Testimony
Information Technology Committee
April 4, 2012
North Dakota Department of Health

Good morning, Chairman Weisz and members of the Information Technology Committee. My name is Kirby Kruger, and I am the director of the Division of Disease Control for the North Dakota Department of Health. I am here today to provide a close-out summary on the Department of Health's electronic disease reporting system, Maven

The Maven system became operational January 1, 2010, with all but four of the components functioning. The system is now fully functional. The product has performed to our expectations with only minor challenges so far.

Since my last update to this committee, we have completed our large project close-out report, which this committee has received.

The project was completed on budget, and the scope of the project has not changed since we started. The project has taken longer than expected and we implemented the project at 125 percent over schedule with four components still in development. Final implementation occurred at 215 percent of the final baseline and 413 percent of the original baseline.

Some of the lessons learned in the process include:
1. We underestimated the project timeline.
2. The initial staff member working on the project left early in the process, and new staff members had to be trained and brought up to date. This process took additional time. Since then, four staff members have working knowledge of the technical side of the Maven program.
3. Future large projects will include a dedicated project manager, if financially feasible.
4. We felt it was beneficial not to rush and compromise the product just to meet established timelines.
5. By contractually tying specific deliverables with payment, we were able to stay on budget for the services delivered by the contractor.

We had several successes that are worth noting.

1. Electronic laboratory reporting is progressing with the state laboratory reporting electronically along with two major, private reference laboratories submitting electronic reports to our test site and we have contracts in place with four hospital laboratories to submit electronic records.
2. We have already identified cases reported through electronic laboratory reporting that were not reported by the health-care provider. This earlier reporting allows our staff to initiate disease investigations in a timelier manner.
3. We are the first state in the nation to implement the conversion of STD data and STD data reporting extracts.

This concludes my testimony. I am happy to answer any questions you may have.

Project Closeout Report
Presented to the IT Committee April 4, 2012

Project Name: Department of Health's Electronic Disease Surveillance System

Agency: ND Department of Health

Business Unit/Program Area: Division of Disease Control

Project Sponsor: Kirby Kruger

Project Manager: Tracy Miller

Objectives		
	Measurements	
Project Objectives	Met/ Not Met	Description
Beginning go live date, conduct surveillance and investigations for all reportable conditions using one centralized surveillance system.	Met	After the go live date, the NDDoH will evaluate the degree to which all reportable conditions are being reported and investigated using the new system and determine which ones, if any, are not.
		Since Maven has been implemented all reportable conditions reported to NDDoH are being monitored and investigated in Maven. Dreams, the historical disease surveillance system was retired in October 2011. Dreams was one of the three silo systems that have been retired since Maven became the primary surveillance system. The field epidemiologists are able to go into one surveillance system to identify the reported cases and are able to investigate all cases using the Maven system.
Beginning go live date, the NDDoH will extract weekly reports from the surveillance system to be transmitted electronically to the CDC.	Partially Met	The extract will be evaluated in comparison with the data collected to ensure that the extract contains all necessary data. In addition, the extract will be verified by the CDC to ensure the correct format is being utilized.
		The extracts were not in production on the go live date, but they have been completed and are in production at this time. ND was one of the first states to implement the STD conversion of historical data and data reporting extracts which lead to a significant learning curve for the vendor and NDDoH. Currently there are 14 states or larger cities that are using the Maven product. ND and SD are the only states that are using Maven to report all of the reportable conditions.

To decrease the lag time between when a physician clinically diagnoses or a laboratorian returns a positive result for a disease and the NDDoH is able to provide intervention. Currently the lag time varies by facility. Each facility will have to be evaluated individually and then the state as a whole. The goal is to have all conditions reported within 24 hours of diagnosis or lab confirmation.	Not Met	The NDDoH will calculate the time between report date and the date the investigation begins in the new system and in the old system and compare. Currently there is only one lab reporting electronically to Maven. Daily evaluation and alerts are in place with this laboratory to ensure that data is continuously being reported and no issues arise. Evaluation will continue to take place as more labs implement electronic laboratory reporting.
To adequately meet the alerting needs, the system must automatically generate user defined alerts when thresholds are breached. In addition, the system must interact with the Health Alert Network (HAN) for additional alerting capacity.	Met	The NDDoH will conduct tests during user acceptance testing and then every six months to trigger alerts both within the system and with the HAN to evaluate the reporting capabilities. The HAN interface was successfully tested with the program manager, division director and Maven coordinator receiving both emails and phone calls. This feature will continue to be evaluated.
Additional data analysis software such as SAS must be utilized to completely analyze the data. In order to do this, the data must be pulled out of the system by an end user, without the need for a programmer, into a file type that can be utilized by SAS.	Met	The NDDoH will test the software during user acceptance testing and compare the exported data to the existing data in the system to ensure that all fields are contained. Reporting from Maven is working as designed and epidemiologists are able to export and evaluate the data to meet business needs. Data from Maven can be easily extracted into line lists by the end users. The extracted information can then be analyzed by the end users using the necessary software. Adhoc reporting is also available to the administrative users. A new Maven feature will allow end users to create their own adhoc reports using limited administrative access.
To aid in the investigation of outbreaks and to meet federal requirements, the NDDoH must have an electronic outbreak management system. In addition, there must be complete integration between basic disease surveillance functionality and outbreak management.	Met	The NDDoH will test the software during user acceptance testing and compare results to national standards to ensure that it conforms to federal standards for an outbreak management system and complies with the needs of the division. The outbreak management system is integrated with Maven which allows for case detection of clusters, the input of outbreak data as well as turning outbreak patients into cases when the lab reports are identified and put in Maven. The outbreak management system was tested and continues to be enhanced to meet business needs.
The NDDoH must have the ability to add, retire and edit data fields without the need for a programmer so that changes can be made on the fly.	Met	The NDDoH will test the software during user acceptance testing to ensure that all data fields can be manipulated by a system administrator without the need for a programmer. Four people in Disease Control have the capability of making changes to the question packages. Configuration of the question packages is easily completed and programming knowledge is not needed in order to make the changes. Since implementation, many data fields have been edited, deleted or retired without assistance from the vendor to stay current with the CDC reporting guidelines and the surveillance needs of the different programs in the division.

To increase the number of laboratories that are reporting electronically and allow infection control personnel access to their data within the system.	Not Met	The NDDoH will assess the number of laboratories that are reporting electronically prior to January 1, 2009 and on a quarterly basis after that. Prior to January 1, 2009, the goal is to have the Division of Microbiology reporting electronically. After that, the goal is to add one new laboratory each quarter.
		The Division of Laboratory Services is currently the one lab that is reporting to Maven. An assessment was done October 2011 to identify laboratories that were prepared to implement electronic laboratory reporting (ELR). Disease Control is receiving messages from ARUP and Mayo at this time. Configuration changes are being made to Maven to accept these messages. Five additional laboratories have purchased interfaces that are needed to move forward with ELR. Once this framework has been established in Maven additional laboratory connections will be less labor intensive. Communications will continue to be made to laboratories across the state with the goal of assisting these laboratories to become Meaningful Use compliant.

Schedule Objectives					
Met/ Not Met	Original Baseline Schedule (in Months)	Final Baseline Schedule (in Months)	Actual Schedule (in Months)	Variance to Original Baseline	Variance to Final Baseline
Not Met	8 months	13 months	28 months	426.7%	223.9%

Budget Objectives					
Met/ Not Met	Original Baseline Budget	Final Baseline Budget	Actual Costs	Variance to Original Baseline	Variance to Final Baseline
Met	550,000.00	NA	550,000.00	0%	0%

Major Scope Changes
None

Lessons Learned
- We underestimated the project timeline. A certified project manager may have been able to help determine realistic timelines.   - We did not have enough depth in our staff when the project started. At the beginning, only one person on our staff had working knowledge of the system and how to configure it. When she left early in the project, several people in the office became involved to create more depth. However, this process took a lot of time.   - In the future, we plan to include a dedicated project manager in any large ITD projects.   - A lesson we learned from previous experience with a different software developer was applied to this project; that is, don't rush and compromise the product just to meet established timelines.   - Prior to meaningful use private medical laboratories had little incentive to report electronically which resulted in minimal interest for these laboratories to connect to Maven.   - Creating custom reports require the vendor to write custom code resulting in a potential time delay and incurred cost.

Success Stories
Electronic laboratory reporting has been implemented with The Division of Laboratory Services and other laboratories are in the testing phase. We have identified cases in Maven that came in electronically that were never reported by the referring facility, thus allowing the field epidemiologists to follow up more quickly. It is important for the field epidemiologists to conduct their investigations in a timely manner. The interviews that are completed by the field epidemiologists with the case will give the program areas the necessary data in order to determine a source for a possible foodborne or water outbreak and prevent further cases, for example. If the interviews are conducted in a timely manner a more comprehensive food history can be collected because the case is able to recall what they have

eaten in the past few days. Another example would be for vaccine preventable diseases, a timely investigation will indicate if a case is up to date and determine if prophylactic treatment is necessary.

- Since Maven has been implemented, three silo systems have been eliminated and it anticipated that three additional systems will be eliminated within the next two years.
- One of the benefits of Maven is that the system is able to be easily configured to the changing business nof the division. Some of the enhancements that will be made to Maven above and beyond the case management module that is currently in production are as follows:

   1. Currently Disease Control does not have a database for animal bite complaints and potential rabies exposures. Maven is being used in other states to monitor and to evaluate this data. Discussions have been underway to get this feature implemented in North Dakota.

   2. North Dakota is seeing an influx of people in the western part of the state, therefore increases environmental and foodborne complains, due to an increase in oil production. The outbreak module is currently being tested to monitor these complaints from across the state.

- Maven is meaningful use compliant which allows Disease Control to accept ELR messages from those laboratories working towards meaningful use.