A Framework for Evaluating Electronic Health Records Guidelines for Applying to the Davies Recognition Program

Nicholas E. Davies Public Health Award of Excellence
January 2010

The Healthcare Information and Management Systems Society (HIMSS) launched the Davies Award for computerized public health information systems in 2004, in partnership with the Centers for Disease Control and Prevention (CDC), the American Public Health Association (APHA), the Association of State and Territorial Health Officials (ASTHO), the Council of State and Territorial Epidemiologists (CSTE), the National Association of City and County Health Officials (NACCHO) and the Association of Public Health Laboratories (APHL).

Table of Contents

History of the Award

This award program was created in 1994 by CPRI-HOST, which merged with HIMSS in 2002. The award honors Dr. Nicholas Davies, an Atlanta-based physician who was committed to improving patient care through better health information management. Dr. Davies was a member of the Institute of Medicine's patient record study committee. In April 1991, he was killed in a

plane crash in Georgia. His ideals live on through the Davies Award of Excellence, which recognizes excellence in the field of health information technology in healthcare organizations.

In its first years the Davies Award of Excellence focused on large health systems. It expanded into independent ambulatory practices in 2003; public health in 2004; and community health organizations in 2008. The Davies Award of Excellence has been presented to 27 healthcare organizations, 19 ambulatory practices, 13 public health organizations and six community health organizations since the program's inception in 1995.

The Davies Public Health Award honors excellence in the development of systems that creatively and effectively utilize electronic data on individual patients/clients to promote the organization's own mission and to further the health of the public in the area for which the organization is responsible. Although the award is offered primarily with state and local health departments in mind, other organizations that have population health impacts (e.g., WIC Clinics, poison control centers) will be considered for the award if their applications involve effective systems targeted primarily to promote public health that clearly meet the criteria for the award.

The founding partner organizations worked with HIMSS to develop the guidelines for application and evaluation, conducting site visits and determining the winners. The entire process is reviewed and, as necessary, updated annually by the Davies Public Health Committee. We are excited about this great opportunity to encourage and recognize successful use of information technology in public health.

Award Recipient Recognition

Winners of the Davies Public Health Award receive their award at the 2011 Annual HIMSS Conference & Exhibition in Orlando. The winners also will participate in a "lessons learned" panel discussion at HIMSS11 and sign a copyright agreement for including the application paper in the symposium proceedings and possible additional publications in order to share approaches and lessons learned with other organizations. Finally, winners are asked to note in their organizational material or presentations that they have been awarded a Davies Public Health Award. We applaud the public health systems that share their experiences by applying for the Davies Award, but would like to emphasize that every public health system forging ahead in implementing systems that exhibit sound information technology concepts and principles deserves to be recognized.

Award Eligibility

The Davies Public Health Award is applicable to any federal, state, local, tribal or non-profit public health program that improves the health of a defined community through health information management. Size of the system does not matter, but the community impacted must be clearly evident and described by geographic area, socioeconomic group or other applicable factors. The emphasis must be on measuring and improving the health of a defined population, not on individual patient care. The production system must be in routine (preferably daily) use

and provide data currently acted upon by public health professionals. Public health informatics researchers from academic or research organizations should partner in application with the government organizations employing these systems in practice.

Vendors are not eligible to apply for the award, but they may assist by providing information or exhibits, or by sponsoring research on the value the organization achieves through the computerization of the public health system. Public health systems must incorporate information technology into all phases of the system's operation and practice. Because the Davies Award measures success in terms of the value achieved through implementation, the organization also needs to have been using the system long enough to describe and provide evidence for improvements in efficiency, quality, service, and staff or public satisfaction, as appropriate to the local expectations HIMSS Davies Awards that led to the initial investment.

Healthcare vs. Public Health

Directly providing healthcare is an important function of public health. Applicants for the Davies Public Health Award whose systems are centered on providing care will be considered on how their data improve overall public health delivery to the targeted population. Systems that primarily benefit improved care to individual patients are encouraged to apply for the Davies Ambulatory Award.

Following illustrates how the review committee will evaluate this fine distinction: A public health clinic serving a population base uses their patient care system to alert patients when specific diabetic care is needed, helps facilitate appointments, and records the care. If that is the limit of the system, as described by the application, the Davies Ambulatory Award is the more appropriate application. However, if the public health department, for example, can illustrate that it routinely uses data provided from its system to plan improved care delivery—such as increasing the number of clinics, multi-language alerts, etc.—it is appropriate to apply for the Davies Public Health Award. Enhancing the care of the overall population, rather than simply improving efficiency of care delivered at the public's expense, is a key component of this award's application.

What Constitutes a Computerized Public Health System?

An electronic public health system should be capable of electronically collecting data; distributing data to appropriate program areas; providing data in formats ready for use by public health professionals; and gathering responses by public health professionals. Another key component is the ability to share public health data electronically with other appropriate systems in a standardized and secure fashion consistent with best practices. *This is the bare minimum functionality, and organizations with more robust systems are likely to have a much more impressive story to tell about what they have achieved!*

Davies Public Health Award: Application Process Essentials

- The Award recognizes the use of person- and population-level data for public health issues, and ideally, its impact on population health. It does not recognize care delivery.

- Vendors can provide assistance to the applicant organization, but cannot apply for the award themselves.

- Public health informatics researchers should provide assistance in submitting the application.

The Davies Public Health Award recognizes excellence in an organization's effective use of a public health electronic information system using the following criteria:

1. The system is in routine use and has been incorporated into all phases of the system's operation and practice.
2. The system has been implemented long enough to show strong evidence of measuring and improving the health of a defined population, not individual care.
3. The system provides data currently acted upon by public health officials.
4. The system shares data in a standardized and secure manner with other public health systems.

A document containing Davies Public Health Award application pre-requisites is available at www.himss.org/davies "How To Apply",

You are strongly encouraged to review this information prior to downloading/completing the application. Appendix A of this application summarizes the key functional areas and future directions of select public health information systems as described by past winners and peer-reviewed literature. These functional areas are not pre-requisites for applying to the Davies Public Health Award, but are provided as guidelines. As an additional resource, applications of past winners are available online for review.

The application is an essay, such as you might submit for publication, covering the topics requested below under Guidelines. The appropriate length is 10 to15 pages; longer submissions are discouraged. If additional information needs to be included as appendices, contact David Collins at 804-550-1619 prior to submitting.

The Public Health Davies Committee reviews applications to select finalists and winners. Finalists will be notified by **the end of May** in order to prepare for a virtual site visit in June. Following virtual site visits, finalists will be notified by **mid-summer if they have been selected as a winner**. The application deadline for 2010 is **Friday, April 16, 2010, at 5 p.m. (ET)**. Applications should be e-mailed as a PDF file to David Collins.

Application Contents

Section A: Identifiers

The following identifiers should be included in the application:

1. Name and professional title of submitter.
2. Public health organization name.
3. Public health information system name.
4. Mailing address, including city, state and ZIP code.
5. Telephone and fax numbers.
6. Submitter's e-mail address and the organization's Web site.
7. Description of community(ies) or population(s) served.
8. Number of full-time employees:
    a. In entire organization (list by staff category).
    b. Directly involved in submission project.
9. Description of public health program(s) directly affected by the public health information system described in this application.
10. The names and titles of the members of the Electronic Public Health Information Team (considered authors of the application).

Section B: Guidelines for Application

These guidelines present the general outline and required topics for the application paper. Since this is an information technology award, IT descriptions should be succinct and clear. However, the focus of the application should be on measurable population health outcomes. ***Concrete, real-world examples of the system's impact on population health are highly encouraged.***

The Organization

Provide a general description of the public health organization, including the type, size and mission, as well as the population it serves.

Management

(Page Guidelines: 1-2 pages)

1. *Objectives:* Describe why the organization decided to implement an electronic system and what it hoped to accomplish by doing so. Include specific expectations and/or programmatic needs, perhaps framed in a business case or other planning document used to justify the investment. Objectives could include increased distribution of information, completeness of

reporting, cost-savings, and describing improvements in such categories as timeliness, response time, detection of outbreaks, public health situational awareness and screening rates. (Note: This will provide the framework for discussing what you have accomplished.)

2. *Project Organization:* Describe roles and responsibilities for managing the system effort, including accountability for success and the resources assigned. Briefly describe how roles and responsibilities from pre-implementation to post-implementation have evolved.

Implementation

*(*Page *G*uidelines: 3-6 pages)

1. *Public Health Organization – Segments Involved:* Identify areas in your organization that routinely use the system in your public health practice and provide examples.

2. *Scope:* Describe the system's functionality (data access, data entry, information dissemination, decision support, workflow and communications, etc.). Briefly describe the technology and standards used, including interfaces with other systems and the user interfaces employed, and the role your area plays in managing the technology.

3. *Exchange and Interoperability Levels:* Health information exchange can be described as the mobilization of health information electronically across organizations within a region or community according to nationally recognized standards. Describe your level of electronic health information exchange with other organizations using nationally recognized standards. The status and degree of information exchange with other public and private information systems should be clearly described, including, at a minimum, messaging and terminology standards you use and if the exchange is bi-directional. Note if you connect or plan to connect to state or regional health information exchange organizations. Describe how the system is deployed, including challenges associated with implementation and utilization and the extent to which you have addressed issues related to security and accuracy of the information.

4. *Privacy Protection:* Describe how identifiable data are protected as they move through the electronic system. Include in this description security steps taken to protect data in motion and at rest, authentication methods used, and how identified data are created, used, accessed and stored.

5. *System Implementation:* Describe your approach to rolling out the system, including how you phased the rollout, how you redesigned processes (such as workflows), and how you completed staff training and established ongoing support. Provide a development and implementation timeline, documenting the number of users/partners. If a phased implementation took place, briefly document the proportion of users/partners (number of total users out of total potential) that are operational at each stage.

6. *Current State:* Characterize the current state of implementation in terms of the intended users (outside data providers, internal public health professionals, policy makers, general public,

etc.) and uses of the system (external submission, internal case workup, Web-based reporting, etc.). What proportions of potential users are currently and routinely using the system as an integral part of their work? Is the system used to enhance data collection, analysis and dissemination of information? If appropriate, describe the percentage of data collected by the system vs. those reported by other means. Describe the decision support in routine use, which could include integrated displays of patient data, note templates, order sets, rules-based prompting, etc. Describe collaborative partnerships in sharing data/information and its use by each partner. Describe how the system addresses meaningful use as currently defined by CMS (see Appendix for additional detail).

7. *Data Quality*: Describe how data quality issues are documented monitored and, where possible, resolved. This may include data matching and de-duplication efforts, as well as reports made available to end users informing them of missing and/or inaccurate data.

Value

(Page Guidelines: 4-7)

1. *Impact on Population Health and Public Health Practice:* Using the objectives discussed above to organize the discussion, review the extent to which your system has achieved expectations. Formal research is ideal, but not required. Cite the best qualitative and quantitative evidence. Metrics: Internal and external user satisfaction and descriptions of transformed processes, as well as measures of quality, process efficiency, productivity, completeness, timeliness, customer service; improved dissemination of public health information in the form of health measures, benchmarking, public health notifications, informing the media, etc. The impact described should clearly document enhancements/improvements to public health practice and public health outcomes.

2. *Costs and Benefits Offsetting Costs:* Describe the costs of the effort, including those of implementation, and any financial or non-financial benefits realized to date that offset that investment. Identify public and private sources and amounts of funding to support both start-up and ongoing operations. If the business objectives were based on a formal return on investment analysis, describe the anticipated and actual return. Has any form of evaluation of the system been conducted? What is user satisfaction?

3. *Lessons Learned/Critical Success Factors:* Please provide two to three paragraphs in your description.

    a. To what do you attribute your success?

    b. In hindsight, what do you wish you had known before you started?

    c. Many other public health entities hope to implement electronic systems and need as much advice as they can gather. Share your thoughts regarding:

        - Organizing the effort, and in purchasing or building a system, etc.

- Achieving the necessary technical performance.
- Engaging external stakeholders, including those who affect system interoperability requirements.

4. *Dissemination*: Describe efforts to share lessons learned and best practices through conference presentations, peer-reviewed publications, documentation on publicly available Web sites, etc.

5. *Transportability*: Describe the exportability/reproducibility of the system. Can other entities re-use your system or components of your system?

Appendix A: Functionality of Select Public Health IT Systems as Guidance for Applicants

Past HIMSS Davies Public Health Award winners have demonstrated functionalities and capabilities outlined below. This list is not meant to be interpreted as application pre-requisites and it is not used as a screening tool for applicants. Instead, this list is intended to serve as guidance about functionality that public health systems may include and where these systems may be headed in the near future. The Davies Public Health Committee also utilized peer-reviewed literature and consulted subject matter experts to develop these lists and ensure the most accurate representation possible. Not all types of public health systems are represented here; any type of public health system is encouraged to apply for the HIMSS Davies Public Health Award, provided system implementers can demonstrate public health value and impact of their system.

Meaningful Use

Davies Public Health Award-winning systems should be able to participate fully in public health related data exchanges as defined by meaningful use efforts spearheaded by the Office of the National Coordinator (ONC). The ***ONC criteria for meaningful use*** can be found online at ***http://www.federalregister.gov/OFRUpload/OFRData/2009-31217_PI.pdf***. In the proposed rule, public health agencies are not required to demonstrate ability to receive data from providers using electronic health records as explained on page 107. Davies Public Health Award winners, however, should be able to demonstrate clearly the successful receipt of data into reportable disease systems, immunization registries, syndromic surveillance systems and other systems as appropriate from eligible providers. 2010 applicants unable to demonstrate this successful data transmission should provide explanation.

EHRs used for Population Health

Past Winners

2009: Denver Public Health, Denver Public Health Information Service (DPH-IS).

2008: Cherokee Indian Hospital Authority (CIHA), Resource Patient Management System (RPMS) Electronic Health Record (EHR).

2006: Behavioral Health Integrated Provider System (BHIPS) (Web-based EHR).

2007: Institute for Family Health.

2005: Indian Health Service Clinical Reporting System.

Population health system components of EHRs demonstrated by past winners:

- The system provides aggregate reporting capabilities for rates, incidence and prevalence of diseases/outcomes of interest.
- Population health information from the system is used to inform policies and programs, as well as primary care.

Future directions for population health tracking in EHRs

- Utilizing clinical information in EHRs to develop targeted prevention and intervention programs.

Electronic Disease Surveillance Systems

Past Winners

2008: New Jersey Department of Health and Senior Services (NJDHSS), Communicable Disease Reporting and Surveillance System (CDRSS).

2007: Illinois – National Electronic Disease Surveillance System (I-NEDSS).

2004: Pennsylvania's National Electronic Disease Reporting System (PA-NEDSS).

Electronic disease surveillance systems components demonstrated by past winners:

- System is used for case reporting, surveillance, case management *and* outbreak detection and management.
- Outbreak management includes linking cases, documenting risk factors and potential sources of outbreaks.
- In addition to capturing important data through browser-based entry, systems are used for documenting control measures and other applicable public-health responses.
- Users are able to retrieve surveillance-type reports (incidence and prevalence) that are used to inform public health practice/program management.
- System reports automatically to the CDC.
- System supports electronic laboratory reporting (ELR) from at least two distinct sources.
- System includes all communicable diseases, or all communicable diseases with plans to include HIV/STD/TB/HBV.
- Systems are integrated with other public-health applications such as death registries.
- Systems are flexible and able to be modified quickly to begin collecting new information as public health events dictate.
- The system helps streamline communications across jurisdictions for multi-jurisdictional outbreaks, across municipality or county lines, or even across state boundaries.
- The system helps improve workflow processes to better help triage and/or prioritize cases.

Future directions for Electronic Disease Surveillance Systems

- System supports electronic disease reporting from hospitals and providers in a standardized, automated way as defined by EHR meaningful use
- System supports bi-directional flow of information between the health department and providers. Population-based information from electronic disease surveillance systems is used to inform primary care

Immunization Registry Systems (Immunization Information Systems or Child Health Information Systems)

Past Winners

2004: Utah Statewide Immunization Information System (USIIS)-Utah Department of Health

Immunization registry systems components demonstrated by past winners:

- Populated with and linked to the state's electronic birth records system.
- Active bi-directional data exchange with public health and private providers as well as hospitals (this supports meaningful use).
- De-duplication module.
- Real-time HL7 messaging.
- System available to schools.
- Data exchange with other child health information systems (newborn dried bloodspot screening, hearing screening, WIC systems, vital registration, etc.)
- Information/data produced are used for intended purposes (tracking vaccine, reporting, epidemiology, etc.)
- Integration with vaccine ordering and accountability systems; integration with CDC's Vaccine Ordering and Distribution System (VODS).

Future directions for Immunization Registry systems

- Use of Master Patient Index.
- Data exchange with health information exchange organizations (system fully participates with HIEs.)
- Patient/parent access.
- Integration with (export to) personal health record systems.
- Facilitate surveillance of immunization coverage levels, including the identification of significant disparities, gaps and vaccine safety concerns.

Syndromic Surveillance Systems

Past Winners

2009: Boston Public Health Commission, Infectious Disease Bureau; Boston Syndromic Surveillance System (B-SYNSS).

2005: North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT).

Syndromic surveillance systems components demonstrated by past winners:

- System collects data from more than one data source and at least one of those data sources covers the entire population for the surveillance system's jurisdiction.
- Syndromic surveillance information is integrated into daily workflows; it is trusted and validated information and used regularly to inform response.
- Data are timely enough to be useful for public health response.
- Syndromic surveillance information is shared with the media and public on a regular basis.
- Cross-jurisdictional system linkage to share information across borders and provide regional and national views.
- System is flexible to add and remove syndromes as needed and facilitate tracking and identification of emerging diseases and known events.

Future directions for Syndromic Surveillance Systems

- Bi-directional exchange of information with healthcare providers; syndromic information is incorporated into primary care.
- Leveraging federated data models to provide access to additional data sources as needed for investigation and response.

For questions or clarification, please contact David Collins, HIMSS, Director, Healthcare Information Systems, 804-550-1619 or dcollins@himss.org .