectives and goals. Grantees are encouraged to consider these recommendations as part of their AFIX programs.

This guide is a compilation of AFIX materials that grantees can use in conjunction with the 2008-2012 IPOM to execute required and recommended activities for AFIX activities. Together, these two tools will allow a grantee AFIX Coordinator to manage and evaluate an AFIX Program at a program level and will allow staff working on AFIX to have all AFIX guidance materials accessible in one place. The following pages list the required and recommended activities for each of the six program components.

Should you have any questions regarding this AFIX guidance document, please contact Nathan Crawford at ncrawford2@cdc.gov or 404.639.8242.

The *program operations* component provides a foundation for implementing a fundamentally sound AFIX program that includes methods for planning, implementing and managing an AFIX program. This component will also include clearly defined procedures for training and guiding staff members on AFIX protocols as the program develops over time.

Level I AFIX Program (Required)

A Level I AFIX Program must include the following Program Operation standards in the written protocol and be available to AFIX field staff at all times:

1. Clearly defined measurable short and long-term objectives. Objectives should be specific, measurable, achievable, realistic and time-phased (SMART) and should align with federal and state quality improvement goals related to AFIX. Grantees may want to consider and include Healthy People 2010 goals when stating short and long-term objectives.

2. Clearly defined methods for identifying eligible providers (e.g., all VFC-enrolled sites or a sub-group of VFC-enrolled sites) and for then selecting and prioritizing at least 25% of those providers to receive AFIX visits. Selection and prioritization of providers should include those with a high volume of patients, low coverage levels measured either by the grantee Immunization Information System (IIS) or a previous AFIX visit, or other local characteristics that may indicate that participation in the AFIX process would be of value.

3. Annually review all AFIX protocols and job descriptions and update as needed. Grantees should consider job descriptions and work scope as it pertains to meeting AFIX goals and objectives.

4. Clearly defined procedures for AFIX staff members to follow when issues beyond the scope of AFIX have been discovered. These procedures should include which staff member should be informed of which issue.

5. Clearly defined plan for training AFIX staff members. Plan should include a curriculum for training new employees as well as periodic training updates for existing employees.

6. Clearly defined methods for supervising and monitoring AFIX staff members' progress at conducting the annual AFIX site visits. Methods may include: definition of key indicators for assessing progress and frequency of assessing progress.

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in Program Operations Level I as well as include the following standards in the written protocol and be available to AFIX field staff at all times:

1. Assist providers who wish to conduct their own internal assessments with strategies related to methodology, data collection, analysis, and presentation with practice staff and the immunization program.

2. Expand collaboration with other health care organizations (see Appendix C), such as managed care organizations, to develop methods to reduce provider burden related to multiple record reviews on preventive health services.

Assessment provides a standardized method to collect and analyze data and information.

Assessment provides valuable opportunities to understand practice patterns that may encourage or unintentionally discourage the delivery of immunizations to the practice's patient population.

Level I AFIX Program (Required)

A Level I AFIX Program must contain the following Assessment standards in the written protocol and be available to AFIX field staff at all times:

1. Clearly defined procedures for contacting providers, scheduling site visits, and documenting communication with providers.

2. Clearly defined assessment parameters including:
    a. Assessment methodology
    b. Number of records to be included
    c. Age range of children to be assessed
    d. Inclusion Criteria/Active Patient (it is recommended that the same definition be used for all AFIX activities)
    e. Immunization series/antigens to be assessed
    f. Demographic data fields to be collected
    g. Moved or gone elsewhere (MOGE)

3. Clearly defined methods (see Appendices D and F) for selecting the assessment group (whether sample or population). Methods may include procedures for the following scenarios:
    a. Practice has fewer patients than the target sample size
    b. Practice can provide an electronic list of patients
    c. Practice cannot provide an electronic list of patients

4. Separate protocols for assessment procedures (e.g. Hybrid Assessment vs. Standard Assessment) exist if assessment methods differ among provider types (e.g. private vs. public providers). If different assessment procedures are used for different situations, each situation should be described and included in the Assessment Protocol.

5. Clearly defined methods for supervising and monitoring AFIX staff members' implementation of the Assessment Protocol.

6. Annually review assessment policies and staff activities to ensure quality assessments are conducted.

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in Assessment Level I as well as include the following standards in the written protocol and be available to AFIX field staff at all times:

1. Use the Immunization Information System (IIS) for assessment.
    a. Establish a working relationship with the IIS team to ensure the registry can meet assessment needs.
    b. Work with the IIS team to develop a written plan that explores the possibility of abstracting registry data in place of chart data for the assessment of immunization practices.
    c. Implement the use of registry data for assessment in public and private provider offices.

        i. Develop and implement written protocols on which provider sites will be assessed using registry data.
        ii. Develop and implement written protocols for continuous monitoring of the quality of registry data used for assessments.

Feedback is the process of informing immunization providers and staff about observations and results from the Assessment, and is one of the most important components of the AFIX process.

Feedback provides a forum to discuss with the office its immunization delivery system and ways to improve quality. The feedback process requires time, flexibility, creativity and knowledge of immunization recommendations and standards of practice. The person conducting the feedback session needs well-developed skills for dealing with people in a range of situations. Feedback is a compelling two-way non-judgmental conversation that should end with the provider office (not the person giving the feedback) setting achievable goals for improvement.

Level I AFIX Program (Required)

A Level I AFIX Program should contain the following Feedback standards in the written protocol:

1. Clearly defined process for coordinating a Feedback session which includes the following items:
    a. Timing: Feedback sessions should occur at the convenience of the provider, preferably within 10 working days of the assessment.
    b. Preparation: There should be a specific plan regarding how to prepare for the Feedback, including the gathering of relevant information about the provider, knowing the target audience, and anticipating questions.
    c. Logistics: Feedback sessions should be a face-to-face meeting with provider staff members unless there is sound justification for not conducting the session in person.
    d. Participants: Feedback sessions must include at least one key staff member who has the ability to authorize practice changes and ensure that agreed upon changes take place. Sessions should include as many additional staff as possible.

2. Specific details regarding the feedback presentation and discussion (key aspects of the Feedback):
    a. Encourage discussion by clinic staff
    b. Highlight areas of strength
    c. Discuss coverage levels for specific vaccination series and/or individual antigens as well as missed opportunities, invalid doses, late up-to-date, etc.
    d. Discuss observations of office practices and identify opportunities for improvement.
    -Opportunities for improvement might focus both on improving or expanding upon the clinic strengths and/or improving areas of weakness.

3. Clearly defined list of items to leave with the provider such as resource materials or informal incentives.

4. Clearly defined process for monitoring and improving feedback sessions, which includes having a supervisor or program coordinator attend a specified proportion of each employee's feedback visits.

5. Follow-up

   Contact should be made with every provider who receives an AFIX visit no more than six months following the Feedback. The purpose of the follow-up contact is to continue the process of encouraging the provider toward quality improvement, based specifically on the findings and discussion from the previous AFIX Feedback.

   Follow-up does not need to be face-to-face and may simply be a phone call as long as the intent is to provide further guidance, technical assistance, or other aid in achieving quality improvement.

   A clearly defined process is needed for determining the follow-up style. Different providers may need different forms of follow-up. Results from the Feedback discussion should be part of determining the style of follow-up (phone, in-person, etc).

Key Principles and Recommended Outline for an AFIX Feedback

Key Feedback principles:

- In-person
- Preparation (know the site; anticipate questions)
- Discussion-oriented (allow site to recognize issues and suggest, or request assistance for, solutions)
- Site-driven (be relevant; not "one-way-fits-all")
- Audience-focused (know your audience)

Feedback Outline

1) Prepare an opening: Know how the discussion will begin
2) Facilitate discussion about data and observations (two-way discussion)
3) Facilitate discussion about opportunities for improvement
4) Close with plan for follow-up and assistance with areas identified by practice
5) Write post-visit notes for future reference
6) Post-feedback, identify steps for follow-up and type of assistance to be provided

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in Feedback Level I as well as include the following standards in the written protocol:

1. Explore and pilot innovative methods for engaging providers and presenting information in feedback sessions.

2. Document interventions made by provider to improve practice for future evaluation and/or to build a reference for local “best practices”

Incentives are used to motivate providers and practices to develop more effective immunization delivery systems and ultimately improve immunization coverage levels.

Incentives promote change and reward achievement. Incentives may be formal or informal, as described below, to assist or motivate a provider to make practice-based changes and recognize improved performance and/or quality. Incentives should focus on process and improvement rather than simply outcomes such as high coverage rates.

Level I AFIX Program (Required)

A Level I AFIX Program should contain the following Incentives standards in the written protocol:

1. Guidelines specifying the informal incentives (i.e. printed immunization resources) that will be offered during the feedback session.

2. Clearly defined formal incentives (i.e. a letter of recognition signed by the governor) that acknowledge providers with improved processes and/or outcomes.

3. Clearly defined process describing how the formal incentives are implemented including who is eligible to receive an award and/or recognition as well as how the award recipients are determined.

4. Implement clearly defined incentives to assist low performing offices in improving their immunization coverage levels. The program policy for incentives should include the following: provider selection; content; participation incentives; and incentives for improved processes and outcomes.

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in Incentives Level I as well as include the following standards in the written protocol:

1. Identify and utilize external and internal partners to assist with incentives.

The *eXchange of Information* is an opportunity to share best practices with and among immunization providers.

This exchange can occur informally during the feedback session or through formal avenues, which could include the identification of an "immunization champion." In addition, annual professional gatherings such as public health conferences or state medical association meetings provide opportunities to exchange best practices in immunization services.

Level I AFIX Program (Required)

A Level I AFIX Program should contain the following eXchange of Information standards in the written protocol:

1. List of specific information to exchange during the feedback session, including but not limited to:
    a. Current immunization schedule
    b. Current VISs
    c. Additional immunization resources (e.g. list of credible immunization websites, schedule of immunization satellite broadcast courses, pink books, etc.)
    d. Pertinent standards for practice that are related to the office's strengths and opportunities for improvement
    e. Interventions used in other practices with similar opportunities for improvement
    f. Information on national or state level immunization coverage levels and goals

2. Process used to promote the VFC/AFIX program at health professional meetings or conferences. These meetings or conferences may include, among others:
    a. State or regional immunization conferences
    b. State chapter meetings of medical associations such as American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), or American College of Physicians
    c. Meetings of health care insurers such as Medicaid, Medicare, health systems or managed care organizations (MCOs)
    d. State or regional public health conferences

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in eXchange of Information Level I as well as contain the following standards in the written protocol:

1. Document and review the interventions implemented by providers to improve immunization rates and practice. Share the outcomes with AFIX staff, providers, external partners and other interested individuals or organizations. Utilize, at a minimum, three different methods to exchange this information on an annual basis, and maintain documentation on how the information was exchanged. These methods may include but are not limited to:
    a. Informal discussions during feedback sessions, recorded on the feedback checklist
    b. Written information in a news article or a direct provider mailing or fax
    c. Formal presentations at local meetings, regional, state or national conferences
    d. Informal discussions during meetings with potential VFC providers or potential partners
    e. Develop and disseminate an annual summary report describing immunization quality improvement activities to providers and other health care agencies.

2. Develop and implement a clearly defined, written plan detailing the process for recruiting high performing offices to become “immunization champions.” The “immunization champion” will promote AFIX and quality improvement activities to increase immunization coverage with peers. The strategic plan should include the following components:
    a. How to identify potential “immunization champions”
    b. Recruitment methods
    c. Methods to retain active “immunization champions”
    d. Program oversight of activities

3. Utilize technologies to educate providers on immunization issues and strategies for improving the delivery of immunizations and other preventive services.

4. Share lessons learned by becoming a mentor to other state and local immunization programs.

5. Develop and disseminate an annual report describing immunization quality improvement activities. Report contents could include:
    a. Summary of visits conducted
    b. Summary of provider-implemented improvement activities
    c. Case studies using specific providers

Program evaluation is an important component to the VFC/AFIX initiative. Just as AFIX is designed to help providers improve immunization delivery practices, program evaluation will help improve the implementation and ongoing process of AFIX. As a program matures, it should develop research questions to determine how all the components of the AFIX process can be improved.

Level I AFIX Program (Required)

A Level I AFIX Program should contain the following Evaluation standards in the written protocol:

1. Utilize an electronic database to monitor site visit activities. Programs may use the database developed by CDC or create their own. At a minimum, the database must be able to generate the summary information that is requested in the Annual VFC Management Survey.

2. Develop a written protocol for utilizing the electronic database. The protocol should include:
    a. Appropriate person(s) identified for entering information into the database
    b. Frequency of updating the database (e.g., weekly, monthly, etc)
    c. Procedures for transmitting data between the field and the central office
    d. Procedures for generating the information needed to complete the VFC Management Survey.

3. Submit Annual VFC Management Survey to CDC in appropriate format by the designated due date.

4. Develop and implement procedures for conducting ongoing process evaluation of the AFIX Program. This may include:
    a. Developing and assessing key indicators to evaluate if internal processes are followed correctly by AFIX staff
    b. Developing and assessing key indicators to evaluate providers' satisfaction with the AFIX site visit in their practices.

Level II AFIX Program (Recommended)

A Level II AFIX Program should have achieved and implemented all standards in Evaluation Level I as well as contain the following standards in the written protocol:

1. Develop methods to document and track the implementation of interventions and outcomes.

2. Annually review the effectiveness of office based interventions. Factors to consider in determining effectiveness are:
    a. Change in practice or in coverage levels
    b. Perceived ease of implementation of intervention and time commitment
    c. Amount of AFIX field staff time involved in intervention
    d. Acceptance of intervention by office staff into daily activities
    e. Resources required for intervention to provider and immunization program

3. Develop, implement and document the impact of “immunization champion” activities on improving immunization coverage levels.

4. Implement written research and evaluation strategic plans that include developing evaluation or research studies focusing on the AFIX strategy. Include timelines for starting and completing each study. Document a periodic review and update of the evaluation and research strategic plans.

5. Periodically develop, implement, and evaluate programmatic changes based on study findings. Share evaluation findings with other state and local immunization programs annually.

APPENDICES

Appendix A.

AFIX Policy Example: Wisconsin Immunization Program

The following is a written policy and is provided as an example of content and layout for the grantees. Please keep in mind that this sample was written before the revisions were made to the AFIX Standards, Levels I and II. Grantees must develop their own policies and procedures manual according to the new required and recommended activities outlines in the most current AFIX Guidance Document. Policies should be continually updated to reflect the current requirements and recommendations.

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Program Operations

1. Measurable short-term objectives
   a. By December 31, 2007, the Immunization Program will continually assess, throughout the year, Level I and II standards by utilizing the following processes:
      (i) VFC/AFIX staff will continually provide input as to how the standards are working in the field. Staff input should be sent to VFC Coordinator by email or given to the VFC Coordinator after a joint VFC/AFIX site visit.
      (ii) VFC Coordinator will identify, through site visit evaluation as defined in the AFIX Standards Document, areas of improvement to the VFC/AFIX process.
      (iii) Suggested changes from VFC Coordinator and VFC/AFIX staff will be discussed with entire staff and finalized at quarterly staff meetings.
      (iv) Approved change(s) to the VFC/AFIX Standards Manual will be made by the VFC Coordinator.
      (v) VFC Coordinator will send out revised document to all staff and appropriate CDC staff.
2. Measurable long-term objectives
   a. For the contract period of January 1, 2007 – December 31, 2007, and subsequent contract periods, pending approval of funding, the Wisconsin Immunization Program will conduct an additional 130 VFC/AFIX site visits.
      (i) This shift in strategy is based on the analysis, that depending on the region, VFC providers currently have a VFC/AFIX site visit once every 4.83 – 7.3 years. VFC/AFIX staff has presented anecdotal information stating that this approach may not be conducive to obtaining higher immunization rates or address other internal challenges such as staff turnover, as it relates to consistent immunization practices including proper use of VFC vaccine. Therefore, conducting a VFC/AFIX site visit with VFC Providers every other year, may improve their clinical immunization practices.
   b. Every two years the Immunization Program will solicit a list of new MA providers from Medicaid. This list will be compared to the list of physicians that are reported to the VFC Program through benchmarking. Through this comparison, a new list of potential VFC Providers will be created. Information pertaining to the VFC Program will be sent to the physicians.
3. The Wisconsin Immunization Program will utilize the following methods for annually selecting to receive a combined VFC/AFIX site visit.
   a. Every VFC Provider will receive one site visit every other year.
   b. Additional site visits may be required due to extenuating circumstances. Criteria for site visit in priority order, is as follows:
      (i) High vaccine loss
      (ii) High volume users by monetary amount
      (iii) Immunization Advisor (IA) and VFC/AFIX Contract Staff will provide input for site visits due to possible programmatic activities that may need to be addressed.
      (iv) Complete or substantial turnover in staff.
      (v) At the request of the provider.
      (vi) At the written request of the Local Health Officer.
   c. All lists of VFC/AFIX site visits, to be completed during the calendar year, will be provided during the first week of January by the VFC Coordinator to all VFC/AFIX staff.
   d. Quarterly VFC/AFIX Site Visit reports are due to the VFC Program Coordinator by the 10th of the following month. Reports will be submitted to the VFC Coordinator.
4. Methods for identifying and recruiting providers to participate in the VFC/AFIX program.

a. All newly licensed physicians in Wisconsin receive a brochure via the Department of Regulations and Licensing, describing the VFC Program and how to enroll.
b. Located on the Immunization Website is a link to the VFC Program (http://dhfs.wisconsin.gov/immunization/index.htm) which includes an overview of the program and contacts for additional enrollment information.
c. If a provider is serving Medicaid eligible children and submits for both reimbursement of vaccine and administration fee, they are referred to the VFC Program and encouraged to enroll.
d. The VFC Program requests a list of providers, every other year, who have filed a claim during the past year for reimbursement and compare it to current VFC physician's list.
e. The Wisconsin Immunization Program will work in cooperation with the following groups to advertise and raise awareness of the VFC Program including information on how to enroll: Medicaid, AAP, AAFP, the State Medical Society, WPHA, Local Medical Societies, larger private providers, and insurers. Through the Wisconsin Council on Immunization Practices, immunization program staff can network and communicate with members of these organizations to raise awareness of the VFC Program, through meetings, distribution of flyers, and writing articles for organizational newsletters.

5. VFC/AFIX Program Staff Job Descriptions

a. VFC Coordinator

(i) Position Summary as it pertains to VFC/AFIX Activities

The VFC Program is a state-operated federal entitlement program that supplies private and public providers with federally purchased vaccine. This position is responsible for the coordination of all required components of the Vaccines for Children (VFC) Program as enumerated in the Immunization Program annual grant guidance by providing leadership for the VFC Program. The VFC Coordinator will monitor and coordinate all VFC/AFIX staff as it pertains to VFC/AFIX activities. The VFC Coordinator will monitor and coordinate all programmatic activities of VFC/AFIX staff in terms of assuring users of state supplied vaccines comply with program guidelines as defined in the Wisconsin VFC/AFIX Policies and Procedures Manual.

(ii) Goals and Activities

- Organize, assess and evaluate VFC/AFIX site visits according to the Wisconsin VFC/AFIX Policies and Procedures Manual.
- Organize and ensure that the annual provider re-enrollment packet is mailed to all providers in the specified time frames. Review, revise and update packet materials as necessary.
- Provider profiles should be based on yearly benchmarking and must be used In accordance with CDC guidelines.
- Monitor vaccine accountability and provider enrollments.
- Coordinate the mailing of the VFC Provider Satisfaction Survey for all providers enrolled in VFC. Evaluate survey responses and make recommendations based on survey information.
- Assist in preparation of the VFC portion of the grant application.
- Coordinate and manage all required CDC VFC reports including the following: VOFA, Annual Report, VFC Program Survey, VFC Program Manager Questionnaire, and the VFC Provider Satisfaction Survey.

(iii) Knowledge and Skills

- Knowledge of concepts and principles of health practices.
- Ability to provide leadership direction for the VFC program.
- Establish and maintain effective working relationships with a wide variety of program staff and outside agencies.

- Skill in written communication.
- Skill in oral communication and ability to convey program policies when meeting with health care providers.
- Knowledge and ability to use personal computer applications including word processing, spreadsheet and database programs to prepare documents and manage large database files.
- Knowledge of immunization and vaccine preventable disease epidemiology concepts, principles and practices utilizing the Advisory Committee on Immunization Practices recommendations and resolutions and the CDC Epidemiology and Prevention of Vaccine Preventable Diseases. Atkinson W, Hamborsky J,Wolfe S, eds. 8th ed. Washington DC: Public Health Foundation, 2004.
- Knowledge of immunization assessment tools.
- Knowledge of data and information systems, including registries.

b. Immunization Advisor

(i) Position Summary as it pertains to VFC/AFIX activities

The IA is responsible for assuring that the specialty of immunization practice according to the Advisory Committee on Immunization Practices (ACIP) recommendations and resolutions, National Center for Immunization and Respiratory Disease Program (NCIRD), and Centers for Disease Control and Prevention (CDC) is incorporated into VFC provider settings. As part of the VFC/AFIX activities, the employee is responsible for evaluating and providing technical assistance to all VFC providers. The following job descriptions are not in their entirety, only as it relates to the VFC/AFIX component of the job description. For a full job description, employee should reference their position description.

(ii) Goals and Activities

- Provide technical assistance, consultation and promotion to VFC providers to assure best immunization practice through the application of public health standards, policies and procedures.
- Assure implementation of best immunization practices for VFC providers based on the recommendations of NCIRD, ACIP, AAP and the Wisconsin Council on Immunization Practices (WCIP).
- Assure users of State supplied vaccines via VFC program comply with program guidelines via site visits to monitor the use of state supplied vaccines and chart reviews or Wisconsin Immunization Registry (WIR) reports to determine appropriate practice and immunization coverage. Use the (AFIX) process to conduct immunization level assessments and provide feedback to providers and discuss areas of strength and potential areas of improvement related to immunization administration practices. Advise providers regarding practice and policy changes intended to improve immunization coverage.
- Assure professional competency by providing or directing health care professionals to appropriate immunization training and resources to maintain and improve skills in conducting immunization programming.
- Promote and participate in immunization coalitions to address immunization goals and raise awareness on AFIX and registry use.
- Interpret policies and procedures of the VFC/AFIX program as it affects immunization practice.
- Provide consultation to assist providers to establish access to care for under-served populations.

- Participate and promote Healthiest Wisconsin 2010 and Healthy People 2010.

(iii) Knowledge and Skills

- Knowledge of immunization and vaccine preventable disease epidemiology concepts, principles and practices utilizing the ACIP recommendations and resolutions and the CDC Epidemiology and Prevention of Vaccine Preventable Diseases. Atkinson W, Hamborsky J,Wolfe S, eds. 8th ed. Washington DC:Public Health Foundation, 2004. and the Epidemiology and Prevention of Vaccine Preventable Disease (commonly called the "Pink Book").
- Knowledge of immunization assessment tools.
- Knowledge of data and information systems, including registries.
- Knowledge of current laws and regulations governing public health services related to immunizations.
- Knowledge of immunization delivery systems in both public and private settings.
- Knowledge of local public health department and community agency operations, structure and programs.
- Knowledge of educational purposes, as it relates to VFC and AFIX, for program development for medical personnel and physicians.

c. VFC/AFIX Contract Staff/ LTEs

(i) Position Summary as it pertains to VFC/AFIX activities

The VFC/AFIX Contract Staff is responsible for assuring that the specialty of immunization practice according to the ACIP and CDC is incorporated into VFC provider settings. As part of the VFC/AFIX activities, the employee is responsible for evaluating and providing technical assistance to all VFC providers. The following job descriptions are not in their entirety, only as it relates to the VFC/AFIX component of the job description. For a full job description, employee should reference their position description.

(ii) Goals and Activities

- Provide technical assistance, consultation and promotion to VFC providers to assure best immunization practice through the application of public health standards, policies and procedures.
- Assure implementation of best immunization practices for VFC providers based on the recommendations of NCIRD, ACIP, AAP and the WCIP.
- Assure users of State supplied vaccines via VFC program comply with program guidelines via site visits to monitor the use of state supplied vaccines and chart reviews or Wisconsin Immunization Registry (WIR) reports to determine appropriate practice and immunization coverage.
- Use the (AFIX) process to conduct immunization level assessments and provide feedback to providers and discuss areas of strength and potential areas of improvement related to immunization administration practices.
- Advise providers regarding practice and policy changes intended to improve immunization coverage.
- Communicate to and seek guidance from VFC Coordinator when technical assistance and site visits beyond VFC/AFIX site visit activities present themselves. VFC Coordinator will work closely with VFC/AFIX Contract Staff to determine best course of action, including notification of appropriate program staff.
- Assure professional competency by providing or directing health care professional to appropriate immunization training and resources to maintain

and improve skills in conducting immunization programming.
- Promote and participate in immunization coalitions to address childhood immunization goals, and raise awareness on AFIX and registry use.
- Interpret policies and procedures of the VFC/AFIX program as it affects immunization practice.
- Provide consultation to assist providers to establish programming directed to reach under-served populations.
- Participate and promote Healthiest Wisconsin 2010 and Healthy People 2010.

(iii) Knowledge and Skills
- Knowledge of immunization and vaccine preventable disease epidemiology concepts, principles and practices as outlined by the ACIP.
- Knowledge of immunization assessment tools.
- Knowledge of data and information systems, including registries.
- Knowledge of current laws and regulations governing public health services related to immunizations.
- Knowledge of immunization delivery systems in both public and private settings.
- Knowledge of local public health department and community agency operations, structure and programs.
- Knowledge of educational purposes, as it relates to VFC and AFIX, for program development for medical personnel and physicians.

6. The Wisconsin Immunization Program has developed the following procedures to address the critical immunization situations that may be observed in provider offices. All action steps and correspondence, listed in the scenarios below, will be copied to the following people: VFC Coordinator, Immunization Program Director, Regional Director, Clinic Manager of the VFC site visit (if applicable), and Health Officer of the Local Health Department. All persons notified of these scenarios should be made aware that the information shared regarding these scenarios are deemed sensitive and should only be shared with appropriate colleagues. Depending on need and the population served by the provider, the Health Officer of the Local Health Department should be contacted to see if they would be willing and able to temporarily (or if need be, permanently) serve the cohort of children currently serviced by the provider.
   a. Infraction that could affect the viability of vaccine
      (i) Stop all future shipments of vaccine. Communicate to provider during the visit that shipments are stopped until corrective action is taken. Phone call to VFC Program Assistant (PA) and VFC Coordinator to stop all shipments.
      (ii) Compile a list of expired and wasted vaccines involved in the provider's public stock. Alert provider of any expired or wasted vaccine for private stock. Public vaccine is returned to the VFC Program.
      (iii) Documentation of all correspondence and timeline that are applicable to the infraction (see appendices for examples).
      (iv) A follow-up letter to provider describing the infraction(s), restating that all vaccine orders are on hold and the corrective action, with an agreed upon date, needs to be taken (see appendices for examples).
      (v) If applicable, appropriate medical procedures should be outlined for provider.
      (vi) A follow-up conversation with provider to schedule a follow-up visit to see if infractions have been rectified.
      (vii) If infractions have been rectified, notify appropriate staff to reinstate in VFC Program and continue shipment of vaccine.

(viii) Provider will be revisited the following year (as part of the annual list of VFC site visits) to assure compliance.

(ix) VFC Coordinator will continually communicate with regional staff, vaccine loss at provider clinics. Regional staff can then work with clinics on corrective actions and recommendations.

b. Whether the program identifies the possibility of high suspicion of fraud and abuse fraud or it comes from an outside source, the following steps should be taken:

(i) If a VFC/AFIX site visit is performed by staff and fraud and/or abuse is suspected, the following steps should be taken:

- Complete site visit with accurate documentation justifying the potential for fraud and/or abuse.
- Contact VFC Coordinator as soon as it is feasible.
- VFC Coordinator will notify Program Director and NCIRD Program Consultant of possible fraud/abuse. VFC Coordinator will make the determination if other program staff need to be contacted or consulted.
- VFC Coordinator will request applicable reports from Medicaid to begin internal review.
- Flag provider profile (currently, VACMAN) to have all future vaccine orders approved by VFC Coordinator.
- VFC Coordinator will look at past ordering history and compare it to Medicaid claims. This data will be used to assist in determining whether or not fraud/abuse is occurring.
- VFC Coordinator will contact Medicaid liaison for further action steps.
- VFC Coordinator and Program Director will work with Medicaid liaison to determine whether or not fraud/abuse is occurring. This information will be shared with the reporting VFC/AFIX staff and NCIRD Program Consultant.
- VFC Coordinator will follow Medicaid guidance. All follow-up and documentation will be communicated with Program Director, appropriate field staff and NCIRD Program Consultant.

(ii) If fraud and/or abuse is reported by an outside source, the following steps should be taken:

- If VFC/AFIX staff is notified by outside source of possible fraud/abuse, immediately contact VFC Coordinator.
- VFC/AFIX staff will conduct an unscheduled site visit within five days of notification.
- Complete site visit with accurate documentation justifying the potential for fraud and/or abuse.
- Contact VFC Coordinator as soon as it is feasible.
- VFC Coordinator will notify Program Director and NCIRD Program Consultant of possible fraud/abuse.
- VFC Coordinator will request applicable reports from Medicaid to begin internal investigation.
- Flag provider profile (i.e. VACMAN) to have all future vaccine orders approved by VFC Coordinator.
- VFC Coordinator will look at past ordering history and compare it to Medicaid claims. This data will be used to determine whether or not fraud/abuse is occurring.
- VFC Coordinator will contact Medicaid liaison for further action steps.
- VFC Coordinator and Program Director will work with Medicaid liaison to determine whether or not fraud/abuse is occurring. This information will be

shared with the reporting VFC/AFIX staff and NCIRD Program Consultant.
- VFC Coordinator will follow Medicaid guidance. All follow-up and documentation will be communicated with Program Director, appropriate field staff and NCIRD Program Consultant.

d. Below are steps that should be taken when the identification of compromised Vaccine has occurred:
   (i) Stop the administration of the non-viable vaccine to patients.
   (ii) Offer assistance to the provider in determining the number of patients impacted by the administration of non-viable vaccine.
   (iii) CDC and the State both strongly recommend that a provider recall all patients that received the non-viable vaccine.
   (iv) The provider is advised to explain the reason for re-immunization to the parent(s) or guardian(s).
   (v) The provider should review internal policies.
   (vi) Assist and advise the provider to work with the Immunization Program and the Chief Medical Epidemiologist to determine viability of vaccine.

7. As part of the training with new VFC/AFIX staff, the following steps will occur:
   a. The VFC Coordinator will meet with the new VFC/AFIX staff for a scheduled period of time, typically one half day to address the following:
      (i) The VFC Coordinator will provide a background of VFC Program.
      (ii) The VFC Coordinator will provide an overview of VFC Operations Manual.
      (iii) The VFC will provide an overview of the Wisconsin VFC/AFIX Policies and Procedures Manual. New staff will receive a copy of the manual.
      (iv) VFC Coordinator will discuss the timeline and discussion of shadowing experience with IAs. VFC Coordinator will work closely with IAs and new hire to schedule the shadowing VFC/AFIX site visits.
      (v) VFC Coordinator will provide an overview of Resource Guide.
      (vi) VFC Coordinator will provide a list of expectations for new VFC/AFIX staff.
      (vii) VFC Coordinator will provide an overview of the required paperwork for VFC/AFIX site visits.
      (viii) New VFC/AFIX staff are required to attend a one day WIR training. New VFC/AFIX staff will also work with the IAs in the Northern and Western Regions and Marshfield staff to become acquainted with the all registries in use in their region.

   Meet with other central office staff for an overview of other immunization program components (eg. Hepatitis B Program, Registry, Consolidated Contracts, Disease Reporting, Shipping Room).
   c. Newly hired staff will shadow a senior IA. Details to be discussed and coordinated with the VFC Program Coordinator and IA.
   d. Newly hired staff will learn about the registry and other software applications.
8. Methods for coordinating and monitoring VFC/AFIX staff members' progress at conducting the annual VFC/AFIX site visits.
   a. VFC Coordinator will conduct two site visits per region, annually.
   b. Quarterly VFC/AFIX site visit tally sheets are due to the VFC Program Coordinator by the 10th day of the following month.
   c. VFC/AFIX Site Visit Questionnaires will be transmitted to the VFC Coordinator within 30 days of the site visit. All site visits must be completed by December 31 with the data submission to the VFC Coordinator by the 15th day of the new year.
9. Methods for contacting outside agencies and exploring the possibility of collaborating on quality improvement activities and/or marketing AFIX.

a. A local health department can build value for the performance-based contracts by accomplishing the following:
   (i) Marketing AFIX to private providers.
   (ii) Conducting AFIX site visits with private providers. The assessment portion of the VFC/AFIX site visit can be accompanied by the following:
   - If provider has internet access and is on a registry, the local health department can work with the provider on reports and other tools to do immunization assessments.
   - If a provider has internet access and is not on the registry, the local health department can explain the benefits of registry utilization during the feedback session and also offer the assessment visit.
   - If a provider does not have internet access, the local health department can conduct an assessment visit. Throughout the visit, the local health department representative should highlight work flow areas where it would be beneficial to the provider

b. The Wisconsin Immunization Program will provide a list, upon request, to local health departments.
   (i) The Wisconsin Immunization Program will cross check the list of VFC providers with a list of providers in the jurisdiction (provided through Department of Regulations and Licensing).
   (ii) The final list of VFC providers would be provided to the local health department to utilize for developing input activities for the required contract objective.

c. The Wisconsin Immunization Program will market AFIX to the following groups: Medicaid, American Academy of Pediatrics, American Academy of Family Physicians, the State Medical Society, Wisconsin Public Health Association, Local Medical Societies, larger private providers, and insurers.

10. Changes in the Wisconsin VFC/AFIX Policies and Procedures Manual will be communicated by the VFC Coordinator through the following:
   a. Staff meeting updates
   b. Written correspondence

Appendix B.

Using the Internet to Learn More about Potential Collaborators

1. Use your network of immunization contacts to identify health care organizations that serve the population of interest and may be strong candidates for collaboration such as:
   - –Medicaid/Medicare
   - –Commercial Insurers in your program area
   - –Physician organizations
     - –American Academy of Pediatrics website has links to state chapter websites

2. If possible, locate and visit the website(s) of a potential collaborator(s)

3. Identify shared goals or common activities discussed on the website
   - –Some key terms that might lead to potential AFIX collaboration include:
     - – Children's Services
     - – Clinical Guidelines
     - – Clinical Indicators
     - – Immunizations
     - – Medical Services
     - – Performance Measures
     - – Preventive Services
     - – Provider Services
     - – Quality Improvement
     - – Well-Baby Services

4. Review content of website in these areas to determine shared goals or common activities.

5. Answer the following question: "Could the AFIX process potentially assist this organization's activities?" If you answer yes, identify a potential contact person to discuss possible collaboration opportunities.

Appendix C.

Contacting Organizations Regarding Collaborations

1. It is always helpful to have an outline of key points on why collaboration would be beneficial to both organizations when contacting potential collaborators.

2. When preparing the outline focus on a positive win-win scenario. Strategically address the benefits to the potential collaborator near the beginning of your conversation. When developing your key points, use terminology from the website to support your idea/offer of collaboration. For example, one insurance website (identifiers were removed) stated the following commitment to childhood immunizations and interventions for improving coverage levels:

   Childhood Immunizations

   - **HMO in State X is attempting to increase the number of children receiving age-appropriate immunizations.**
   - **Immunization schedules are published in member newsletters.**
   - **Postcards are sent to parents of children who are 16 months and 20 months old about preventive exams and immunizations.**
   - **Physicians and other professional providers receive updated immunization schedules.**

   Several other areas in this website mentioned the importance of childhood immunization based on this information; it appears this organization would make an excellent candidate for collaborating with the state's AFIX activities.

3. When organizing your collaboration call, use the website information to engage the organization in a collaborative discussion using their quality improvement commitment to childhood immunization coverage as an ice breaker. The introduction/background should mention the organization's commitment and active interventions to enrolled members and contracted providers to improve childhood immunization coverage levels. A possible collaboration call could start something like the following example:

   "I recently visited your Managed Care Organization's (MCO) website and was pleased to read about your commitment to quality improvement activities and especially about your interventions focusing on childhood immunizations. As you may be aware, the state's immunization program actively works with both public and private health care providers to improve childhood immunizations coverage levels in the state. After visiting your company's website, I have a few ideas on how we can possibly work together to improve immunization coverage levels in your contracted provider offices in a cost effective manner for your organization. Can we schedule a time to meet to talk about these ideas?"

4. Once you have scheduled a meeting date, the next activity is to organize your thoughts on collaborative opportunities. One way to organize your thoughts is through the development of a meeting agenda. Below is an example of a simple draft agenda for this type of meeting:

Agenda
MCO-AFIX Collaboration Opportunities

1. **Purpose and Background**
2. **Collaboration Opportunities**
3. **Benefits to MCO and Immunization Program**
4. **Discussion**
5. **Next Steps/Follow-up/Timeline**

5. It is a good idea to further develop the agenda with bullet points of key ideas/concepts to discuss under each agenda item for your personal reference during the meeting. For example, during **Purpose and Background** some key concepts for discussion include:

•Overview of VFC/AFIX Initiative
•Shared populations
•Common quality improvement goal

Repeat this process with each agenda topic but be mindful of the time limit for this meeting and keep the discussion focused on the main concepts.

6. An example of an advanced agenda:

Agenda
MCO-AFIX
Collaboration Opportunities

1. **Purpose and Background**
   - **•Overview of VFC/AFIX Initiative**
   - **•Shared populations**
   - **•Common quality improvement goals**

2. **Collaboration Opportunities**
   - **•Simple Opportunities (Short term, minimal planning)**
     - **-Website resources (current schedule, web links)**
     - **-Clinical guideline development/review**
     - **-Provider newsletter**
     - **-Member newsletter**
     - **-Office manager forum**
     - **-External Provider workshop**
     - **-MCO staff education (medical services/provider services/member services)**
     - **-Immunization resources through health department/CDC**
   - **•Complex Opportunities (long term)**
     - **-Provider referral to health department for AFIX services**
     - **-Participation in AFIX with certain results would substitute for certain MCO quality improvement activities**
     - **-Use a multi-focused AFIX process to improve other MCO quality indicators along with immunizations to decrease provider burden related to record reviews**

3. **Benefits to MCO and Immunization Program**
   - **•MCO Benefits**
     - **-Free expert information on Immunizations for a variety of QI activities**
     - **-Process in place to assist providers struggling with low immunization coverage levels by referring to health department for AFIX services**
     - **-Improve HEDIS scores**
     - **-Potential to decrease provider burden related QI activities and decrease MCO's cost around QI activities**
   - **•Health Department Benefits**
     - **-New opportunity to promote AFIX activities**
     - **-Support from health insurer for AFIX activities**
     - **-Access to private providers**

4. **Discussion**
   - **•Are there opportunities to collaborate short term and/or possibly long term?**

5. **Next Steps/Follow-up/Timeline**

The meeting's time schedule will not allow you to discuss all the potential collaboration opportunities in depth. A good strategy is to focus on 3-4 short term and simple activities and obtain agreement on those activities. You may briefly discuss possible ideas for long-term, complex collaboration activities depending on the organization's response to the short-term activities.

Appendix D.

Assessment Methods

Conducting an assessment of a health care provider's vaccination coverage levels can be conducted using a combination of tools including Immunization Information Systems (IIS) and/or the Comprehensive Clinic Assessment Software Application) (CoCASA). Over two-thirds of grantees currently utilize the IIS in some capacity for assessing immunization coverage rates with many of them combining the use of the IIS and CoCASA. The utilization of both tools can streamline the process for assessment.

1. **Immunization Information Systems (IIS) Assessment**
   Over two-thirds of grantees currently utilize the IIS in some capacity for assessing immunization coverage rates with many of them combining the use of the IIS and CoCASA. CDC recommends that grantees continue to increase IIS functionality and work toward utilization of the Immunization Information Systems (IIS) for assessment. An IIS assessment utilizes data from an immunization registry. This method generally assesses a pre-defined population rather than a sample of that population. The immunization data can be analyzed with available assessment functions built into the IIS (if available) or the data can be exported from the registry and imported into CoCASA for analysis.

2. **Chart-based Assessment**
   a. Standard Assessment

      The Standard method for conducting an assessment offers two options. Ideally, all records in the selected age group would be included in the assessment. This complete review of all records in the specified age range will provide the most accurate assessment results. If the total number of patients in the specified age range is under 50, a total review is recommended. When the total number of patients in the specified age range is over 50, a Standard assessment can be conducted using a randomly selected sample of patient charts. An estimated vaccination coverage level based on the information obtained from the charts can be calculated. The Standard assessment method provides immunization coverage levels for the assessed provider site as well as diagnostic information on patients with missed opportunities, late starts, etc.

   b. Hybrid Assessment

      The Hybrid assessment method may also be used for conducting assessments. This method involves reviewing exactly 30 charts. The Hybrid method can only identify whether a provider's coverage is above or below a selected threshold level rather than calculate an estimated immunization coverage level. Coverage levels ***cannot*** be determined using the Hybrid Assessment method. Diagnostic information regarding missed opportunities, late starts, drop-offs, etc can only be used to provide case-by-case examples. Individual medical charts should be reviewed with the provider in an effort to highlight immunization practices that might improve coverage levels.

Appendix E.

Opportunities for Improvement

AFIX Guidance Document: Appendix E
Opportunities for Improvement

Specific Opportunity	Suggestions
___ A. Difficulty with patient follow-up	1. Formally designate one staff member to coordinate all reminder/recall activities and patient follow-up 2. Ensure all patients schedule next visit before leaving the office; if patients don't schedule the next appointment, make a note in log book or computer system to follow-up 3. Confirm current address and phone number at every visit 4. Send parents home with reminder card with appointment date 5. Determine a procedure for communicating patient follow-up instructions with front office staff 6. Coordinate with other clinicians and programs to pursue additional follow-up and outreach 7. Use a "No-Show" stamp to stamp chart: - on the outside cover - in the progress notes - record the date and reason for no show, if known 8. Call or send parents a reminder when they miss an appointment 9. Keep a log of all children who miss appointments 10. Document in patient's chart the date patient moves or goes elsewhere for care (MOGE)
___ B. Unable to generate or use a list of children due or overdue for immunizations	1. Establish a reminder/recall system or process to notify parents to bring their children in 2. Determine if computer systems currently used for billing and scheduling can be used to generate a list 3. Implement a computerized or manual immunizations tracking system 4. Flag, file separately or designate a special place to put charts of children as they are identified as needing immunizations 5. Keep a log of all children who are behind in the immunization schedule
___ C. Difficulty getting children in the door for immunizations	1. Send out reminder/recall notices at least twice a year (e.g. at 8 and 20 months of age) 2. Adjust office hours by holding evening or weekend hours 3. Offer more well-child, walk-in, or immunization-only visits 4. Regularly discuss the importance of immunizations with parent by offering information in a variety of formats and languages 5. Send parents home with educational material that specify which immunizations will be due at the next visit and a reminder card that states either: - the date and time of the next appointment - when to call to schedule an appointment 6. Remind parents prior to a scheduled visit either by a phone call or letter/postcard, or both 7. Send a letter to or call parents of newborns to welcome their baby into the practice and remind them of upcoming visits
___ D. Does not have a policy to screen charts before the patient sees the provider for immunizations overdue at every acute care, follow-up and well-child visit	1. Formally designate someone to screen all immunizations records before the patient is seen, and mark chart to prompt if immunizations are due 2. Adjust when the immunization records are reviewed (i.e. the day before the visit, the morning of the visit, when the patient arrives, or during the visit) 3. Develop office policies and procedures to facilitate administration of immunizations by all staff (MDs, NPs, Pas, RNs, LPNs, MAs) 4. Cross train staff to cover for each other

Specific Opportunity	Suggestions
___ A. Does not follow the harmonized *Recommended Childhood Immunization Schedule*	1. Formally designate one staff member to coordinate/monitor all immunization activities, including disseminating immunization schedules, advisories, and communicating current practice policies to staff. 2. Establish a formal system to update and educate staff on immunization issues. 3. Regularly review the recommended schedule and/or guidelines with all clinicians and ensure all clinicians follow a common schedule. 4. Discuss accelerated schedule 5. Ensure minimum intervals are adhered to 6. Review recommended minimum age schedule 7. Discuss clinical outcomes of vaccinating too early (i.e. MMR and/or varicella administered before first birthday) 8. Administer age-appropriate immunizations if records from other providers are not available
___ B. Does not have a policy to screen charts before the patient sees the provider for immunizations due/overdue at every acute care, follow-up and well-child visit	1. Formally designate someone to review all immunization records before the patient is seen by the provider, and mark chart to prompt provider if immunizations are due 2. Adjust when the immunization records are reviewed (e.g. the day before the visit, the morning of the visit, when the patient arrives or during the visit). 3. Develop office policies and procedures to facilitate administration of immunizations by all staff (MDs, NPs, PAs, RNs, LPNs, MAs) 4. Cross train staff to cover for each other
___ C. Does not practice simultaneous administration (administers all necessary vaccines in one visit)	1. Review recommendation about simultaneous vaccination with all clinicians 2. If all immunizations are not given at one visit: - document reasons in progress notes - highlight the fact that immunizations are overdue - ensure patient follow-up is effective at getting patients in for subsequent visits
___ D. Does not follow the ACIP recommendations concerning valid contraindications	1. Make it a policy to give immunizations at every type of visit (acute, follow-up and well child visits), unless valid contraindications exist 2. Review valid contraindications with all clinicians 3. Provide clinicians with list of valid contraindications 4. Post immunization schedule as visual reminder 5. Post guide to valid contraindications as visual reminder 6. Review charts to see if children who didn't get immunizations at sick visits actually came back for follow-up and/or well child visits 7. If immunizations are postponed due to valid contraindications: - document reasons for postponement in progress notes - highlight the fact that immunizations are overdue - ensure patient follow-up is effective at getting patients back in for subsequent visits 8. Modify format of the progress notes to facilitate documentation of reasons for postponement

Appendix F.

Selecting a Random Sample

Methods on How to Select a Random Sample

A. Census or Complete Enumeration

If a clinic has a computerized data system, it would be relatively easy to do a census or complete enumeration of the records in the system. Assessment becomes a simple matter of accessing the computer files, selecting all eligible 2-year-olds, and counting the number of these children who are up-to-date on vaccinations at their second birthday and at earlier age markers. Similarly, if a clinic has fewer than 50 2-year-olds, the time spent doing a complete enumeration may not be much more than the time it would take to do a survey. In both clinics, sampling error would no longer be an issue--an advantage that a complete enumeration has over a sample survey. However, a census could still be subject to nonsampling error.

In other clinics, it would be difficult, time-consuming, and expensive to do a complete enumeration. A sample survey needs to be done. This involves deciding on a sampling procedure, calculating sample sizes, selecting the sample, and computing the appropriate estimates and the corresponding sampling error. Following are some options for the sampling procedure.

B. Simple Random Sampling

With simple random sampling (SRS), every possible sample of n children from a population of size N has the same chance of being chosen. Conceptually, SRS is the simplest type of sampling plan. At the implementation stage, however, SRS may present some problems. In some clinics, it may be difficult to construct a list of all the N children before sampling and to train personnel to generate n random numbers. In these situations, systematic sampling may be easier to implement. Following are the steps to be taken when selecting a simple random sample.

- **Step 1:** Label the children in the survey population from 1 to N.
- **Step 2:** Take n random numbers between 1 and N. The selection must be done without replacement; i.e., if a number is the same as any one of the previous numbers selected, discard it and continue until n <u>different</u> numbers between 1 and N have been chosen. (Use either a table of random numbers like Table 1 or a computerized random number generator.)
- **Step 3:**Select the children corresponding to the n numbers generated in step 2.

Example: Suppose that we need to select 10 records from a collection of 100 clinic records. We number the records in the sampling frame from 1 to 100. Then, using a table of random numbers such as in Table 1, we pick 10 random numbers. Because we want numbers between 1 and 100, we read off three digits at a time. Reading from left to right and from top to bottom, the first two numbers (332 and 767) are discarded because they are larger than 100. The next number, 099, is chosen. The second number selected is 034. All numbers read that fall between 1 and 100 are in boldface (Table 1). Note that

099 is selected twice, but we include it only once. The number 34 is also read twice but is included only once. Hence, the 10 numbers selected are 99, 34, 15, 81, 43, 25, 1, 5, 85, and 100. We then pull out the 1st, 5th, 15th, 25th, 34th, 43rd, 81st, 85th, 99th and the 100th records from our files.

Table 1. A Portion of a Table of Random Numbers

33276	7**099**7	79936	56865	05859	90106
03427	49626	69445	18663	72695	52180
92737	88974	33488	36320	17617	30**015**
85689	48237	52267	67689	93394	01511
08178	77233	13916	47564	81056	97735
51259	77452	16308	60756	92144	49442
60268	89368	19885	55322	44819	01188
949**04**	**3**1273	04146	18594	29852	71685
58586	23216	14513	83149	98736	23495
09998	42698	06691	76988	13602	51851
14346	09172	30163	90229	04734	59193
741**03**	**4**707**0**	**25**306	76468	26384	58151
242**00**	**1**3363	38**005**	94342	28728	35806
873**08**	**5**873**1**	**00**256	45834	15398	46557
07351	19731	92420	60952	61280	50001

C. Systematic Sampling

Systematic sampling is easy to apply because it simply involves taking every kth child after a random start. The following are steps to be taken when selecting a 1-in-k systematic sample.

- **Step 1:** Divide the population size N by the required sample size n to get the sampling interval k, (k=N/n). If k is not an integer, round it down to the nearest integer.
- **Step 2:** Take a random number between 1 and k to determine the first child to be included in the sample.
- **Step 3:** Add into the sample every kth child after the random start in the preceding step.

Example: Suppose that we need a sample of 5 out of 28 records. Then k=28/5=5.6, not an integer, and hence we round it down to the nearest integer, 5. Using a table of random numbers, select a number between 1 and 5, say 2. The random start is 2, and the second record is selected first. Starting with the third record, count from 1 to 5 and pull the last record, i.e., the seventh record from the file is selected. Repeat the procedure until 5 records are selected or the end of the file is reached. Thus, with a random start of 2 and a sampling interval of 5, the 2nd, 7th, 12th, 17th, 22nd, and 27th records are selected. Note that because we rounded the sampling interval down to the nearest integer, we get a sample size of 6 instead of the intended size of 5. This process is illustrated in Table 2. Note that the 1-in-k systematic sampling essentially divides the population into groups of k (k=5 in our example) and one record is selected from each group. The random start fixes the position of the record selected within each group; in our example, every 2nd record in a group of 5. If the selection process got interrupted, it is helpful to know that the jth selection is determined by the formula j^{th} selection = (random start) + (j-1)(sampling interval). For example, the 3rd selection will be 2+(3-1)(5)=12 and the 6th selection will be 2+(6-1)*5=27.

D. Cluster Sampling (Shelf Method)

In certain practices, you may find that even systematic sampling is impractical. For example, consider a practice with no computerized database of patients. You are given the task of sampling records of 100 2-year-olds from a file room with 50 shelves filled with records for clients of all ages. A practical alternative is to first sample 'clusters' of records from the filing system and then sample individual records from each cluster.

- **Step 1:** First divide the filing system into a relatively large number of groups. In our example, you might say that each half of a shelf represents a cluster, giving you 100 clusters total. Second select a sample of approximately 30 clusters. You can either select a simple random sample or a systematic sample (for example picking a random start between 1 and 4 and then take every 4 cluster would give you 25 clusters).

- **Step 2:** Estimate the total number of eligible children in the practice. Select one cluster; determine how many charts in that cluster meet your eligibility criteria; multiply that number by the total number of clusters. For example, you randomly select cluster 31 from the 100 total clusters, and find that there are 12 eligible charts in that half shelf of records. Then your estimate of the total number of eligible in the practices would be (12 eligible charts per cluster * 100 clusters) = 1200 eligible charts.
- **Step 3** select individual charts from each cluster. First divide you total sample size by the number of clusters to determine how many charts to select from each cluster. For example if you want a sample of 100 charts, and in step 1 you drew a sample of 25 clusters, you would select 4 charts from each cluster. To select individual charts, you could simply start at the beginning of each cluster selected in step 1 and go through the charts one at a time until you have 4 charts that meet your eligibility criteria.

For the purpose of simplicity we will analyze this sample as though it were a simple random sample of 100 drawn from a population of 1200.

Table 2. A 1-in-5 Systematic Sampling from 28 Records Using a Random Start of 2

Record Number	Record to be selected
1	
2	x
3	
4	
5	
6	
7	x
8	
9	
10	
11	
12	x
13	
14	
15	
16	
17	x
18	
19	
20	
21	
22	x
23	
24	
25	
26	
27	x
28	

Appendix G.

AFIX Resources

Centers for Disease Control and Prevention (CDC), Vaccines and Immunizations
http://www.cdc.gov/vaccines/

2008-2012 Immunization Program Operations Manual (IPOM)
http://www.cdc.gov/vaccines/vac-gen/policies/ipom/default.htm

AFIX
http://www.cdc.gov/vaccines/programs/afix/default.htm

Guide to Community Preventive Services: Vaccines
http://www.thecommunityguide.org/vaccine/default.htm

Comprehensive Clinic Software Application (CoCASA)
http://www.cdc.gov/vaccines/programs/cocasa/default.htm

Vaccines for Children (VFC Program)
http://www.cdc.gov/vaccines/programs/vfc/default.htm

VFC Operations Guide
http://www.cdc.gov/vaccines/programs/vfc/operations-guide.htm

Immunization Information Systems (IIS)
http://www.cdc.gov/vaccines/programs/iis/default.htm

National Immunization Survey (NIS)
http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#nis

Appendix H.

AFIX History

In 1986, in an attempt to raise coverage levels to achieve national immunization goals, the Georgia Department of Public Health implemented a statewide program that consisted of annual assessments of immunization records at its public health clinics. Information was fed back to clinic providers and their staff who, in turn, developed their own solutions to improve coverage.

In 1995, Congress directed the CDC to set guidelines for assessing coverage levels in all public clinics as part of the federal funding for immunization programs. In 1998, the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and state immunization program managers held the Building Blocks conference. This conference brought these partners together to develop plans for improving coverage levels across the states. Meanwhile, the Task Force for Community Preventive Services and the Advisory Committee on Immunization Practices had recommended the assessment of the immunization coverage levels among all immunization providers, both public and private.

These advisory committees made their recommendation on the basis of strong scientific evidence for the effectiveness of combining assessments with feedback to improve and sustain immunization coverage levels. As a result of these recommendations and the initial work done by the Georgia Department of Public Health, this intervention has become a national model program to improve immunization rates.

In April of 2004, the Second Edition of the Core Elements for AFIX Training and Implementation was released. A subcommittee of the Clinic Provider Assessment Work Group (CPAWG) developed the Core Elements document and the CDC AFIX committee recommends these core elements be used when providing AFIX education and training. The CDC Task Force on Community Preventive Services (CPS) has endorsed AFIX as an effective quality improvement activity to improve immunization coverage levels, and, with this endorsement, CDC convened a work group consisting of local, state, and federal participants. The CPAWG developed an agenda of priority activities to focus on annually, resulting in the Core Elements, guidelines to ensure AFIX activities are conducted in a standardized fashion.

The official release of the first edition of the AFIX Standards document was released to grantees on March 21, 2005. The AFIX Standards were meant to be an outgrowth of the Immunization Program Operations Manual (IPOM). The IPOM presented information to programs on “what an effective immunization program looks like.” The AFIX Standards focused on the AFIX process and were organized in three different levels with each level building upon the successful completion of the previous level’s requirements.

The release of this second edition of the AFIX Standards builds on the solid work of the first edition, updates the guidance, and aligns the Standards with the format of the 2008-2012 Immunization Program Operations Manual (IPOM) with required and recommended activities. With this second edition, the AFIX Standards are organized into two levels: Level I (required) and Level II (recommended). These standards are intended for use by the grantee program staff overseeing the AFIX program. They are designed to assist the AFIX Coordinator in implementing, managing, and evaluating the AFIX program. Within each level there are 6 program components, including program operations, assessment, feedback, incentives, exchange of information and program evaluation.

Appendix I.

A Brief Overview of Continuous Quality Improvement

"Every truth passes through three stages before it is recognized. In the first it is ridiculed, in the second it is opposed, and in the third it is regarded as self-evident" - Arthur Schopenhauer.

At its heart, continuous quality improvement (CQI) argues that all health care activities- structure, data systems, planning, accountability, etc. should be built up from value-adding work. It starts with a vision of what could be. Informed by qualitative and quantitative measurement and integrated into a continual learning process, it is a fluid process that focuses on continual improvement understanding that it is a race without a finish line.

CQI is decentralized in that it places responsibility for ownership of each process in the hands of its implementers, those most directly involved with it. Organizations using CQI often experience improvements in morale (McLaughlin/Kaluzny, 2006). When the level of quality is being measured, workers can take pride in the quality of work they are producing. CQI usually involves a common set of characteristics including : 1) a link to an organization's strategic plan; 2) a council of decision-makers; 3) training; 4) mechanisms for selecting improvement opportunities; 5)process improvement teams; 5) staff for analysis and redesign; and 6) personnel policies that motivate and support staff participation in process improvement (McLaughlin/Kaluzny, 2006).

<u>An Overview of CQI Elements</u>
Together with the distinguishing characteristics, CQI is composed of three elements: philosophical, structural and health-care specific (McLaughlin/Kaluzny, 2006). The following philosophical elements are representative of a continuous quality improvement initiative. Philosophical elements may include:

- a strategic focus: emphasis on having a mission, values, and objectives that performance improvement processes are designed, prioritized, and implemented to support.
- a customer focus: emphasis on both customer satisfaction and health outcomes as performance measures
- systems view: emphasis on analysis of the whole system providing a service or influencing an outcome
- data-driven analysis: Emphasis on gathering use of objective data on system operation and system performance
- implementer involvement: emphasis on involving the owners of all components of the system in seeking a common understanding of its delivery process
- solution identification: emphasis on seeking a set of solutions that enhance overall system performance through simultaneous improvements in a number of normally independent functions.
- process optimization: emphasis on optimizing a delivery process to meet customer needs regardless of existing precedents and on implementing the system changes regardless of existing territories and fiefdoms
- continuing improvement: emphasis on continuing the systems analysis even when a satisfactory solution to the problem is obtained

- organizational learning: emphasis on organizational learning so that the capacity of the organization to generate process improvement and foster personal growth is enhanced.

Beyond the philosophical elements, a number of structural elements can be used to structure, organize and support the continuous improvement process. Structural elements may include:

- process improvement teams: emphasis on forming and empowering teams of employees to deal with existing problems and opportunities
- utilization of CQI tools: flow charts, cause-and-effect diagrams, histograms, Pareto charts, run charts, and control charts
- parallel organizations: Development of a structured CQI team
- management commitment: leadership to make the process effective and foster integration into the institutional fabric
- benchmarking: use of benchmarking to identify best practices

Health-care-specific elements may include:

- Epidemiological and clinical studies
- Involvement of medical staff governance process including quality assurance
- Use of quality assurance data and techniques

Some of these elements have already been cited in the AFIX Standards document. We know that on a continuum, providers may be at varying levels in terms of their knowledge of CQI and their willingness to participate in this process. By looking at the realm of possibilities, we may be able to offer CQI options to providers that are pragmatic and feasible (based on their interest, resources and skill sets) which may increase opportunity for buy-in and implementation (Cochrane, 2007).