

REQUEST FOR PROPOSAL

**DEVELOPMENT OF A  
COMMUNICABLE DISEASE  
SURVEILLANCE SYSTEM**

NORTH DAKOTA DEPARTMENT OF HEALTH  
DIVISION OF DISEASE CONTROL  
600 EAST BOULEVARD AVE.  
BISMARCK, ND 58505-0200  
TELEPHONE NO.: 701.328.2378 or 800.472.2180

# REQUEST FOR PROPOSAL

## INTRODUCTION

**The North Dakota Department of Health (NDDoH) is seeking a systems integration company to develop and implement a data management and surveillance system for the Division of Disease Control (DC).** This system will form the foundation of the public health data warehouse environment for the NDDoH and must conform to the specifications of the National Electronic Disease Surveillance System (NEDSS) of the Centers for Disease Control and Prevention (CDC). This system will be the basis of an evolving integrated surveillance environment. In addition to Program Area Modules, future additions may include emergency department syndromic surveillance reports, Ask-A-Nurse surveillance, ambulance/emergency services reports, pharmaceutical sales, and animal health surveillance. The immediate goals for the project are to:

- develop and integrate an Integrated Data Repository utilizing existing NDDoH data programs such as the North Dakota Immunization Registry.
- develop and install a web-based communicable disease-reporting program that accepts electronic laboratory, other electronic medical information and allows manual web-based reporting.
- integrate receipt of electronic laboratory test results from the North Dakota Public Health Laboratory and private hospital and non-hospital-based laboratories.
- integrate a geographic information system mapping and data analysis and graphical presentation programs for reporting, managing and monitoring diseases.

Information regarding NEDSS can be found at: [www.cdc.gov/nedss](http://www.cdc.gov/nedss) and [www.csts.org/pdf/NESS\\_book\\_Final.pdf](http://www.csts.org/pdf/NESS_book_Final.pdf).

The development of a data management system for the Division of Disease Control Disease Surveillance Program will consist of two phases of application development. Phase I will involve developing a system to conduct essential day-to-day disease surveillance operations and will be delivery based. Phase II will involve providing additional system enhancements that will be hourly based. The hourly-based components will cover more advanced features, such as sophisticated data analysis, graphing and mapping, and integrating CDC's Program Area Modules (PAMs) as they are developed and deployed. Hourly-based deliverables will be addressed as the system evolves, at which time details will be negotiated between the NDDoH and the selected contractor. This project is targeted to commence upon written notice to proceed by the NDDoH. **Phase I is to be completed within six (6) months following notice to proceed.**

## THE DISEASE CONTROL DISEASE SURVEILLANCE SYSTEM (DCDSS)

The Division of Disease Control is responsible for tracking mandated reportable conditions and:

- promptly investigating cases of selected diseases to prevent further transmission.

- ensuring that household or other close contacts of selected disease cases receive preventive treatment.
- investigating disease outbreaks to identify and eliminate their sources.
- educating the public and medical community regarding disease prevention and treatment.
- determining whether reported cases meet specific surveillance definitions for inclusion in disease statistics.
- preparing statistical reports.
- reporting to state and national disease registries.

The DCDSS will be used to track disease reports received from hospitals, laboratories, physicians and other health care providers. The system must be capable of receiving key-entered and electronically-transmitted disease and laboratory reports, assigning case investigations, tracking workflow, generating management and surveillance reports and exporting data.

The DCDSS must conform to the CDC National Electronic Disease Surveillance System (NEDSS) standards in its terminology, architecture, coding, security, and electronic interchange capabilities. Phase I will include the implementation of the Integrated Data Repository (IDR) that supports the DCDSS. The IDR must be able to associate incoming data from one system with current data from another system, such as when a report is received concerning a disease in a person who had another condition previously reported by a different surveillance system. Therefore, the system will require a de-duplication tool capable of applying different business rules to identify and merge duplicate disease reports for the same person into a single patient record. Additionally, the IDR will have business processes developed to import data stored within the current North Dakota Department of Health Immunization Registry on a timely basis, i.e., every morning at 12:01 A.M. or manually in case of an emergency.

Initially, only staff within the NDDoH will use the surveillance data regularly. Staff include data-entry personnel, field and supervisory epidemiologists, research scientists and physicians. A limited number of staff will have administrative access rights in the initial system. In the future, all authorized NDDoH staff will require access to the new system. Multiple levels of access will need to be developed within the system to accommodate the passing of data based upon security assigned to different levels. Security will need to be controlled at the administrative level.

The DCDSS will be deployed within the current state technological architecture. A critical condition of contractor selection will be the ability for a system to function within that system.

## **I. SCOPE OF WORK**

The contractor's proposal must include theoretical frameworks and methodologies that will be used to meet the system requirements and specifications included in Attachment 1. A detailed Project Work Plan with goals, objectives, tasks and timelines must be included in this section. The work plan should address the areas cited below.

### **A. Project Deliverables: Phase I**

### **Deliverable 1: Preliminary assessment**

The contractor will develop a preliminary assessment of the data capture needs of the DCDSS and develop a detailed work plan to implement the system. At minimum, this work plan shall include:

- an assessment of the data capture needs.
- list of personnel, including titles and roles.
- an emergency contact list with full contact information for all relevant participants including any commercial partners or vendors upon whose products or services operations are dependent.
- specific disaster avoidance procedures, including redundant storage of all critical data and procedures for avoiding loss.
- specific disaster recovery procedures that account for possible partial and total loss of facilities, systems, specific staff, or other conditions.
- a detailed plan and documentation to assure security and confidentiality of DCDSS data is maintained.
- a detailed work plan for implementation of all other deliverables and transactional services that shall include all of the items listed above and below, plus staffing and a timetable for completion of the project.
- criteria for success or failure at each step of the project.
- recommendations by the contractor for appropriate hardware and off-the-shelf software to support the DCDSS. If the contractor chooses to include the purchase of hardware and software in their proposal, they will also be responsible for installing and testing the hardware and/or software. The contractor will be responsible for training NDDoH staff on the use and maintenance of the equipment.

### **Deliverable 2: System design document to include:**

- an entity relationship diagram.
- technical approach & requirements.
- business rules/edit checks.
- mock up or actual screen designs presented to the appropriate NDDoH staff. The contractor will request feedback on screen designs from the NDDoH and implement changes and suggestions into the design.
- a plan for compatibility and communication with modular GIS component.
- a plan for compatibility to receive disease reports through web-based provider reporting.
- a plan for compatibility with the Laboratory Information Management System so that specimen result information can be shared seamlessly between DCDSS and the North Dakota Public Health Laboratory and other private laboratories and providers.

### **Deliverable 3: Programming/coding to include:**

- database creation.
- screen development.

- population of test data.
- incorporating business rules (checks and balances).
- import/export function (including ability to export only select data).
- receipt of electronic data.

**Deliverable 4: System testing to include:**

- user acceptance testing.
- testing of de-duplication, matching and merging functions.

**Deliverable 5: Documentation to include:**

- technical documentation.
- user documentation/user manual/training materials.
- source code.

**Deliverable 6: Training to include:**

- user training: including review of table structure for backend users.
- ad hoc querying and reporting.
- system administrator training. This training will include instructions on how to: change business rules, user level access and security, alter drop down lists, modify disease form data entry screens, etc. without the help of a programmer.
- management information system (MIS) training: MIS staff must be trained to trouble shoot and support software and hardware when contractor is not on-site.

**Deliverable 7: Post-implementation support to include:**

- maintenance support and modifications to application/database, as needed.

**B. Project Deliverables: Phase II**

- Phase II will be an hourly-based component of the project. Estimation for actual hours for this portion of the project should be included.
- The exact number of hours for each component will be negotiated between the North Dakota Department of Health and the contractor prior to commencing.

**II. PROJECT TERMS AND CONDITIONS**

**A. Contractor Responsibilities**

1. The contractor will be responsible for daily backups of any software it develops as part of this project.
2. The contractor will designate a Project Manager. The Project Manager will be responsible for:

- a. maintaining control over the work duties, schedule, and performance of the contractor project team members.
  - b. all project reporting to include: Weekly Status Reports, Weekly Status Report Outline, and Meeting Summaries.
  - c. participating in status meetings to be held at the NDDoH.
3. The contractor will maintain continuity of the project team staff throughout the course of the project. Changes in staff must be approved by the NDDoH. The replacement contractor(s) with comparable skills will be provided at the same or lower hourly rate.
4. Upon completion of the project, all documentation that the NDDoH offered to the contractor to assist in their efforts will be provided in hard copy and in diskette format to the NDDoH.

## **B. North Dakota Department of Health (NDDoH) Responsibilities**

1. The NDDoH will assign a staff member to act as the liaison and as a primary contact for the contractor.
2. The NDDoH will provide the contractor with documentation and other information, which will assist the contractor in its efforts on developing DCDSS.
3. The NDDoH reserves the right to terminate the project at any given time with 30 days notice.
4. In the event of early termination: For “By Deliverable” projects, the contractor will be reimbursed for the portion of the deliverable completed and accepted by the NDDoH based on the total cost/price for that project deliverable.

## **C. Contract Proposal**

The contractor’s proposal for DCDSS will be composed and presented in the following format:

- I. Proposal Cover Letter**
- II. Title Page and Table of Contents**
- III. Project Scope Overview**
- IV. Work Approach Narrative**
- V. Detailed Work Plan with estimated completion dates.**
- VI. Detailed Project Budget and Budget Narrative**

- A detailed line-item budget reflecting the costs for completing the development of this system must be submitted.
- Specific information regarding types of hardware and software also must be provided. For each cost, a narrative justification must be provided.
- The budget should include all auxiliary costs, such as printing, secretarial, program entry, meals, lodging, etc. Travel should be a separate cost line item.

## **VII. Qualifications, Related Experience and References**

The narrative should include:

- demonstrated experience in database development of web-based and/or client/server applications.
- a list of ongoing and/or completed projects, descriptions and references.
- a description of the prior experience with GIS integration.
- demonstrated NEDSS knowledge/experience.

### **VIII. Staffing, Organization, and Resumes**

All personnel assigned to the project from the Contractor's organization must be approved in advance by the NDDoH. Resumes describing prior work experiences, previous employer names and responsibilities must be submitted for each proposed employee for approval prior to beginning work on the project. The NDDoH will approve only qualified experienced professionals who have performed similar functions to be part of the contractor's team. Personal interviews may be conducted to ascertain qualifications and compatibility.

#### **D. Proposal Format**

1. Proposals must be **typed and double-spaced** with 1-inch margins on all sides. Do not use staples, ring binders or covers.
2. All documents must be **single-sided** with the pages sequentially numbered, including attachments. Type size must be **12 point**. The entire application must be clipped together with a single fastener at the upper left hand corner. Documents larger than 8.5 X 11 inches are **not** acceptable.

#### **E. Due Date**

One original and one electronic copy of the application must be received by the North Dakota Department of Health by **5 PM CST April 11, 2003**. The proposal should be submitted to:

Alan Grinsteinner  
 North Dakota Department of Health  
 Division of Disease Control  
 600 East Boulevard Avenue  
 Bismarck, ND, 58505-0200  
 Telephone No.: 701.328.2437  
 e-mail: agrinstei@state.nd.us

***Neither materials received after the deadline, nor faxed applications received anytime will be considered.*** Applications must be complete at the time of submission. The date and time of proposal receipt by the department will be documented. The North Dakota Department of Health is not responsible for failed mailing or overnight delivery attempts. All proposals will be the property of the North Dakota Department of Health.

#### **F. Award Date**

North Dakota Department of Health staff will evaluate the proposals submitted in response to this proposal. The evaluation is expected to occur from April 14-21 and notification of the award will be completed by **April 30, 2003**. As necessary, applicants may be requested to submit further information or documentation regarding their proposals.

1. The North Dakota Department of Health reserves the right to interview any of the candidates prior to selection, and reserves the right to interview any or all of the candidates substituted for or added to the contractor team during the course of the project. The North Dakota Department of Health also reserves the right to request the contractor reassign contractor team members in the event of unsatisfactory performance.
2. The North Dakota Department of Health reserves the right to interview any of the references provided by the contractor at any time.

Technical assistance questions regarding the proposal, the scope of work, or deliverables should be directed to Alan Grinsteiner. (Telephone: 701-328-2437, e-mail: agrinstei@state.nd.us)

### **III. EVALUATION AND SELECTION**

#### **A. Evaluation Criteria**

The North Dakota Department of Health will evaluate each contractor's bid based on the "Best Value" concept. This means the bid(s) which meet the technical and non-technical specified criteria and "optimizes quality, cost, and efficiency among the responsible and responsive bidders" shall be selected for award.

The evaluation of the written proposals may require any of the following methods of clarification and validation:

- Proposal presentations
- System demonstrations
- Telephone, e-mail, mail, etc., correspondence with authorized contractor representatives

The technical and financial components of the bids will be evaluated separately with the weight assigned below:

- Technical Component = 60%
- Experiential Component = 30%
- Financial Component = 10%

A proposal shall be deemed unacceptable if it fails to meet the minimum proposal criteria. All proposals deemed responsive to the proposal criteria shall be ranked based upon the combined evaluations received for the technical, experiential and financial components of the bids.

**B. Technical Component (60%)**

The technical evaluation will be organized as follows:

1. Technical approach.
2. Resource commitment and level of effort (initial and on-going) to implement, operate and maintain the proposed solution.
3. Compatibility and ease of use of hardware and software components required to implement the solution(s).
4. Overall effectiveness of the proposed solution(s), including expected return on investment.
5. Extensibility of the proposed solution(s) to all the NDDoH future data warehousing needs.
6. Compliance and compatibility with NEDSS.

**C. Experience Component (30%)**

1. Demonstrated experience in database development of web-based applications, especially with statewide health department programs.
2. Previous NEDSS experience.
3. Prior experience with GIS integration.
4. Public health qualifications and references.

**D. Financial Component: Project Cost + Expenses (10%)**

- Budget is explicit and estimates are reasonable and realistic.

**E. Basis for Contract Award**

A contract will be awarded to the responsible contractor whose proposal is determined to be the most advantageous to the NDDoH, taking into consideration the price and such other factors or criteria which are set forth in the request for proposals. The contract award will be subject to the timely completion of contract negotiations between the agency and the selected contractor.

**All contractors must either be registered to conduct business with the state of North Dakota or become registered prior to the contract award.**

**F. Bidding of Service Contracts**

All requests for proposal received by the North Dakota Department of Health, as well as documents and correspondence relating to those proposals, are open records and are subject to public review upon request.

**G. Liquidated Damages**

It is anticipated that the language regarding liquidated damages in the final contract resulting from this solicitation may be similar to the following:

At the Issuing Entity’s discretion and unless provided for in the alternative in the Project Definition/Specifications, the contractor’s failure to deliver or install project deliverables within the timeframes agreed to by the parties shall subject the contractor to liquidated damages in the amount of one (1.0%) of the contract value of the late deliverable or late hourly services special project per day for each calendar day that receipt is delayed over the stated time frame, up to the value of the contracted price for the deliverable or hourly service. The contractor shall be given written notice of the intent to assess such damages and thirty (30) days opportunity to cure before the liquidated amount may be assessed against the contractor. These damages may be deducted from monies due contractor. The sum shall be deducted, not as a penalty, but as liquidated damages and the sole remedy for delay causing loss of use by the Issuing Entity. This provision shall not apply to the extent or for any periods where the Issuing Entity is the cause of such delay

**The Department of Health reserves the right to award all or part of this project.**

## **Attachment 1. System Requirements**

The system developed will include the following aspects and conform to the prescribed criteria.

### **A. General System Specifications**

State information technology standards that have been established for this application include:

<b>Database</b>	Oracle, SQL Server, Sybase or DB2
<b>Programming</b>	JAVA, ASP, VB, XML
<b>Messaging</b>	HL7 v.3 (Public Health reporting) HL7 v.2.x (Laboratory Reporting)
<b>Hardware</b>	Operating systems <ul style="list-style-type: none"> <li>• Windows or Unix</li> <li>• IBM WebSphere Application Server / Oracle Application Server 9si</li> <li>• Novell 5.x and 6.x</li> <li>• Microsoft Web Server</li> </ul>

Whenever possible, the contractor will use commercially available products for standard system functions (i.e., GIS). In addition, tools developed for this system must be modular to facilitate their use in other state applications, although for the purposes of this response only licenses for the DCDSS are required.

### **B. Structure**

The surveillance system will conform to National Electronic Disease Surveillance System (NEDSS) standards in order to “promote the use of data and information system standards to advance the development of efficient, integrated, and interoperable surveillance systems at federal, state and local levels.” NEDSS architecture, data structure, field names and coding conventions will be used unless otherwise agreed upon. NEDSS standards are described on the

NEDSS website: [www.cdc.gov/NEDSS](http://www.cdc.gov/NEDSS). Fieldnames and coding conventions are described in the NEDSS Base System Reference Tables: [www.cdc.gov/nedss/BaseSystem/Sys\\_Ref\\_Tables\\_101001.pdf](http://www.cdc.gov/nedss/BaseSystem/Sys_Ref_Tables_101001.pdf)

The system must be designed so that it has the ability to interface with Geographic Information System (GIS) applications.

## C. Business Processes

### C.1 Initial Entry of Disease Reports Into System

All business rules will be table driven. A graphical user interface will be developed to allow designated users to edit, add or delete business rules. The division receives disease reports each day via mail, telephone, fax and electronic transmission. The surveillance system must be capable of capturing these reports in the following formats:

**Manual key-entry:** This system is performed when disease reports are received on either the standard NDDoH paper surveillance form (Attachment 2) or on paper laboratory reports. Web-based data entry screens will capture the information from these reporting forms as well as any additional data required to support the NEDSS logical data module (LDM) applicable to communicable disease reporting. The system must be able to automatically complete commonly typed values from standard pick-lists (i.e., “drop down boxes”). To the extent possible, field validation will occur before the cursor is allowed to proceed to the next field promoting accurate data entry while the attention of data-entry staff is on that part of the paper form.

**Electronic reporting:** Coordination will be conducted with the primary North Dakota health care facilities to evaluate and implement their capabilities to participate in the electronic laboratory and web-based reporting system. These facilities include: the North Dakota Public Health Laboratory (Bismarck), St. Alexius Medical Center and Medcenter One Health Systems (Bismarck); Jamestown Hospital (Jamestown); Mercy Hospital (Valley City); MeritCare Health Systems, Innovis Health, Veterans Administration Medical Center (Fargo), Altru Health System (Grand Forks), Mercy Hospital (Devils Lake); Trinity Health (Minot); Mercy Medical Center (Williston); and St. Joseph’s Hospital (Dickinson). These facilities must be integrated into the system for the NDDoH to be able to accept disease reports in electronic format from both the state Public Health Laboratory as well as from commercial and reference laboratories. The surveillance system must be able to receive these electronically transmitted disease reports using the HL7 format.

#### C. 1.1 Patient and Disease Matching and De-Duplication

Ideally, there should only be one patient record for each person and one disease report for each health episode within a patient’s record. A patient can have multiple diseases, multiple episodes of the same disease, multiple reports for the same disease episode from different sources (doctor, hospital, laboratory) and duplicate reports from the same source. The system will process every report received whether duplicate or not. However, the system must be able to merge multiple and duplicate reports into a single patient-disease record. Based upon

business rules, the de-duplication process will identify potential duplicate records and through the use of a graphical user interface, merge the records.

The determination of an 'exact' or 'approximate' match will be based on a score that reflects the weight assigned to individual fields (i.e. social security number will have a higher weight than gender) and the concordance between the two records being evaluated. The system administrator must have the ability to modify which fields contribute to the matching score, the weights assigned to each field, and the thresholds that distinguish between exact, approximate and non-matches. These thresholds will be set and refined with experience. The algorithm will need to be invoked after a change is made to a defined set of fields.

Exact matches must be automatically merged by the system and a log of these mergers will be generated by the system. Approximate matches will require evaluation by administrative staff. During manual key-entry the system should display approximate matches on-screen so that key-entry staff can select a match where appropriate. For electronically transmitted records, approximate matches should be flagged by the system for later evaluation by disease program staff. These records should be easily viewable for review, displaying all approximate matches waiting for reconciliation. New patient records (or disease reports) that are not matches will be added to the database as a new record.

Matching and de-duplication will be conducted on two levels: patient-level match and disease diagnosis-level match. The matching and de-duplication function will be a stand-alone module that can be used in other surveillance systems as well as be replaced in DCDSS if an updated module becomes available.

Patient-level match (identifies reports for the same patient): Based on last name, first name, gender, date of birth, home address, phone number, social security number and medical record number.

Disease diagnosis-level match (identifies reports within the same patient record that appear to be for the same disease episode). Records must already have matched at the patient level. Match is based on disease code, and how close the following dates are (date of onset, date of specimen collection, date of diagnosis).

Because matching is never 100% effective, the system should generate a matching check when designated fields in a patient record are changed. This will compare modified records to the entire database, merging exact matches and flagging approximate matches for further manual evaluation by a staff person. Manual evaluation of matches is time-consuming. The system should be able to keep track of which potential matches have been evaluated by a human and should only flag records for further evaluation when the following fields have been modified: For patient-level matches - last name, first name, date of birth, social security number, home address, home telephone number or medical record number. For disease diagnosis-level matches - disease code, date of onset, date of diagnosis or specimen collection date.

Merging Rules: When two records that match are merged together and conflicting information is received from two different sources, a data acceptance hierarchy will be established.

### C. 1.2 Disease Code

Each disease report entered into the system has a “disease code” designated by the Centers for Disease Control and Prevention that uniquely identifies the disease. The code is either manually entered by key-entry staff or, for electronically transmitted reports, automatically assigned by the system.

### C. 1.3 Assignment of Case Status and Investigation Status

At the time of initial entry, the system should automatically assign an investigation status using codes similar to the following which should be table driven.

Investigation Status
Complete
Pending investigation
Letter required
Not required
Case management

At the time of initial entry, the system will also automatically assign a case status using the codes such as:

Case Status
Confirmed case
Probable Case
Pending
Not a Case
Closed Unresolved
Chronic/Carrier

Disease reports that contain sufficient information can be coded immediately by the system as a confirmed case or not a case. Many reports, however, require additional information and are coded as pending.

Reports that require follow-up, either because they do not contain sufficient information or because they can have serious consequences for the individual patient or the public, are assigned for investigation. An investigation can be as simple as sending a letter to the patient’s physician or as complicated as assigning a state or regional epidemiologist to review the patient’s chart, interview the patient and collect additional diagnostic specimens.

### C. 1.4 Automated Alerts

The system should support the ability to automatically alert staff and caseworkers given a disease type and severity. Upon entry, an alert should be sent immediately to the assigned epidemiologist and their supervisor. The alert may be via multiple communication channels,

i.e., email, telephone, pager and fax. The system should have the ability to alert alternate individuals as required.

## **C. 2 Out-of-State Residents**

All disease reports received by the NDDoH will be entered into the system regardless of residence. Notification of an out-of-state resident should be provided. The assigned epidemiologist must be able to print a jurisdiction letter populated with the patient information that can be mailed to the appropriate state to inform them of the patient.

## **C. 3 Managing Case Investigations and Work Flow**

The system should support case management by providing epidemiologists with indications of missing information and automatically measuring the timeliness of data. Designated users should have the ability to change the routing of case assignments as needed.

Field and supervisory epidemiologists should be able to display and print a list of outstanding case investigations and the assigned epidemiologist as well as generate statistical information.

Each epidemiologist has a prescribed amount of time to complete his or her assignments depending on the disease. If assignments are not completed in the prescribed time, a system alert will be sent to both the epidemiologist and their supervisor.

## **C. 4 Long-Term Case Follow-Up**

For case follow-up, epidemiologists of the NDDoH often must obtain blood or stool samples for weeks or even months. The system should be able to maintain calendars for each user so that they may schedule tasks and receive alerts and reminders within the system. The epidemiologist will be able to schedule these tasks, receive reminders and receive alerts if tasks are not completed as scheduled.

## **C. 5 Automatic System Processing**

The system will automatically, in real time, run a processing job that will:

1. send alerts to field epidemiologists and their supervisors for overdue investigations.
2. send alerts to designated individuals when cases of concern are entered into the database.
3. backup the database.

At the touch of a button, the system will automatically:

1. create analysis files for exporting to SAS and SPSS.
2. run a workflow management report.
3. run monthly surveillance reports.
4. generate appropriate data for CDC reporting per their NEDSS specifications.

## **C. 6 Tools**

Querying: The system should allow staff to perform flexible queries to extract records that meet a set of criteria and restrict results to a subset of fields of interest. Users should be able to save queries for future use.

The system should have a user-friendly tool that allows a database administrator to modify management and surveillance reports.

Backups and archiving through SQL with a time/ID stamp log to audit every transaction: The System Administrator should be able to invoke the backup and archiving process as needed, in addition to the regular backup schedule.

Import Facility: Users should be able to import electronic files in XML and ASCII format.

There should be a user-friendly tool for the system administrator to be able to change business rules, user level access and security, alter drop down lists, modify disease form data entry screens, modify form letters, etc., without the help of a systems programmer.

### **C.7 Mapping and Geographic Information System (GIS)**

The system must be able to support both desktop and web-based GIS. Users should be provided with tools to quickly create maps of case data and link these maps to existing reports. GIS should be used in all phases of the application to include in-line geocoding and in data collection. Coordination and compatibility with North Dakota's GIS Hub will be essential.

### **C.8 Security**

The system must be in compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and will include:

1. monitoring and tracking of usernames and password protocols.
2. user access levels.
3. ability for database administrator to modify user level access.
4. a host-based intrusion detection package.

The system will provide for secure transactions across the Internet or through any external communication link using formats and security prescribed by the NDDoH/CDC.

The system will maintain a log of the following transactions:

1. log-on and log-off.
2. edits/updates to any field and individual who made the change (including the date and time the change was made).

### **C.9 Reports**

The system will be capable of generating a variety of reports to include:

1. outstanding case investigations.
2. specific area reports for local health and regional epidemiologist.
3. charts, graphs, etc., for visual presentation.
4. standard portable document file (pdf) case investigation forms.
5. CDC reports which are text files generated by the system of the previous weeks' disease reports. This summary data should first be viewable on screen by staff in order to assure accuracy. The file then must be saved for transmission to CDC.
6. The system will also support commercial report writing software, i.e., Crystal Report Writer, enabling the creation of custom reports.

## Attachment 1

### Summary of the Disease Control Disease Surveillance System Specifications

Number of users	<200
IDR database	SQL LDM Compliant Foundation for a public health data warehouse Populated with data from Immunization Registry (SQL server)
Volume	Approximately 3000 disease reports/year
Mode of entry	Manual entry, electronic messages
Types of data	Patient demographics; Reporting physician demographics; clinical information; test result information;
Sharing needs	<ul style="list-style-type: none"> <li>• System must be able to receive electronic messages in HL7 format</li> <li>• Export data to CDC in a NEDSS-specified format</li> <li>• Communicate with Laboratory Information System to share specimen results seamlessly in HL7</li> <li>• Receive electronic disease reports through web-based provider reporting which will be received via the Health Alert Network (HAN) secure provider portal</li> </ul>
Compliance	NEDSS/HIPAA compliant Must be able to interact with new PAMs as developed
Archiving	<ul style="list-style-type: none"> <li>• Must be able to archive yearly records</li> <li>• Must develop SQL back up routine</li> <li>• Must keep log of records merged in de-duplication process</li> </ul>
Data ownership	Archive table for every record showing date and source of original entry and most recent edits
Special needs	Flexible search options- need to search by almost every field; ability to support local and regional health
Reporting	<ul style="list-style-type: none"> <li>• Need to be able to export a flat file of entire database for further analysis</li> <li>• Letters to physicians</li> <li>• Letters to outside jurisdictions</li> <li>• Weekly and annual CDC report</li> <li>• Monthly and annual state report</li> </ul>
User level security	<ul style="list-style-type: none"> <li>• Allow users to see only what is prescribed for their level</li> <li>• Allow system managers to make modifications to the database, i.e. adding or deleting from pick lists</li> <li>• HIPAA compliant</li> </ul>
Quality control	<ul style="list-style-type: none"> <li>• Supervisor will receive alerts when work not completed on time</li> <li>• Supervisors will receive alerts when “worrisome” diseases are entered into the system</li> <li>• Log of changes made in the database</li> </ul>
GIS compatibility	System must be able to geocode and store x/y coordinates in the database

## Attachment 2



### NORTH DAKOTA MORBIDITY REPORT

North Dakota Department of Health  
 Division of Disease Control  
 SFN 7630 (Rev 12-2002)

Confidentiality Protected by North Dakota Century  
 Codes 23-07-02.1 and 23-07-02.2

**See other side for listing of reportable conditions**

		County		Report Data (M/D/Y)	
Disease or Condition		Last Name		First Name	
				Date of Onset (M/D/Y)	
Street Address		Telephone No.	Date of Birth (M/D/Y)	Race	Gender M / F
					Marital Status M / S
City		State	Name of Employer		Business Telephone No.
Has Diagnosis Been Confirmed By Laboratory Test? <input type="checkbox"/> No <input type="checkbox"/> Yes-Name of Lab:		Specimen Source		Date Specimen Collected (M/D/Y)	
Reason Test Conducted: <input type="checkbox"/> Infection <input type="checkbox"/> Screen <input type="checkbox"/> Other (specify _____)		Is Isolate Resistant To Any Antimicrobial Agent? <input type="checkbox"/> No <input type="checkbox"/> Yes-Type of Antimicrobial:			
Was Patient Hospitalized? <input type="checkbox"/> No <input type="checkbox"/> Yes-Name of Hospital:		Date Admitted (M/D/Y)		Outcome <input type="checkbox"/> Survived <input type="checkbox"/> Expired	
Person Reporting		Address/Facility			Telephone Number
<b>Specimen Submitted Is:</b> <input type="checkbox"/> Original Material <input type="checkbox"/> Serum <input type="checkbox"/> Pure Isolate (Specific Agent Identified _____)				<b>Health Care Provider</b>	
<b>Cancer Site</b>		<b>Date Cancer Diagnosed (M/D/Y)</b>		<b>Cancer Histology</b>	