Attachment A – Narrative for Public Health Analyst, CDC/NCIRD/ISD/IISSB

For the past fourteen years at the Centers for Disease Control and Prevention, I have served as a Public Health Analyst in the Immunization Information Systems Support Branch (IISSB) at the National Center for Immunization and Respiratory Diseases (NCIRD), Immunization Services Division (ISD). My employment with CDC/NCIRD/ISD/IISSB has been entirely concurrent with my enrollment and coursework in the MPH program at Georgia State University School of Public Health. I am submitting this statement in support of my request to waive the practicum requirement on the basis of my practical work experience in the public health field in immunization information systems.

First, a brief description of immunization information systems. Immunization information systems (IIS) are confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area and consolidate them into a single record for each participating individual. For a participating immunization provider at the point of clinical care, an IIS can provide consolidated immunization histories for use in determining appropriate client vaccinations. For public health practitioners an IIS provides aggregate data on vaccinations for use in surveillance and program operations, and in guiding public health action with the goals of improving vaccination rates and reducing vaccine-preventable disease. CDC has been funding IIS development since 1994, and IIS are in operating and/or in development in all 64 U.S. state, city and territorial immunization programs.

As a Public Health Analyst in the IIS Support Branch, I serve as a subject matter expert and project officer for state, city, and territorial immunization programs to provide expert consultation in planning for, implementing, and evaluating their IIS programs. The mechanisms used for supporting these programs are either cooperative agreements or contracts, which require ongoing management and oversight. The cooperative agreements (CoAgs) for which I have served as Project Officer fall into three categories: non-profit partner, immunization program, and EHR-IIS interoperability. Each of these types of CoAgs requires different types of collaboration and partnership, both with internal CDC partners, external partner and state/city/local public health partners. As a Project Officer, IIS Consultant, or Technical Monitor for many of these, I have had the responsibility of assuring not only appropriate implementation but also that the desired outcomes for the programs are achieved. I have also had the opportunity with these projects to demonstrate knowledge and skills in all twelve Health Promotion and Behavior Competencies (HPBCs) that have been a part of my MPH curriculum during my tenure in the program.

A large part of my activities from 2010 to the present has been to serve as Project Officer on numerous EHR-IIS interoperability CoAgs. These awards fund IIS programs specifically to develop electronic interfaces between provider site Electronic Health Records (EHR) and their IIS systems in order to exchange immunization data. In this role I have lead the development and implementation of program evaluation activities to be carried out by 37 IIS programs. This task included formative evaluation activities such as engaging internal and external stakeholders in developing the measures and calculation approach (HPBC 9). Because EHR-IIS Interoperability awardees were very concerned about how they were being evaluated, overseeing the development and implementation of EHR-IIS interoperability benchmark data collection and analysis required ongoing communication with them via conference calls, presentations, and face-to-face interaction as to how the overall evaluation results would be calculated and shared and how the data would be used (HPBC 6). I developed outcome evaluation questions for these projects, which were based upon both specific minimum percent increases in metrics identified in the original Funding Opportunity Announcement (FOA) as well as the underlying rationale for the intervention (HPBC 9). These metrics included the change in number of interfaces and number of immunizations received in the IIS via the new interface, as well as changes in the time frame in which data was received from pre-enhancement to post-enhancement and reported immunization coverage rates for the targeted population. Consequently, this task required that I engage with the principal investigator for the program as well as other project officers concerning the creation of the evaluation plan, the data analysis
Throughout the project periods for these awards I was also engaged in process evaluation to assure that activities remained in scope (i.e. were faithful to the program purpose). Ongoing monitoring of these projects also entailed monthly calls to review activities to ensure appropriate implementation, and review of monthly metrics to verify accuracy, and following up with the awardee for clarification or correction (HPBC 9). I also performed ongoing management of interoperability benchmarking data collection and analysis, provided technical assistance to awardees to assure accurate interpretation of benchmarking logic guidance. These efforts included managing the development of an online data collection tool, within which edits checks were embedded to help ensure data validity as well as calculated metrics on benchmarking data to determine awardee project outcomes and inform progress reports. These findings reported in these reports will be used to quantify the overall impact (HPBC 12) of interoperability on IIS value and contribution to public health, as well as the potential future impact for the remaining population yet to be targeted by this intervention. After the completion of the projects, I reviewed final reports from the awardees, which I assessed for their quality, utility, and impact of the program on their population (HPBC 12).

I have also led the development of funding opportunity announcements (FOAs) for new CoAgs with a non-governmental partner organization to support IIS capacity building. Two separate awards were made to a not-for-profit partner, the American Immunization Registry Association (AIRA): a two-year CoAg in 2010 for Fiscal Years (FY) 2011 – 2012, and a three-year CoAg in 2012 for FY2013 – 2015. As project officer, I have overseen the ongoing implementation of these two CoAgs as well as provided input and feedback on evaluation approaches and summary reports for these projects. During the administration of these CoAgs I have engaged in lengthy discussions with AIRA about process and outcome measures that would be used (HPBC 6) to monitor progress on their projects. As can happen during evaluation activities, AIRA was apprehensive about how the information may or will be used, so it was my task to engage them in such a way so that we both agree on the measures. I also help them understand that findings will not only help identify areas where funds could be more effectively used, but also demonstrate the usefulness of their program. When the final report was submitted for review, it was my task as project officer to assess the evaluation report for its quality and its utility (HPBC 12), and how well it substantiated the stated impact of the program activities.

Other Health Behavior and Promotion concepts used during this work include the development of evaluation strategies and tools for educational interventions performed as part of the CoAg activities; these activities draw upon theories, concepts, and models for social and behavioral disciplines (HPBC 1). Evaluation strategies for education interventions conducted under the IIS capacity building CoAgs include measuring baseline knowledge, change in knowledge, and ability and confidence in implementing best practices. For overall program evaluation, stakeholder interviews were conducted as part of the evaluation and were compared to the quantitative data findings, therefore using both quantitative and qualitative data for evaluating program effectiveness (HPBC 10). Appropriate steps and procedures for planning, implementation, and evaluation of public health programs, policies and interventions (HPBC 2) were observed during the planning and writing of the FOA itself, during which multiple levels of leadership were engaged concerning the scope of the planned intervention as well as formative evaluation discussions around what the desired outcomes would be and how they would be measured. Implementation and evaluation issues were discussed during development but also on an ongoing basis with the organization after they were awarded the CoAg in order to assure appropriate implementation of the program (HPBC 5).

I have also developed a FOA for an upcoming five-year CoAg for FY2016 – 2020 for IIS capacity and operational support, which is an expansion of the previous two CoAgs. This effort required the development of a program logic model (HPBC 7). This exercise helped to explain the program rationale and the intended short term, mid-term, and longer-term outcomes. It also guided the development of process and outcome measures (HPBC 7) to assure that the program was implemented faithfully, as well as to measure the effect of the program to determine if the desired outcomes were achieved.
In addition to CoAg administration for non-profit partners, I also provide ongoing consultation and feedback for required IIS activities as part of NCIRD’s overall immunization program CoAgS funded by Section 317 (b). Health Promotion and Behavior Competencies related to this role include differentiation among goals, measurable objectives, activities and related outcomes (HPBC 8). I perform annual reviews of and provided feedback on annual CoAg applications, which include objectives and activities. As part of this annual review process, I evaluate my IIS awardees’ proposed objectives and performance measures for the year and provide feedback, when needed, on how they could be improved. I also perform an annual review of the awardees’ IIS Business Plan. In this plan they are expected to identify specific IIS goals, objectives, activities, and performance metrics in support of achieving the program aims of IIS implementation. My review entails assuring that the awardee appropriately distinguishes between these plan components, that there is alignment between their gap analysis, goals, objectives and activities so that their plan demonstrates a coherent chain of logic. I also review their proposed project monitoring plan to determine if their metrics will provide the kind of information they need to assess accurately their progress.

In my consultation role I also provide ongoing support to the IIS assigned to me for their ongoing operations. I provide feedback on their activities and progress by reviewing their responses on CDC’s Immunization Information Systems Annual Report (IISAR). This report gathers data concerning child and provider participation rates, adherence to functional standards, IIS-based coverage assessments, and applications of IIS data to support immunization program activities. To provide critical feedback I examine their data for trends and engage in discussions about CDC’s requirements, the IIS program’s individual aims, those of the immunization program it supports, as well as the overall status of the IIS community in the context of other national health information initiatives to help identify the most appropriate course of action that can be supported with available resources (HPBC 4 & 11). Most often the feedback I provide is given during interpersonal interactions during routine site visits to assess the progress of the program. Upon my assessment of an awardee’s IISAR the data can at times appear illogical or inconsistent, and site visits afford the opportunity to ask follow-up questions. Interviews held with the staff about the awardee’s IISAR data and program operations allow me to gather qualitative data to supplement the quantitative data provided in the survey, blending them to gain a better understanding of the overall meaning and status of the program (HPBC 10). Discussions usually reveal either a faulty interpretation of the question or faulty phrasing of the question itself. In these cases the findings are captured in trip reports written after returning from the visit, and are used to inform revisions made the next year’s IISAR hopefully increasing the survey’s reliability and validity (HPBC 10).

I have also had the opportunity to perform targeted evaluation projects on IIS functionality. One such project was the development of immunization forecasting test cases to evaluate variability across all IIS in their vaccine algorithm forecasting results. For this project, I designed an online survey tool to administer the test cases and collect the forecasting results. I then performed data cleaning and calculated variances from the Advisory Committee on Immunization Practices (ACIP) recommended interval among respondents. The resulting findings helped to substantiate the need for technology-neutral specifications for use by IIS to support consistent and uniform interpretation of the ACIP recommendations. This project afforded me the opportunity to perform critical evaluation and support decision making in public health (HPBC 4).

Effective communication is key to my work at CDC. I have developed multiple communications targeted to audiences across multiple modalities and settings, which require strategy-based communication principles (HPBC 3). Examples include the development of detailed presentations to convey complex logic guidance for program evaluation queries for EHR-IIS interoperability, as well as those to communicate higher-level summaries of program strategies, aims, as well as results to date to external partners as well as internal partners and CDC leadership. My understanding of health behavior theories, concepts, and models enable me to contribute to effectively promote IIS (HPBC 1). The Theory of Planned Behavior, for example, informs much of the communication strategies about IIS to immunization providers. For instance, when advising IIS about promoting provider participation in IIS, I often recommend that the program identify a participating provider from among their community and ask them to share their experience. When a peer becomes an IIS champion
and communicates a positive experience with IIS participation, it can have a strong effect on provider beliefs about IIS and the value of participation. Consequently, as participation increases, it becomes the norm within the provider community.

And finally, in my work supporting the ongoing development and operation of IIS, I apply my knowledge of the Ten Essential Public Health Services as follows:

I) **Monitor health status to identify community health problems.** As population-based systems populated with vital records data, IIS differ from most other health information systems in that they include the entire denominator of the population within their jurisdiction. As such, they can be used to identify pockets of need within the community and target outreach to those with the lowest coverage rates. My work with IIS includes consultation to help them attain this goal and identify opportunities for collaboration with other public health and community programs to meet immunization goals.

II) **Diagnose and investigate health problems and health hazards in the community.** As stated above, IIS can be used to identify under-immunized segments of the population and target campaigns to increase coverage. In assuring that IIS meet CDC’s functional standards, I help assure that these systems fulfill their potential for protecting community health.

III) **Inform, educate, and empower people about health issues.** In addition to consolidating immunization records, IIS are also used for provider education, and also to notify parents and guardians when immunizations are due or overdue. Provider education includes updates on vaccine recommendations, and notification of vaccine recalls, and also supports recall efforts to re-immunize patients who received sub-potent vaccine. In working with IIS, I provide recommendations and suggestions regarding use of their systems for provider and parent/guardian education about immunization issues, news and schedules.

IV) **Mobilize community partnerships to identify and solve health problems.** Information from IIS is often used by immunization coalitions to mobilize their communities to take action on immunization issues. As a Public Health Analyst in IIS, I encourage IIS to collaborate with community partnerships wherever possible in order to promote immunization. On a larger scale, I also serve as Project Officer on a cooperative agreement with our primary partner organization, the American Immunization Registry Association (AIRA). The activities I oversee under this agreement are primarily focused on identifying issues facing the IIS community, forming a plan to solve the problem and leveraging community members to develop the solution.

V) **Develop policies and plans that support individual and community health efforts.** In my current work I support the Pacific Island U.S. Territories (American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands) and three Freely Associated Pacific Island nations (Federated States of Micronesia, Palau, and the Republic of the Marshall Islands) in the implementation IIS in their jurisdictions. One of the current tasks of these nations is to implement cross-jurisdictional immunization data exchange. This project’s impetus is a data sharing agreement signed by the Board of the Pacific Island Health Officers Association (PIHOA), which is meant to support the prevention of vaccine-preventable disease transmission in the Western Pacific region. This project includes the development and implementation of user agreements, data use policies and operational procedures to support implementation, as well as managing the ongoing engagement of the Pacific Island IIS programs in the process. By supporting and enabling cross-jurisdictional data sharing, I am assisting in the development of local policy that will help reduce duplicate immunizations and preserve valuable resources as well as support reaching and maintaining high immunization coverage in a vulnerable region.

VI) **Enforce laws and regulations that protect health and ensure safety.** Many states and cities have legislation or rules and regulations that either mandate or authorize the creation and maintenance of an immunization information system. The Federal government also have laws, such as the Family Educational Rights and Privacy Act (FERPA) governing the sharing of student information. My work supporting IIS programs frequently includes discussions concerning IIS and immunization-related laws,
privacy and confidentiality issues, and provide guidance on how to implement these systems in a way that reconciles all applicable legislation.

VII) **Link people to needed personal health services and assure the provision of health care when otherwise unavailable.** IIS are ideally suited to identify vulnerable individuals and sub-populations who fall through the cracks of the health system. As population-based systems, IIS help activate the public health safety net and help public health workers assure that these people are provided with the services they need to protect their individual and public health. The consultation I provide helps the IIS support immunization program efforts to monitor populations appropriately and assure needed services are provided.

VIII) **Assure a competent public health and personal health care workforce.** The Advisory Council on Immunization Practices (ACIP) schedule, which is promoted by CDC for optimal protection against vaccine preventable diseases, can be difficult to interpret. Because IIS can evaluate immunization status and provide recommendations for needed immunizations, they can help assure that individuals being seen in both public and private clinics get only the vaccines they need, and at appropriate intervals when they provide the most protection. I support IIS in adopting the latest clinical decision support for immunization guidance that available for their systems and therefore support immunization decisions at the clinical level.

IX) **Evaluate effectiveness, accessibility, and quality of personal and population-based health services.** In my work I provide feedback on IIS activities and progress by reviewing their responses on CDC’s Immunization Information Systems Annual Report (IISAR). This report gathers data concerning child and provider participation rates in their IIS, their adherence to functional standards, and their IIS-based coverage assessment rates. To provide critical feedback I examine these data for trends and engage in discussions about CDC’s requirements, the IIS program’s individual aims, those of the immunization program it supports in order to assure that the program has appropriate recommendations for action that will improve their effectiveness and meet program goals.

X) **Research for new insights and innovative solutions to health problems.** For the past four years, I have been serving as Project Officer on numerous cooperative agreements awarded to state and city IIS for the implementation of electronic interfaces between their IIS and provider site EHR. This is an innovation that addresses a barrier to data collection in IIS. Providers who use EHR do not want to enter data twice – once in their EHR and again into the IIS. Creating this type of interface presents numerous challenges, however the effort results in increased accuracy and timeliness of data, and therefore higher quality of data upon which to base provider and public health decision making.