PROCEEDINGS OF THE NEW MEXICO STATEWIDE IMMUNIZATION INFORMATION SYSTEM (NM SIIS) WORKSHOP

NOVEMBER 15-17, 1999

January 21, 2000

Table of Contents

EXECUTIVE SUMMARY IV

1. INTRODUCTION 1-1

2. NM SIIS PURPOSE, VISION, AND OBJECTIVES 2-1
   - 2.1 Purpose 2-1
   - 2.2 Vision 2-1
   - 2.3 Objectives 2-3

3. FUNCTIONAL REQUIREMENTS 3-1
   - 3.1 Requirements Considerations 3-1
   - 3.2 Business Function Requirements 3-2
   - 3.3 Functionality of Existing Systems 3-6
   - 3.4 Security Issues 3-11
   - 3.5 High-Level NM SIIS System Architecture 3-11

4. BUSINESS PLAN 4-1
   - 4.1 Business Case Framework 4-1
     - 4.1.1 Business Case Considerations 4-1
     - 4.1.2 Intangible Benefits 4-1
     - 4.1.3 Tangible Benefits 4-1
     - 4.1.4 Costs 4-2
     - 4.1.5 Timeline Considerations 4-3
   - 4.2 Critical Success Factors (CSFs) 4-4
   - 4.3 Guiding Principles 4-5
   - 4.4 Program Categories and Competencies 4-5
   - 4.5 Stakeholders 4-8
   - 4.6 Policy and Decision Making 4-9

5. IMPLEMENTATION PLAN 5-1
   - 5.1 Short-Term Timeline 5-1
   - 5.2 High-Level Timeline 5-2
   - 5.3 Implementation Dependencies and Assumptions 5-2
   - 5.4 Sponsorship 5-2
   - 5.5 Next Steps to be Taken 5-6

6. FUNDING PLAN 6-1
   - 6.1 Funding Sources 6-1
   - 6.2 Funding Issues 6-2

7. PROJECT MARKETING PLAN 7-1

8. EXECUTIVE PRESENTATION 8-1
   8.1 Key Messages 8-1
   8.2 Executive Presentation Outline and Summary 8-1
   8.3 Quick Summary ("Elevator Ride" Speech) 8-4

APPENDIX A—LIST OF PARTICIPANTS A-1

APPENDIX B—GLOSSARY B-1

Executive Summary

This document describes the results of the New Mexico Statewide Immunization Information System (NM SIIS) workshop held November 15-17, 1999, at the University of New Mexico (UNM) Sevilleta Field Station. Because New Mexico ranks as one of the poorest states in terms of immunization rate, the chief goal of the NM SIIS is to *ensure that 90% of at-risk children and adults are immunized for vaccine-preventable diseases.* This goal can be reached by providing New Mexico physicians and other healthcare providers with easy access to an affordable, secure, trouble-free SIIS.

The workshop, facilitated by Sapient Corporation, was sponsored by the New Mexico Department of Health (DOH), BlueCross/BlueShield of New Mexico, Cimarron, the McCune Foundation, Presbyterian Health Services, St Joseph Medical Center, the UNM Health Sciences Center, the New Mexico Health Policy Commission (HPC), the UNM Institute of Public Law, the New Mexico Medical Society (NMMS), and Los Alamos National Laboratory (LANL).

In addition to participants from the sponsoring organizations, workshop attendees included representatives from the Office of the State of New Mexico Chief Information Officer (CIO), Medicaid, Indian Health Services (IHS), the New Mexico Infectious Health Bureau, Lovelace Health Systems, Presbyterian Medical Services, the New Mexico Medical Review Association (NMMRA), and Fox Systems.

Over the course of the three-day workshop, participants worked in breakout groups to define the NM SIIS functional requirements and develop drafts of a business plan, implementation plan, funding plan, project marketing plan, and executive presentation for the system. The technical solution they propose is an Internet-based system with an implementation date no later than March 2001.

To ensure that the concept of an NM SIIS is carried forward, a seven-member executive team was appointed. This team, which will function as a subset of a core team of NM SIIS stakeholders, includes representatives from the New Mexico DOH, the Office of the CIO, NMMS, Lovelace Health Systems, NMMRA, and Medicaid. These individuals are tasked with ensuring that the next steps to be taken are completed. These steps (identified in the draft Business Plan in Section 4) include finalizing the workshop outputs, obtaining executive sponsorship and funding for the project, establishing teams to market, build, and implement the system, and—ultimately—implementing the SIIS statewide.

1. INTRODUCTION

This document presents the results of the New Mexico Statewide Immunization Information System (NM SIIS) workshop held November 15-17, 1999, at the University of New Mexico (UNM) Sevilleta Field Station. The purpose of the workshop was to develop drafts of the following NM SIIS deliverables:

- Functional Requirements List
- Business Plan
- Implementation Plan
- Funding Plan
- Project Marketing Plan
- Executive Preservation

This document should guide and help writers turn the workshop materials into final documents that are readable and reflective of the ideas and content developed by workshop participants.

Financial sponsors of the workshop were the State of New Mexico Department of Health (NM DOH), BlueCross/BlueShield of New Mexico, Cimarron, the McCune Foundation, Presbyterian Health Services, St. Joseph Medical Center, the UNM Health Sciences Center, and Los Alamos National Laboratory (LANL). In-kind sponsorship was provided by the New Mexico Health Policy Commission (HPC), the UNM Institute of Public Law, and the New Mexico Medical Society (NMMS). The workshop was facilitated by representatives from Sapient Corporation, and technical support was provided by LANL. Workshop participants are listed in Appendix A.

Nick Chandler and Jim Frech from Sapient opened the three-day workshop with a kickoff meeting on Monday, November 15. They explained that the participants would work in individual facilitated breakout groups each day to develop the workshop deliverables noted above. Following the breakouts, the groups gave oral presentations of their discussions. The agendas for the three-day workshop are given in the tables below. These tables indicate the topics discussed, the objective of each topic, and who participated in the discussions. For summaries of the discussions, see the referenced sections of the Proceedings.

Monday, November 15

Breakout Group Topic	***Objectives***	***Group Participants***	***Refer to Section***
1. BO1: Purpose of the NM SIIS	Determine, at a high level, what the NM SIIS must achieve in order to be successful.	Georgia, Mary H., Peggy, Kim, Stan, Mickey	2
2. BO2: Vision	Describe what the future should look like when the NM SIIS is completed with respect to immunization services within the state. Determine how this future relates to the delivery and management of other healthcare services in the state.	Marty, Richard, Robin, Steve, Suzanne, Betty, Rose, Gary	2
3. BO3: Objectives	Show how success will be measured across mission and technical considerations.	Matt, Mary G., Ron, Jennifer, Jo, Robert, Rick	2
4. BO1: NM SIIS Functionality	Determine the broad, high-level list of desired functions and features in the NM SIIS.	Betty, Steve, Gary, Suzanne, Jennifer, Mary G., Robert	3
5. BO2: Existing Systems Functionality	Determine what should be done with existing systems. Describe high-level features and functions of the systems with which the NM SIIS will integrate. Identify areas of potential overlap, complementary functions, and functional gaps to define requirements implications for the NM SIIS.	Matt, Mary H., Jo, Robin, Ron, Georgia, Mickey	3
6. BO3: Business Case Framework	Create the framework for why the NM SIIS and/or a community-based model should be built. Document the metrics required to justify the procurement of the NM SIIS.	Marty, Rose, Richard, Peggy, Kim, Stan, Rick	4

Tuesday, November 16

Breakout Group Topic	***Objectives***	***Group Participants***	***Refer to Section***
7. BO1: User Experience and Scope Prioritization	Identify the users and potential users of the NM SIIS. Describe what the critical success factors are for each audience. Agree on the criteria to prioritize the functionality for the NM SIIS. Prioritize the scope matrix features and functions (high, medium, and low priorities).	Matt, Jo, Sandra, Mary H., Richard	3

Breakout Group Topic	***Objectives***	***Group Participants***	***Refer to Section***
8. BO2: Security and Compliance I	Determine what the security, confidentiality, and integrity considerations are that will contribute to the NM SIIS being perceived as trustworthy. Determine what the policy considerations are that need to be addressed by the NM SIIS. Define what other features the NM SIIS must have in order to satisfy federal, state, and local compliance and security requirements. Determine whether there are any additional compliance features, above and beyond mandates, that should be included in the NM SIIS.	Georgia, Betty, Steve, Pam, Jennifer, Robert, Bruce	3
9. BO3: Business Model (Sustainability)	Identify the required resources needed to build, operate, and maintain the NM SIIS on an ongoing basis.	Marty, Mary G., Rose, Ron, Peggy, Kim, Suzanne	4
10. BO1: High-level Architecture Schema	Produce a common understanding of key computer system architectural issues and approaches. Identify and document a high-level architectural schema for the NM SIIS with respect to interactions with other systems, user interactions, business rules, and data storage.	Robin, Rose, Mary G., Mary H., Gary, Betty	3
11. BO2: Security and Compliance II	Continue to define security/compliance issues while considering the functionality list.	Steve, Pam, Robert, Georgia, Bruce, Jennifer, Ron	3
12. BO3: Business Model (Organization and Operation)	Determine who is best suited to host and fulfill elements of the NM SIIS operations. Itemize high-level functions and contributions of the various NM SIIS constituencies and participating organizations. Evaluate in terms of ongoing accountability and criticality to the success of the NM SIIS. Create a straw organizational accountability map as input to further discussion in the workshop and beyond.	Jo, Matt, Suzanne, Peggy, Marty, Kim, Richard	4
13. BO1: Project Marketing Plan	Identify what constituencies will be impacted by the NM SIIS. Document who, when, and how to market the NM SIIS. Establish a list of resource needs.	Georgia, Jennifer, Rick, Mary H., Richard, Kim, Mary G.	7
14. BO2: Funding Plan	Identify sources of funding for the development and ongoing operations of the NM SIIS. Identify timing and constraints and processes required to obtain NM SIIS funds.	Steve, Robin, Rose, Betty, Matt, Suzanne, Gary, Ron, Jo	6

Breakout Group Topic	***Objectives***	***Group Participants***	***Refer to Section***
15. BO3: Business Model (Competency Mapping)	Identify the required human and system resources to operate the NM SIIS on an ongoing basis. Map skills and resources needed (competency categories) to stakeholder competencies.	Jo, Matt, Suzanne, Peggy, Marty, Kim, Richard	4

Wednesday, November 17

Breakout Group Topic	***Objectives***	***Group Participants***	***Refer to Section***
16. BO1: Implementation Plan I	Iterate on initial planning exercises. Determine what the major tasks are and what the timing is for the rollout of the NM SIIS, from the end of the workshop to going live in Phase 1. Identify (1) tasks for each track; (2) milestone dependencies for rollout; and (3) resources required for deployment of the NM SIIS.	Jo, Mary H., Richard, Matt, Gary, Kim, Jennifer, Mary G., Suzanne, Rick, Peggy, Steve, Susan	5
17. BO2: Business Plan (Policy Model and Organization Critical Success Factors)	Document the high-level processes by which the NM SIIS organization will make policy decisions in the near term. Identify the critical success factors (CSFs) for the NM SIIS.	Betty, Rose, Jennifer, Rick	4
18. BO1: Implementation Plan II	See topic 16 above. Continuation of same discussion.	Jo, Mary H., Richard, Matt, Gary, Kim, Jennifer, Mary G., Suzanne, Rick, Peggy, Steve, Susan	5
19. BO2: Business Plan (Coalition Charter and Guiding Principles)	Develop a set of guiding principles by which the NM SIIS organization will operate. Adapt the principles into a charter statement.	Betty, Rose, Mary H., Steve, Rick	4
20. BO3: Executive Presentation I	Develop a draft executive presentation as part of a marketing plan.	Marty, Mary G., Steve, Ron, Peggy, Suzanne	8
21. BO1: Implementation Plan III	See topic 16 above. Continuation of same discussion.	Jo, Mary H., Richard, Matt, Gary, Kim, Jennifer, Mary G., Suzanne, Rick, Peggy, Steve, Susan	5
22. BO3: Executive Presentation II	See topic 21 above. Continuation of same discussion.	Marty, Mary G., Steve, Ron, Peggy, Suzanne	8

On Wednesday, three representatives from the NM DOH attended the workshop to speak to the participants. Jack Callaghan, the Deputy Director of NM DOH; Barak Wolfe, the Interim Director of the Public Health Division; and Susan Eastman, the Bureau Chief of the Infectious Disease Bureau of the Public Health Division, each declared their support for the NM SIIS, saying they would take an active part in seeking funding for the project.

Section 2 of these Proceedings discusses the purpose, vision, and objectives of the NM SIIS. Section 3 provides the list of functional requirements. Drafts of the business plan, implementation plan, funding plan, and project marketing and communications plan developed by the individual groups are contained in Sections 4 through 7, respectively. ***Note: Some of these draft plans have missing information that will need to be captured at a later date.*** Terms and definitions used in the text are defined in Appendix B.

A transition executive team tasked with carrying the results of the workshop forward was established on the last day of the workshop. Team members are as follows:

- Suzanne Westman/Gary Simpson
- Steve Kanig
- Dick Merrick
- Marty Berman
- Kim O'Brion
- Georgia Cleverley (elected in her absence)

2. NM SIIS PURPOSE, VISION, AND OBJECTIVES

Participants in three separate breakout groups discussed the purpose, vision, and objectives of the SIIS. The results of these discussions are included in the paragraphs that follow.

2.1 Purpose

Participants identified the following issues and concepts that needed to be addressed during the workshop:

- Sharing of immunization data with appropriate people
- Easy access to up-to-date immunization data; easy access to the NM SIIS. It is important to have easily retrievable data by practitioner or person.
- An easy input process
- Cost effective participation
- Affordable technology and processes
- Achieve a certain percentage of immunizations
- Verify the integrity of immunization data
- Reduce the incidence of vaccine-preventable disease by making data available to providers and patients
- Educate the population about preventable diseases.

Initially, the group formulated a purpose statement that said the NM SIIS would be successful if the following was achieved: Immunize 90% of at-risk children and adults for vaccine-preventable diseases by providing New Mexicans easy access to an affordable, confidential, easy-to-use tool, with current and accurate data. This statement was then refined as given below.

Purpose
The NM SIIS proposes to immunize 90% of at-risk children and adults for vaccine-preventable diseases by providing New Mexicans technology options for easy access to an affordable, confidential, trouble-free system, with current and accurate data that ensures consistent and high-quality care.

2.2 Vision

Participants discussed the fact that a vision statement should describe the future state of both immunization services and other healthcare services in the state following the successful completion of the NM SIIS. Concepts and values of the NM SIIS vision listed by the group included:

- Trust/integrity (e.g., in terms of use and technology)
- Transparent technology
- Universal accessibility
- Transforming/changing communities

- An accepting, diverse community that allows for multiple perspectives
- Lasting, extensible framework
- Self-empowering; self-controlled; self-owned
- Improving community health
- Sharing among and within communities
- Ease of use; simplicity
- Value-driven, not technology-driven
- Informing and educational
- Ability to opt out (opting out of participating in the system or a part of it).

Vision
Giving individuals accurate, timely, and reliable information to promote healthy communities.

A pictorial illustration of this vision is shown below. Note that while technology is transparent, it is the mechanism that provides the underlying support.

2.3 Objectives

Participants discussed both strategic and operational objectives for the NM SIIS.

Strategic Objectives

- Increase the number of age-appropriate immunizations
- Equalize the benefits of the NM SIIS in rural and urban areas
- Establish accountability for the accuracy of information in the NM SIIS
- Ensure both the technical and economic sustainability of the NM SIIS
- Provide a singular repository with a multi-customer focus (e.g., patient, provider, education, research, government)
- Establish a new business paradigm that cultivates multiple executive sponsorship that spans organizational boundaries
- Consider the NM SIIS as being a first step toward sharing a greater range of medical information.

Operational Objectives

- Provide 100% of providers of immunizations in the state with easy access to the NM SIIS, thus facilitating use of the system
- Capture data on children as they enter the state in order to obtain complete information
- Identify and benchmark all target populations
- Leverage the existing investment in clinical or health-related information systems
- Provide a mechanism that will uniquely identify an individual
- Ensure adequate safeguards for security and privacy of data
- Leverage conformance to national standards for funding opportunities
- Provide appropriate immunizations for children and adults
- Serve as a common educational and informational source for immunization
- Capture enough information to provide aggregate profiles of target segments of the population
- Establish ownership and ongoing responsibility for sustaining the NM SIIS
- Develop a dynamic longitudinal health record assembled from multiple sources
- Implement a knowledge/information management system based on personal health records.

3. FUNCTIONAL REQUIREMENTS

Participants in six separate breakout groups discussed the NM SIIS functional requirements. These groups focused on NM SIIS functionality and function requirements, the functionality of existing New Mexico medical information systems, user experience, security/compliance, and a high-level architecture schema. The results of these discussions are included in the paragraphs that follow.

3.1 Requirements Considerations

Trends to Base Prioritization

- Infrastructure and technological dynamics
- Lack of infrastructure in New Mexico
- The NM SIIS solution must be an Internet solution
- A multi-channel solution is needed
- Access to information must be balanced against confidentiality considerations
- Need to build trust and integrity
- Accommodate change
- Determine the minimum set of data required

User Needs

- Immunization providers
- Provider and clients
- Indian Health Services (IHS)
- Information needs to be available whenever a child or adult interacts with providers
- Managed care involves getting a claim (the NM SIIS will not send claims) and doing a chart review (documenting the patient immunization status).

The opportunities to immunize are there. We miss them by not having the information for the providers.

System Requirements Criteria

- The system must facilitate immunizations based on appropriate ages.

- The term “medical home” refers to the following:
  - Current primary provider and where the patient most often goes
  - Could be multiple medical homes
  - Could be provider and insurance carrier system
  - Defined by service delivery.

3.2 Business Function Requirements

Participants identified 13 areas of business function requirements:

1. Register the Individual
2. Search
3. Edit of Records
4. Immunization History
5. Immunization Scheduling
6. Encounter Management
7. Follow Up
8. Reporting
9. Inventory Management
10. System Requirements
11. Security/Confidentiality
12. Infomediary Functions
13. System Design Considerations

Participants then identified entities that would apply to each of these functional areas, as shown in Table 3-1.

Table 3-1. New Mexico Statewide Immunization and Information System (NM SIIS) Business Function Requirements

Functional Area		Description
1	**Register the Individual**	The capture and maintenance of individual demographic data
1.1	Example Demographic Elements	
1.1.1	Name	
1.1.2	Address	
1.1.3	Date of Birth	
1.1.4	Insurance	
1.1.5	Insurance/ Medicare Number	
1.1.6	Primary Care Physician	
1.1.7	Race	
1.1.8	Ethnicity	
1.1.9	Gender	
1.2	Uniquely identify an individual	
1.3	Identifies deaths and adoptions electronically (prior to next vaccination)	
1.4	Electronically stores information on all National Vaccine Advisory Committee (NVAC)-approved core data elements	
1.5	Support family linkages	Allow the relationship linkages between family members
2	**Search**	The review of individual records to determine if the individual is in the system
2.1	Access Immunization Record in 3 mouse clicks	
3	**Edit of Records**	Update of individual registration data
3.1	Support record updates	Records can be appended
3.2	Support record locking	
3.3	Prevent the deletion of record and record information	Data is always additive

Table 3-1. New Mexico Statewide Immunization and Information System (NM SIIS) Business Function Requirements (continued)

Functional Area		Description
4	**Immunization History**	The display of the individual immunization records
4.1	Create an individual immunization record	
4.2	Update an individual immunization record	
4.3	Print record for verification	Provide a hardcopy of the immunization history that is in the system
5	**Immunization Scheduling**	The creation and maintenance of standardized vaccination intervals by antigen
5.1	Create the prospective immunization schedule for individuals	
5.2	Identify additional family members for immunizations during immunization visit	
5.3	Maintain immunization rules according to the Advisory Committee on Immunization Practice/American Academy of Pediatrics (ACIP/AAP) guidelines	
5.4	Rule-based logic to predict Point of Service (POS) immunization requirements for the individual	
5.5	Rule-based logic to create prospective immunization schedule for an individual	
5.6	Schedule is a prompt that can be overridden	
5.7	System provides an override for a prompt	
6	**Encounter Management**	Administration of shots during a single visit
6.1	Verify profile information	
6.2	Print consent form	
6.3	Record consent	
6.4	Record contraindications	
6.5	Record allergies	
6.6	Record exemptions	
6.7	Record immunization refusals	
6.7.1	Reason for refusal	
6.7.2	Date of refusal	
6.7.3	Authorized refusing party	
6.8	Determine Vaccines for Children (VFC) eligibility	
6.9	Record encounter	
6.9.1	Site on the body	
6.9.2	Lot	
6.9.3	Clinician administering	
6.9.4	Manufacturer	
6.9.5	Antigen name	
6.9.6	Current Procedural Terminology (CPT4)	
6.9.7	International Classification of Diseases, 9th revision (ICD9)	
6.9.8	Clinic location	
6.9.9	NCD code	
6.9.10	Clinician supervising	
6.9.11	Support automated data entry based on rules-based logic [System Requirements, 10.12]	
7	**Follow Up**	
7.1	Reminders	Before you need it, based on immunization history
7.1.1	E-mail	
7.1.2	Phone Call	
7.1.3	Letter	
7.2	Recalls	After you missed it

Table 3-1. New Mexico Statewide Immunization and Information System (NM SIIS) Business Function Requirements (continued)

Functional Area		Description
7.3	Messages must be multilingual	
7.4	Adverse reactions capture	
7.5	Record vaccine failures	
7.6	Record follow up activities	
8	**Reporting**	
8.1	Vaccine Adverse Event Reporting Systems (VAERS)	Contra-indications report
8.2	Vaccines for Children (VFC)	
8.3	Centers for Disease Control and Prevention (CDC)	
8.4	Health Plan Employee Data and Information Set (HEDIS)	
8.5	National Commission on Quality Assurance (NCQA)	
8.6	Joint Commission on the Accreditation of Hospital Organizations (JCAHO)	
8.7	Management Reports	
8.8	Clinic Assessment Software Application (CASA)	
8.9	Support Data Query Tools	
8.10	Laboratory Reports	
8.11	Reportable Disease Surveillance	
8.12	Support Data Mining	
8.12.1	Include site-specific analytical capabilities	
8.12.2	Aggregate analytical functions	
9	**Inventory Management**	
9.1	Provider Inventory Management	
9.1.1	Order Requisitions	
9.1.1.1	Order Vaccines	
9.1.1.1.1	Set Dose Increments	
9.1.1.1.2	Set Minimum & Maximum Doses	
9.1.1.1.3	Show Order History	
9.1.1.1.4	Trap Over-Orders	
9.1.1.1.5	Automate Syringe Orders	
9.1.1.2	Order Supplies	
9.1.1.2.1	Set Quantity Limits	
9.1.1.2.2	Set Increments	
9.1.2	Track Usage	
9.1.3	Review Usage	
9.1.4	Adjust Usage	
9.1.5	Track Wastage	
9.2	Master Inventory Management	
9.2.1	Authorize Orders	
9.2.1.1	Review orders by provider	
9.2.1.2	Amend Orders	
9.2.1.3	Reorder Vaccine	
9.2.2	Reconcile Inventory	
9.2.2.1	Review & Evaluate Provider Usage	
9.2.2.2	Review & Evaluate Adjustments	
9.2.3	Transfer Inventory	
9.3	Vaccine Management Program (VACMAN) Interfaces	
9.3.1	Submit Orders to VACMAN	
9.4	Forward Supply Orders	
9.5	Support bar-coded inventory management	
10	**System Requirements**	
10.1	Identifies the definitive record	
10.2	User Support	

Table 3-1. New Mexico Statewide Immunization and Information System (NM SIIS) Business Function Requirements (continued)

Functional Area		Description
10.3	Data integrity checks	
10.4	No duplication	
10.5	System Security	
10.6	Support Interfaces and Architectures	
10.6.1	Support Health Level 7 (HL7) Standards	
10.6.2	Common Object Request Broker Architecture (CORBA) med	
10.6.3	Consolidates immunization records from multiple sources	
10.6.4	Support connection to and from Vital Records	
10.7	Determine Active Status	
10.8	Recovers lost data	
10.9	Keeps individuals in system for life	
10.1	Track individuals from birth	
10.11	Support ability to remove individual from registry	
10.12	Support automation, wizards, and linkages to make encounters simpler to enter	
10.13	Support and Use Geographic Information System (GIS) capabilities	
10.14	Support multi-channel methods to collect and report information	
11	**Security/Confidentiality**	
11.1	Establish authorized users	
11.2	Certify authorized users	
11.3	Support field-level security access based on user and record relationship	
11.4	Element-level security for viewing and changing	
11.5	Identify data source for NM SIIS data elements	
11.6	Maintain usage log	
11.7	System supports data encryption	
11.8	System supports public and private key infrastructure	
11.9	Support redundant record verification	Ask for other identifying data during patient/individual look-up
12	**Intermediary Functions**	The dissemination of educational healthcare information including, but not limited to, immunizations for both providers and families
12.1	Provides online access to educational materials for families and providers	
12.2	Communication features between various users	
12.2.1	Broadcast feature	
12.2.2	Chat room	
12.2.3	Discussion rooms	
12.3	Portal for immunization information	
12.4	List of Frequently Asked Questions (FAQ)	
12.5	Hot News	
13	**System Design Considerations**	
13.1	Allow for timely data collection and editing	
13.2	Graphical user interfaces (GUIs) are interactive and dynamic	
13.3	Extensible	
13.4	Flexible and simple	

3.3 Functionality of Existing Systems

Participants first identified a number of existing New Mexico medical information systems that might have interface or overlap in terms of functionality with the NM SIIS and evaluated them in terms of four criteria for prioritization (in terms of overlap with the NM SIIS). The four criteria were (1) the volume of immunization data exchange, (2) inclusion of high-risk groups, (3) timeliness at point of care, and (4) regulatory reporting requirements. Table 3-2 lists the systems and how they meet the criteria.

Table 3-2. Priority of Existing Systems in Terms of Overlap with NM SIIS

EXISTING SYSTEM	***Volume of Immunization Data Exchange***	***Inclusion of High-Risk Groups***	***Timeliness at Point of Care***	***Regulatory Reporting Requirements***
Cerner	X	X	X	X
Inphorm	X	X	X	X
RPMS	X	X	X	X
TeleMed Northern New Mexico		X	X	X
IDX	X	X	X	X
Women, Infants, and Children (WIC)		X	X	X
Medicaid Management Information System (MMIS)	X	X		X
Health Data Systems	Defer			
New Mexico Medical Review Association (NMMRA)	Defer			
Health Extranet Initiative	N/A			
Income Support Division (ISDII/SDX)	N/A			
SMS; hospital information system	N/A			
AIMS		X	X	X
SALUD! Management Care Organizations	X	X	X	X
Management Care Organizations (MCOs)	X	X	X	X
Drug Utilization Review (DUR) (Medical Assistance Commission)		X		X
Poison Control		X	X	
Central State Pharmacy	X	X		X
VACMAN	X	X		X
LIFESPAN (Vital Records System)	X	X	X	X
Independent provider Patient Management Systems (PMS) (to include school registries)	X	X	X	X
EPI Information (NETS)				X
CASA (immunization status/assessment package)		X	X	
Behavioral Risk Factor Surveillance System (BRFSS)		X		X
FACTS (client tracking system for Children, Youth, and Families Division)	Defer			
Hospital home health care systems		X		X
Headstart		X		X

Participants selected the systems that matched three or four of the prioritization criteria (as shown in Table 3-2), and then evaluated those systems in terms of four other areas of functionality to see whether the systems may have potential overlap with the NM SIIS, complementary functions, or a functional gap. The four areas of functionality were patient identification (ID)/client registration (demographic data of sufficient detail to identify the patient), ongoing immunization history, immunization schedule (exception management), and vaccine inventory management. Table 3-3 presents the results.

Note: In Table 3-3, O = Areas of potential overlap with the NM SIIS; C = Complementary functions; G = Functional gap

Table 3-3. Areas of Functionality

# of Criteria Matched	*System*	*Patient ID*	*Immunization History*	*Immunization Schedule*	*Vaccine Inventory*
4	Cerner	C/O	C	G	G
4	RPMS	C/O	C	O	G
4	Inphorm	C/O	C	O	O
4	IDX	C/O	C	O	G
4	LIFESPAN	C/O	C	G	G
4	PMS	C/O	O or G	G	G
4	SALUD!	C/O	C	O	G
4	MCOs	C/O	C	O	G
3	Telemed	C	C/O	C/O	G
3	WIC	O	C	G	G
3	MMIS	C	C	G	G
3	AIMS	C/O	C/O	G	G
3	Central State Pharmacy	G	G	G	C/O
3	VACMAN	G	G	G	O

Table 3-4, prepared by Sapient prior to the workshop based on a survey, provides a matrix of six existing systems (Cerner, Inphorm, RPMS, the Patient Care Component [PCC] of RPMS, Telemed, and IDX) based on a set of 10 questions.

Table 3-4. Key Existing New Mexico Medical Information Systems

		Cerner	**Inphorm**	**RPMS PCC**	**RPMS**	**Telemed**	**IDX**
Ques. #	**Answerer**	**Ron Margolis**	**Matt Bailey**	**Stan Stark**	**Ross Leatham**	**David Forslund**	**?**
1	General description of the system?	CERNER IS A PATIENT REGISTRATION, TRACKING AND MANAGEMENT SYSTEM THAT IS USING ORACLE AS A 'CLINICAL DATA WAREHOUSE'.	Inphorm is an integrated Client Data system supporting the Public Health Division State, District and Local staff in the delivery of services. It uses a COTS software INSIGHT purchased from QS Technologies Inc.	The Patient Care Component (PCC) of the RPMS system is written in M programming language (formerly known as MUMPS) . It features outstanding text and string manipulation. There is a suite of tools known as the V.A. Kernel which includes a database management system.	The RPMS system consists of a number of discrete and decentralized databases located at Health Care facilities throughout the nation. In New Mexico, the responsibility for overseeing and maintaining these databases is split between the Albuquerque Area Office and the Navajo Area Office. Native American patients are entitled to receive health care at any IHS facility that they choose to visit, and it is common for a patient to have been seen at more than one site.	Have you gone to our web site? http://www.acl.lanl.gov/TeleMed. It answers a number of these questions.	?
2	What functionality (high level) does the system provide?	SCHEDULING OF APPOINTMENTS, REGISTRATION, TRACKING, COLLECTION OF BILLING INFORMATION, ORDER ENTRY FOR LAB AND RAD AND SOME Rx	The system captures Client demographic data and clinical service data. The system provides processing support for the full range of Public Health services including but not limited to Immunization services, TB services, STD services, HIV/AIDS services, Maternal Health Services et al. The system support electronic billing for Medicaid and also supports the Claims adjudication process and the payment of providers.	The input is done by database entry team from encounter forms which are structured. The output includes a patient health summary, standard reports, and a robust query system.	There are literally dozens of Health Care and Business office Applications that make up the RPMS software suite. All the applications at an individual site point to a common but site specific patient file. Beyond Patient Registration and our Patient Care Component - which are mandatory, it is a local site decision as to which applications are in use. Immunization tracking is in very widespread use at Albuquerque Area sites, however immunization records may be partial or complete at any given site for any given patient.	We support HL7 immunization data (and many other types)	?
3	What technology platforms does the system use?	DEC/VMS OPERATING SYSTEM ON DUAL 8400 ALPHAs WITH 8 PROCESSORS OF 660 MHz.	Delphi front end operating with a SQL 7 database in a centralized architecture.	It can run on most anything; PHS uses RISC 6000. There is one common data base for all of Albuquerque's PHS practice sites.	RPMS is hosted on IBM R/S 6000 computers at larger facilities in Albuquerque Area, and Windows NT servers at some smaller sites. I do not know about Navajo Area. RPMS and the Immunization application are written in the ANSII standard MUMPS programming language.	It currently is implemented in Java and CORBA using Visibroker for Java 3.3/3.4 We run on almost any database as a persistent store with the change occuring through configuratoin files.	?

Table 3-4. Key Existing New Mexico Medical Information Systems (continued)

		Cerner	Inphorm	RPMS PCC	RPMS	Telemed	IDX
Ques. #	**Answerer**	**Ron Margolis**	**Matt Bailey**	**Stan Stark**	**Ross Leatham**	**David Forslund**	**?**
4	Are there other systems it interfaces with? How?	MANY OTHER SYSTEMS INCLUDING BILLING, QUALITY ASSURANCE, IDX SCHEDULING. INTERFACES ARE ACCOMPLISHED BOTH AS POINT-TO-POINT AND THROUGH CERNER'S 'OPEN ENGINE' PRODUCT WHICH IS SIMILAR TO CLOVERLEAF AND OTHERS.	There are several system interfaces in place now or planned for Phase II including MMIS, Vital Records, and WIC.	File down loads from our hospital system which gives inpatient diagnosis. File downloads from the lab system. This will be real time sometime 1Q 2000. Nightly transfer of files from our outpatient system to update demographics.	Immunization Version 7.0 has a built in export facility. The developer has this to say about it: Yes. Though, it is not very sophisticated as far as regular exports. It does not log what has been exported, does not flag exported visits, no way to export a "deleted immunization from a previous export," etc. The export is mainly there for adhoc exports to other epidemiological tools, such as CASA. However, I believe that the code underneath is modular enough for a programmer to work with, if something more was needed. One easy way to work with it is to choose a single patient with a hearty immunization history, say a dozen or more immunizations, and export the message to your screen. Easy to read, cut and paste, compare with standard, etc.	Any system that is CORBAmed compliant with PIDS and COAS.	?
5	How long has the system been in operation?	FOUR YEARS BUT CURRENTLY BEING UPGRADED TO NEW C/S ENVIRONMENT AND EXPANDED TO ALL OUTPATIENT CENTERS.	3-4 weeks (the system is being rolled-out as I write)	The system is still being rolled out (two more sites to go which will give a total of 12 sites). Some sites have been up 2 years, and gradations from there to the newest site which goes live 11/12/1999. There is no back loading of data except for immunizations.	It varies by site. Immunization data began to be managed in Version 6.8 of the Immunization package in 1986 at Albuquerque Hospital in an alpha test mode. Data entry can include historical immunizations and occurs independently of the Immunization package (through the IHS Patient Care Component application), so it is not possible to determine a starting point for data collection.	We've only done some testing in Northern New Mexico and other friendly users.	?
6	Who has operational ownership of the system?	UNIVERSITY HOSPITAL	Mary Gerlach Chief of the Office of Information Management Public Health Division DOH	Presbyterian Medical Group (PMG), Dr. Steve Spare, director.	As a decentralized system, day to day operation is controlled at the facility level. Area offices provide software maintenance and trouble-shooting support.	Whoever installs it.	?
7	Who has access to/ownership of the data in the system?	UNIVERSITY HOSPITAL	The Public Health Division and its staff .	Ultimately, the patient....	Application level access is controlled by allocation of Security Keys to Menu items by Facility level Site Management. All patient data is subject to federal	The local servers	?

Table 3-4. Key Existing New Mexico Medical Information Systems (continued)

		Cerner	Inphorm	RPMS PCC	RPMS	Telemed	IDX
Ques. #	**Answerer**	**Ron Margolis**	**Matt Bailey**	**Stan Stark**	**Ross Leatham**	**David Forslund**	**?**
					Privacy Act mandates. Data export would need to be authorized by appropriate IHS staff at the Area office or higher administrative levels.		
8	Are there plans for change,upgrade, enhancement, expansion, or replacing the system in the near future?	UPGRADE IN PROCESS.	Although brand new the system will be further enhanced with additional modules in Phase II of the roll-out sometime in early 2000.	NO.	The immunization package in place at Albuquerque Indian Hospital and Ignacio Health Clinic (Version 7.0) is emerging from beta test and will replace the existing version 6.8 which is in pace at the other facilities in Albuquerque Area. There is some indication that the release of version 7.0 might be caught up in a Y2K related new software release moratorium that was announced to last through March 2000. Note that Version 6.8 has no built in export feature.	The COAS interface is not complete, but nearly so. That is the biggest enhancement scheduled. It should also be running on any ORB that supports POA in the near future.	?
9	Who are the users of the system, how many people use the system?	ABOUT 900 PHYSICIANS AND ANOTHER 800-1000 CLINICIANS AND CLERKS.	500 hundred PHD staff.	Health care personnel in our clinics. About 50 users daily. All physicians have passwords and training, few use the system on an interactive bases.	Albuquerque Area has 12 sites in or contiguous to New Mexico which are collecting Immunization data. I cannot answer for Navajo Area. The number of users varies considerably from site to site. Data entry clerks enter the data, and health care providers use it to manage Immunizations for individual patients, monitor immunization rates, and produce reports related to immunization dose usage.	I don't know	?
10	Who is served by the system? How many people, where?	ALL PATIENTS WHICH NUMBER ABOUT 400,000 VISITS ANNUALLY. UPGRADED SYSTEM MAINTAINS A LIFETIME FILE WHICH IS PERFECT FOR SIIS!	The entire state of New Mexico through a network of Public Health facilities (54?). Approximately 750,000 client records were converted.	The patient is the ultimate benefactor. The physician has his/her job made easier by having the data easily available. Each patient , at each visit , has a new health summary attached to his/her chart. This is reviewed and updated at the visit by putting changes on the encounter forms. All meds are available on the summary, problems lists, allergies, diagnosis l (last 5 clinic, and all inpatient), preventive health reminders, immunizations, body mass index. Etc.	The Albuquerque Area serves approximately 85,000 patients in New Mexico and Southern Colorado. Navajo Area Serves very approximately the same size population in western New Mexico (figure about 160-170,000 Indians in New Mexico), and probably more in eastern Arizona.	It is installed at Las Clinicas del Norte, but I don't know the user base.	?

3.4 Security Issues

Participants discussed security, confidentiality, and integrity considerations that will contribute to the NM SIIS being perceived as trustworthy and the policy considerations that need to be addressed by the NM SIIS program. Key terms and concepts used in the discussion are defined in the glossary (Appendix B). These terms include privacy, security, and confidentiality; integrity, profiling, assent, informed consent, and disclosure; opting out; the Freedom of Information Act (FOIA), private key infrastructure (PKI); and Health and Human Services (HHS) rule making.

The system design requirements/values for security/compliance are as follows:

- The system design should ensure that assent and/or consent is considered for all navigation and logical paths; consider how to help/demonstrate that "informed" status is probable.
- Eligibility process is a time to consider "informed" education.
- The system design should consider all disclosure and authorization rules.
- Virtual "record" building (building records on the fly) demands the most positive approach and the highest standard.
- Consider impact of all the above on the speed of processes.
- Security considerations must be included in the system design from the start because it is absolutely fundamental to the design.
- System design must include legal review.

The following security model manages the appropriate distribution of information:

- User type access to functionality
- Data ownership intelligence
- Field-level rules management
- Relationship model for security (Authentication)
  - Location > Provider
  - Location > Provider > Patient
  - User > Location > Provider Patient

3.5 High-Level NM SIIS System Architecture

In devising a high-level system architecture for the NM SIIS, participants considered specific high-level functions, core functions, security issues, key assumptions, and architectural implications.

High-Level Functions

- Integration of information
- Complete view of patient universe
- Consistent model of practice across all providers—"Best Practices"
- Accountability

  - Security
  - Inventory management
  - Outcome reporting
  - Data integrity
  - Research/decision support
- Quality management and performance measurement across all participants

Core Functions

- Patient demographics
- Provider demographics
- Events/interactions
- Inventory
- Reports

Architectural Implications and Assumptions

- Research/decision support requires a longitudinal database (perhaps not a unique ID). One assumption is that performance requirements cannot be met by a distributed model. Another assumption is that longitudinal policy cannot be met by data owners.
- A Best Practice model requires functional interface for the (practice) population. The assumption is that the functional interface can be separated from the data layer. The conclusion is that the architecture will need to be a hybrid solution (centralized versus distributed).

Based on the participants' discussion, Sapient created a high-level diagram, as shown in Figure 3-1.

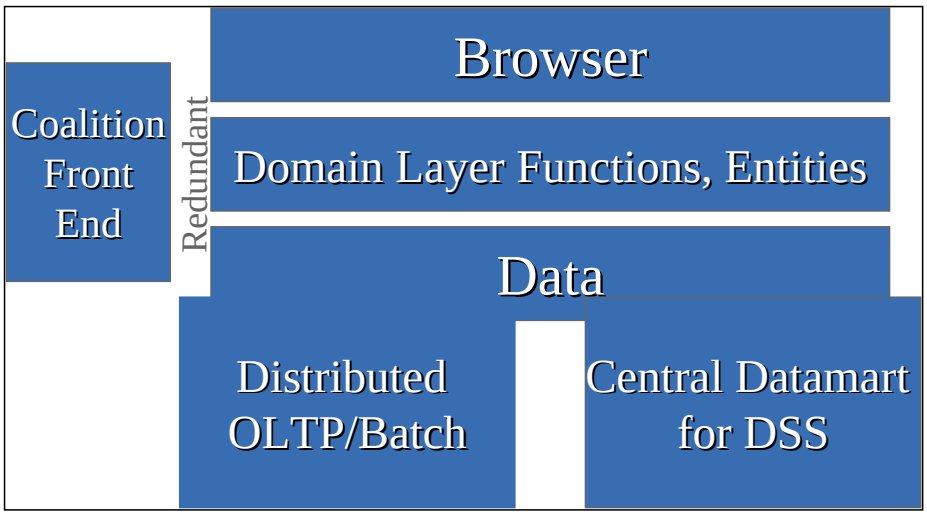

Figure 3-1. High-Level Diagram

4. BUSINESS PLAN

Participants in six separate breakout groups discussed the NM SIIS business plan. These groups focused on the business case framework; business model sustainability, organization and operation, and competency mapping; business plan policy model and organization critical success factors; and business plan coalition charter and guiding principles. The results of these discussions are included in the paragraphs that follow.

4.1 Business Case Framework

4.1.1 Business Case Considerations

- Investments lead to improvements, which lead to efficiencies, effectiveness, and intangibles
- Costs are made up of new costs and changes to the current base (but not base costs)

4.1.2 Intangible Benefits

- Improve researching and processing of data for better policy making
- Aim for equity and uniformity
- Ensure reliability of access during a disaster
- Correct public misperceptions regarding the gathering and use of immunization information

4.1.3 Tangible Benefits

- Improve data sharing and data condensing
- Refine and integrate other “registry” projects
- Lower interfacing costs
- Improve ease of query
- Reduce unnecessary notices
- Eliminate duplicate “search and find” of records
- Minimize data entry
- Simplify documentation and processing at the clinical point of care
- Avoid duplicate immunization
- Reduce adverse effects
- Improve outbreak response strategy
- Improve planning and forecasting to save resources and supplies
- Develop faster, more accurate recall response
- Improve risk management in order to lower insurance rates
- Target needs
- Reduce gross vaccine costs through appropriate use and purchasing
- Adhere to recommended immunization schedules to lower acute and long-term costs
- Improve health event management

- Invest for the future using a scalable and extensible standards-based platform to lower the cost of future improvements
- Increase participation in immunization through health promotions
- Increase cost savings through improved health
- Allow the search of a personal record for multiple uses ("knowledge-enabled system")
- Develop a health record for each person (this is also an intangible benefit)
- Increase the public's confidence in the medical and public health system

4.1.4 Costs

- Base costs of the current way in which things are done
- Launch and promotion costs
- Cost of training all "users"
- Cost of converting current records
- Cost of integrating the NM SIIS with other systems
- System design, build, and implementation costs
- Maintenance costs
  - Program management
  - Systems administration
  - Quality assurance
  - Content generation and management
  - Continuous quality improvement
  - Continuous training
  - Interface maintenance
- Second release costs
- Hardware costs
- Cost of telecommunication services
- General research costs (how and why to use)
- Business development/funding source (capture) costs
- Project management team costs
- New organization costs
- Cost of human resource adverse effects (intangibles)
- Cost of change management
- Legal costs
- Changes in the volume and cost of vaccinations
- Increased demand requires more capacity, which leads to more costs
- Cost of licensed software (compared to royalty-free licensed software)

The goal is to deliver the first release of the NM SIIS software as soon as possible. Sapient prepared the graph shown in Figure 4-1 to illustrate initial cost versus intangible benefits over time.

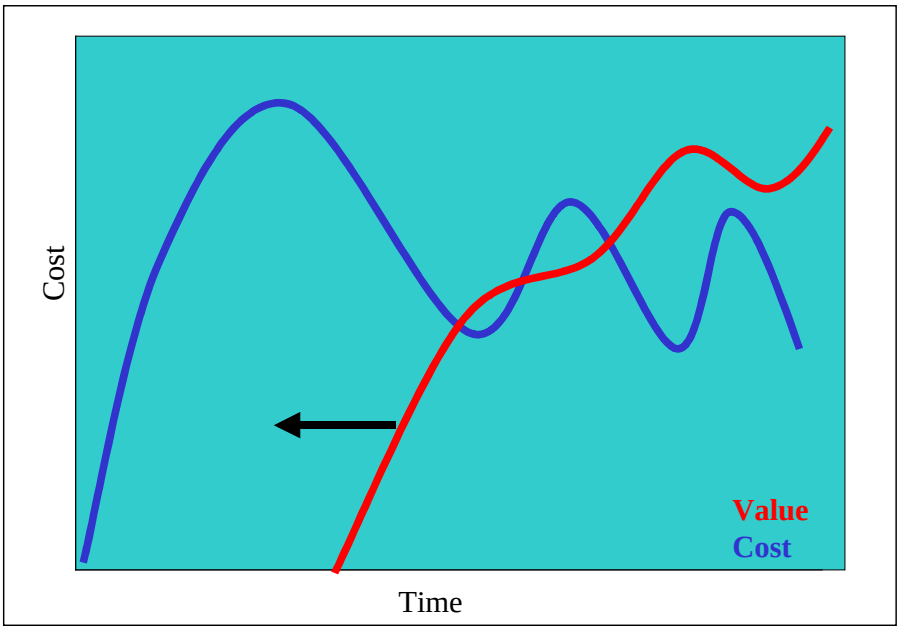

Figure 4-1. Initial Cost vs. Benefits Over Time

4.1.5 Timeline Considerations

Timeline events identified by the participants included the following:

- Design and development
- Rollout
- Operation (live by 9/1/00)

The timeline must also take into consideration the following:

- Legislative timelines
- Community events scheduling
- Resource availability

Assumptions that will affect the timeline include the following:

- Funding source success
- Tangible and intangible benefits can be measured and reported
- Phasing
- Cooperation of the public and private sectors
- Immediate availability of funds for planning and Phase1
- Availability of technical expertise to build and maintain the system

Barriers that will affect the timeline include the following:

- Complexity of different program rules
- Complexity of different program funding sources

- Ownership issue
- "Big Brother"

4.2 Critical Success Factors (CSFs)

Participants identified the following CSFs:

- Establish a core team.
- Obtain executive sponsorship. Executive sponsorship may come from leaders of key public and private sector organizations who have a stake in healthy communities and who are committed to the success of the NM SIIS.
- Identify a project leader. (The assumption is that the executive sponsor will appoint a dedicated project leader.)
- Identify funding resources and obtain funding.
- There must be an extended political viability for the NM SIIS concept.
- There must be a sustainable strategy built in to the development of the NM SIIS to ensure its success.
- An authentic, sound technical platform is needed on which to base the entire system.
- Business agreements between principal stakeholders are needed for information sharing.
- An agreed-upon initial benchmark of the current environment is needed.
- Interpersonal dynamics of the core team must be such that members get along and are able to reach consensus and make decisions quickly.
- Core team members must have empowerment from the groups they represent, as well as empowerment from within the team.
- The core value is to do the right thing for the right reasons.
- The public must be educated about the benefits of the NM SIIS.
- There must be a good story to tell in order to carry the workshop message forward.

Participants agreed that the executive team (a subset of the core team) will serve as the nucleus of decision makers for the NM SIIS organization. Core team members include other agencies, individuals, and entities who support the NM SIIS. CSFs specific to the executive and core team members include the following:

- The core team is empowered to solicit advocacy groups, beneficiaries, or others who were absent from the workshop to participate in the NM SIIS.
- The team must be multidisciplinary (have a multidisciplinary skill set).
- The membership must be diverse.
- Team members must possess good organizational skills.
- The executive team needs to identify a technical team to analyze and document a review of alternative technical solutions.

CSFs critical for internal organization communication include the following:

- The NM SIIS web site needs to have its own domain with communications functions that are public and private. The web site should be easy to find.
- Resources developed from the NM SIIS workshop and other meetings should be put on the web site for easy access and retrieveability.

4.3 Guiding Principles

The participants defined guiding principles as being similar to core values. They indicate how you want to operate. Guiding principles for the NM SIIS organization are as follows:

- Open lines of communication are required so that everyone is informed and aware (e.g., of the workshop results).
- There must be ongoing solicitation of multiple sources of input.
- The team must "do the right thing."
- Success must be measurable.
- The team must build local and global trust (trust and support from within the organization and from the groups represented by the executive team members).
- The team must share resources and help each other. There must be mutual support to members in reaching goals.
- Competition can exist, but not harm the overall achievement and objectives of the NM SIIS.
- The team must continue to educate themselves and others.
- The network needs to be expanded, recognizing that multiple constituencies may have different agendas and scarcity of resources.
- The workshop deliverables will be followed up and executed. *These deliverables will serve as the guiding principles*.
- The executive team has the trust of the greater NM SIIS group and the responsibility to move forward within the guiding principles and vision of the workshop.

These guiding principles will be used during the transition between the workshop and finding a champion (executive sponsor). Once the executive sponsor is identified, the guiding principles will be re-visited by the new owner/executive team.

4.4 Program Categories and Competencies

Participants identified program skill categories, prioritized the top five categories by urgency/currency of need, and then identified the competencies within each category, as shown in Table 4-1.

Table 4-1. Skill Categories and Competencies

Program Skill Category	***Competencies***
1. Marketing and Communications (includes quality/performance measurements) • Communications • Marketing • Public Relations • Communication/collaboration management • Parent/Coalition/Advocacy	• Creative • Existing, well established marketing department • Understanding of sampling techniques • Demographics • Experience in creating niches • Ability to tailor messages • Refined presentation techniques • Has existing materials • Web expertise • Organization • Ability to bring an initiative to completion • Defined corporate structure in place • Ability to support new task or goal and support NM SIIS
2. Executive Sponsorship • Champion/Sponsor • Executive decision making • Partner/Collaboration Sponsorship	• Articulate • Decision-making capabilities • First tier, highest level • Signature authority • Ability to mobilize peripheral community members • Dynamic • Networked within community • Broad reach in community • Connected to political process in NM
3. Organization • Partnership/Collaboration Planning • Stakeholder Subscription & Commitment	See paragraph 4.5
4. Policy • Legislative Mandate	• Capable policy drafters • Legislative sponsor • Impact measurement • Deep analysis skills
5. Resourcing • Contractors • Funding • Purchasing	• Experience in garnering multiple funding sources • Ability to manage multiple, large purchases and contracts

Table 4-1. Skill Categories and Competencies (continued)

Program Skill Category	***Competencies***
6. Education • Training • Advocacy for SIIS • Curriculum • Maintenance/guidelines/protocols	• Ability to develop instruction/training materials • Audience • Provider • General public • Pharmaceuticals • Characteristics • Bilingual • Politically correct • Different channels • Track/measure/evaluate results • Flexible • Sustainable training methods
7. Management • Management decision making • Partner collaboration management • Human resource management • Project management • Outreach management • Contractor management	• Good planners • Good implementers • Proactive • Flexible • Monitor progress (establish metrics and goals)
8. Program • Outreach • EPI management • Health planning • Provider recruitment and support • Protocol and policy	• Demonstrated success at delivering services • Knowledge of the right subjects – Clinical Analysis – Epidemiology – Network Management – Public Health – “Knows drugs” – Immunization policy and protocols
9. Quality • Continuous quality improvement • Measurement/outcomes • Quality planning	• Knowledge of metrics • Analytical skills • Process focused • Outcome focused • Enthusiastic
10. Technical • Architecture Plan • Design Requirements • Development Requirements • Testing • System Platform • System Tools • Systems Interface Requirements • Human Interface Requirements • Telecommunications Infrastructure	• Ability to develop highly complex systems that are state-of-the art • Demonstrated understanding, development, implementation, and supporting of systems for public domain • Knowledge of how to interface multiple systems of varying architecture and levels of competency • Technical competency in transferring public domain systems

4.5 Stakeholders

Participants identified NM SIIS stakeholders (individuals who have an interest in healthy communities and who would support the NM SIIS). They then mapped these stakeholders to the program skill categories listed in Table 4-1. All participants at the workshop were asked to "vote" in this mapping effort. Table 4-2 shows the results of the voting exercise; numbers in each column indicate the number of votes cast.

Table 4-2. Mapping Skills to Stakeholders

	Skill Categories									
Stakeholders	**Marketing & Communications**	**Executive Sponsorship**	**Organization**	**Policy**	**Resourcing**	**Education**	**Management**	**Program**	**Quality**	**Technical**
Information Technology Management Commission (ITMC)	2		1	3		1				
Department of Health (DOH)	3	7	7	5	4	7	4	10	7	4
Health Policy Commission (HPC)	2		2	4	1	1	2		5	
Human Services Department (HSD) (Medicaid Division)	1	2	3	3	4	2	2			4
New Mexico Medical Review Association (NMMRA)	2	1	3	1	1	5	1	1	7	3
Physicians	1			1	2	2		2		
UNM Hospital	5	2	3		2	3	2	5	4	2
Lovelace	6	2	2		1	2	2	5	6	5
Presbyterian	5	2	2		1	2	2	4	6	4
St. Joseph's	4	2			1	1	2	4	5	3
Cimarron	4	1						3	2	1
BlueCross/BlueShield of New Mexico	4	1	2					3	6	3
Executive Branch		3		3	1				1	
Legislative Branch		2	1	4	1				1	
Department of Education (DOE)	2		1	1		6			1	
Indian Health Service (IHS)	2	1	2		3	2	3	5	1	1
Drug companies		1				1				
Los Alamos National Laboratory (LANL)				1			2			3
TechNet										1
Vendors (e.g., Sapient)										1

4.6 Policy and Decision Making

Participants identified the following policy decisions that need to be made:

- Identify additional resources (e.g., money, grant writers, additional technical assistance)
- Identify the service provider for the NM SIIS
- Find an executive sponsor (e.g., legislative champion) and form an executive team
- Begin implementation
- Work with the workshop products

The responsibilities and tasks of the executive team, a subset of the core team, involve making policy decisions. The quality of the policies that are made will be directly related to how representative and expansive the members of the overall core team are. It is assumed that the core team will be composed of NM SIIS stakeholders. The executive team will seek advice from core team members regarding issues, make policy, and then disseminate the policy back to the stakeholders.

5. IMPLEMENTATION PLAN

Three breakout sessions were held to develop a draft implementation plan. The goals were to first identify a short-term implementation timeline, then identify key milestones and critical path junctures, and, finally, develop a high-level timeline for accomplishing each major task. Participants also discussed dependencies and assumptions regarding implementation and sponsorship/implementation team needs. Next steps to be taken were also identified. The results of these discussions are included in the paragraphs that follow.

5.1 Short-Term Timeline

Participants developed "mini" timelines for funding, organizational development, and technology as shown in Table 5-1.

Table 5-1. Mini Timelines

	11/19/99	***11/26/99***	***12/3/99***	***12/8/99***	***2000***
Funding	Identify a grant writing team Obtain an executive sponsor Form the transitional core team	Target grant opportunities Meet with Medicaid to debrief/obtain commitment	Identify a funding team and obtain commitment, including a lead sponsor Finalize cost approaches Complete the business case (core team) Have the Communication Plan in place	Review APD format (3- to 7-person team; 6-10 weeks) Communicate with legislature about the need for funds	
Organizational Development	Identify core team and obtain commitment Identify core team responsibilities		Identify an executive sponsor Write an Executive Presentation Identify NM SIIS teams for communications, technology, and funding Identify the initial technology home	Finish Marketing and Communications Plan and Business Plan by mid-December	Obtain a project manager by the end of January 2000
Technology		Investigate technical alternatives for APD (2 people; 8 weeks)		Complete alternate analysis by end of 1999	Decide on architecture by the end of February 2000 Release a Request for Proposal (RFP) by April 1, 2000 Award the contract by July 1, 2000

5.2 High-Level Timeline

Sapient laid out a timeline for the system and asked all the participants to identify technical, communications, funding, and organizational activities for system development and implementation. Participants wrote the activities on sticky notes and posted them on the timeline. The results are shown in Table 5-2.

5.3 Implementation Dependencies and Assumptions

Dependencies

- Realize there will be an intense period of activity for the next 6 weeks
- Identify the executive sponsor
- Identify core team members and verify commitment
- Complete business case before other actions
- Gain internal approvals from each supporting organization
- Create funding plan credibility
- Establish a decision-making process at the "coalition level"
- Obtain personal, organizational, and funding commitments

Assumptions

- Each person will serve as an advocate within their community/organization
- Teams will be formed under the executive team; each team will be led by a different person
- Core team members will commit their time for 2-3 weeks of effort between now and 12/31/99

5.4 Sponsorship

Participants identified the following sponsorship "dream team":

- Alex Valdez – DOH
- At least one of these:
  - Martin Hickey—Lovelace
  - Jim Hinton—Presbyterian
  - Steve Smith—St. Joseph's
  - Gary Carruthers—Cimarron
  - Norm Becker—BlueCross/BlueShield of New Mexico
- Chuck Millegan equivalent—Medicaid
- Steve Kanig—NMMS
- Children's Advocacy Group
- First Lady Dee Johnson

Table 5-2. Detailed Implementation Timeline

	1999		*2000*	
	November	***December***	***January***	***February***
Technical	LANL (ACL) Technical Review of Workshop Proceedings Gather information regarding other state/SIIS platforms and approaches Review and describe alternative technical approach		Requirements Definition	Plan RFP and research, write RFP to obtain consultative support Make architectural decisions
Communications	Create Communications Team "Immunize" list-serve update on workshop Contact candidate sponsors Write letter to support organizations for more support Discuss legislative actions with sponsors Identify clerical support for communication Communicate results of workshop Publish and distribute workshop proceedings Complete the business case	"Elevator ride" summary by 12/3 Finish executive presentation Complete elevator ride test statements Current business case to executive branch, secretary, legislators Move web site to HPC	Coalition group meets again Identify groups that will want to hinder	Create Communications Plan Obtain PR Plan
Funding	HSSD/Medicaid workshop debriefing, next steps discussion Form grants team Determine funding plan Consider cost approaches to include in funding plan, e.g., everything at once Investigate outside funding sources	Create NM Legislature lobbying team: NMMS, AAP NM, AAFP NM, NMHA Work to keep $100K in budget	Begin APD process Provide seed funding to support professional project management	Develop APD alternate plan Submit APD
Organizational	Create interim leadership team "Dream Teams" Identify scope and areas of steering group responsibility Complete the business case	Determine champion Identify host organization Develop human resources plan Identify funding team	Identify fulltime project manager	Create rollout plan schedule

Table 5-2. Detailed Implementation Timeline (continued)

	2000					
	March	***April***	***May***	***June***	***July***	***August***
Technical		Release RFP for Bid	Evaluation team formed		Award bid (assumes funding) Design Purchase hardware and software Select COTS and technology packages	Begin system implementation Proof of concept Develop interfaces
Communications						Rollout communications plan for general audience
Funding	File for federal appropriations grants begin Consider APD Support for state appropriations	Plan for appropriations-Emergency for state funding Emergency release 10%	File for federal appropriations grants end APD Approved	Include SIIS in state IT plan	Request federal funds	Team to DC for federal appropriations
Organizational		Develop Training Plan		Hire human resources to maintain SIIS		

Table 5-2. Detailed Implementation Timeline (continued)

	2000				*2001*		
	September	***October***	***November***	***December***	***January***	***February***	***March***
Technical		Develop Ongoing Systems Quality Plan			Testing begins Training begins		Run pilot with two organizations
Communications							
Funding							
Organizational			Change Management Training				

A "reality check" team (core team) might include the following:

- Suzanne West—DOH
- Steve Kanig—NMMS
- Someone from Medicaid
- A health plan executive director from an HMO/MCO
- Lance Clinton—Pediatrics (Lovelace) or AAP representative or Dale Alverson (Shee)

5.5 Next Steps to be Taken

Participants identified the following as necessary actions that need to be taken by some of the workshop participants in order to move NM SIIS implementation forward.

1. High-level architecture. The technical team must create comparative physical architecture scenarios.

2. Communication with medical associations. Steve will initiate this dialog once he receives the Marketing and Communication Plan.

3. Complete an executive presentation and 1-page executive summary. Suzanne and other executive team members will complete these by 12/03/99.

4. Complete a quick presentation of the NM SIIS. Gary and Dick will complete an "elevator-ride" summary by 12/03/99.

5. Gather information in three areas: justification; reducing fear and risk about inappropriate disclosure; and cost. Jennifer will coordinate gathering this data by 12/19/99. Responses should include a justification based on quality measures; a clear statement of security and integrity; and a clear statement of an approach to cost-effective implementation and maintenance (leverage), as well as a plan to define costs, with support.

6. Obtain the SIIS benefit summary from the Department of Health Fiscal Year Information Technology (IT) Plan. Mary G. will obtain this by 11/19/99 for use in developing the executive presentation and business plan.

7. Identify the Internet service provider for the NM SIIS. This will be determined as part of the RFP process.

8. Locate an executive sponsor and identify potential "spokespeople." Rick and Mary G. will find an executive sponsor for the NM SIIS and create a list of spokespeople.

9. Form teams:
   - Funding (Rose)
   - Communications (Kim)
   - Grant writing (Rose and Ron)

- Technical (Matt, Dave Forslund, and Stan)

10. Validate workshop proceedings. Peggy, the executive team, and LANL will work on this.

11. Obtain clerical support for the transition phase. Peggy will handle this step.

12. Transition web-site hosting to the Health Policy Commission (HPC). Jennifer and Jo will effect this transition by 12/08/99.

13. Schedule a core team meeting. Peggy will schedule a meeting by 12/01/99. The meeting will be sometime in January 2000.

14. Write letters to obtain organizational support. Betty will handle this step, preferably by 11/26/99.

15. Discuss legislative actions with potential executive sponsors. Rick and Mary G. will initiate this dialog by 12/31/99.

16. Select a name for the NM SIIS. Kim will work with the Communications team to select a project name. Suggestions at the workshop included Vaccine Information System Initiative On the Net (VISION); Vaccinations Initiative Net Enabled (VINE); Comprehensive Health Information for Life Enhancement (CHILE); Statewide Health Opportunities for Total Security (SHOTS); and Access to Lifelong Information for Vaccination Effectiveness (ALIVE).

17. Obtain commitment from Matt Bailey to serve as a technical resource. Mary will work on obtaining commitment from Matt for 120 hours of his time.

6. FUNDING PLAN

Participants in one breakout group discussed the funding plan for the NM SIIS, identifying possible sources to fund the development of the NM SIIS, as well as issues related to funding the project. The results of this discussion are included in the paragraphs that follow.

6.1 Funding Sources

Possible funding sources identified by the group are listed in Table 6-1. The participants cross-referenced these sources as to whether funding might be available now, in the future, or as start-up funding.

Table 6-1. Funding Sources

Source	***Now***	***Future***	***Start-up***
State appropriations	Yes	Yes	Yes
Tobacco funds	Yes	Yes	
Federal appropriations to HHS	Yes	Yes	
Federal (Medicaid APD)	Yes	Yes	Yes
Federal (CDC grant)	No	Possible	
Other federal grants	Yes	Yes	
Not for profit grants	Yes	Yes	
Use for service fees	No	Possible	
Licensing fee	No	Possible	
Private grants (e.g., Intel, Bill Gates, Ted Turner)	Yes	Yes	
dot.com revenues (e.g., sales)	No	Possible	
Partners (e.g., HMOs, pharmaceuticals)	Yes	Yes	

Scenarios were developed for four of the funding sources noted in Table 6-1 and a timeline was established from November 1999 through April 2000 regarding funding from these sources. These scenarios and timeline are shown in Table 6-2.

Table 6-2. Funding Scenarios/Timeline

	1999	***2000***			
Scenario	***Nov***	***Jan***	***Feb***	***March***	***April***
Federal Appropriations (with private grants; with user fees—not accepted)	Team to D.C.	Form grant writing team	File for grants	File for grants	File for grants
HCFA APD Process (state appropriations and grantsmanship)		APD	APD	APD Approved	
Not for profit grants (grant sources include Casey, Lannen—Santa Fe, Frost, Flynn, Packard, Skillman, McCune—Santa Fe, Furrs, LANL Foundation)		Form grant writing team			
State Appropriations	Sell the program	Consider APD support	Planning $ emergency APD Support		Emergency release 10%

6.2 Funding Issues

- Will the Medicaid division support the NM SIIS? (HIPAA, Y2K)
- Can non-Federal/non-state dollars be used for a state match in the APD process?
- How much money is needed, and when?
- How will the funding be handled, organizationally? (Will dollars flow through DOH?)

7. PROJECT MARKETING PLAN

Participants in one breakout group discussed what elements should go into a project marketing plan. Participants identified various types of audiences for the NM SIIS and then brainstormed how each of these audiences could make the project happen. They then developed a matrix indicating, for each audience, (1) opinions and concerns that audience may have about the NM SIIS; (2) the benefits that audience might provide; (3) the strategy/owner of that audience; and (4) possible outcomes of marketing the project to that audience. A team will be formed to develop a detailed project marketing plan.

8. EXECUTIVE PRESENTATION

Participants in two breakout groups discussed preparing an executive presentation. They developed a list of key messages, or driving points, that should be stressed when promoting the NM SIIS project. An outline and summary for an executive presentation was then prepared.

8.1 Key Messages

- Collaboration
- Improvement to health status
- Leveraging existing infrastructure
- Leveraging funds
- Leveraging experience and knowledge
- Universal access
- Security
- It makes sense; it does the right thing!
- User oriented
- Provider buy-in
- Simplify and standardize
- Quality
- Inclusive approach to users
- Dynamic, extensible, forward-looking
- Internet/new economy/community approach
- Meets mandates
- Diversity/multi-cultural/bilingual
- Empowering
- Accountability (for kids and dollars)
- New Mexico's solution
- Leadership

8.2 Executive Presentation Outline and Summary

- Name of Project. The name of the project should convey a message (e.g., "Comprehensive Health Information for Life Enhancement")
- Introduction
  - Background
  - Collaborative effort
  - Public and private
  - Workshop leads to coalition
  - Represents immunization community in New Mexico
  - Leveraging other experience and knowledge
- Exec Summary
  - Solution Summary
  - How we are going to get there

  - What we need
- Statement of Need
  - Problem Statement
    - Current state of health in New Mexico is poor, which is exacerbated by infrastructure flaws, which lead to human ills and costs
    - Miserable vaccination coverage
    - Islands of information
    - Complex and nonstandard approaches
    - Difficult to access
    - Duplicate, inefficient, unnecessary efforts
    - Effect: costly
    - Vulnerability to preventable diseases
      - Increased health costs
  - Vision and Purpose = New Mexico's solution
  - Giving individuals accurate, timely, reliable information to promote health communities
  - Benefits
    - Extract from business case
      - Public/global drivers
      - Small dollars for big return in healthy communities
      - Sustainable
      - Value added
      - Efficiency
      - Effectiveness
      - Coverage
      - Partnership/coalition
      - Expandability
      - Public/private
      - Built for future
    - Challenges met
      - Individual/sponsor drivers
- Solution Model/Approach
  - Objectives – Our criteria for success
    - Formation of public-private partnership/coalition
    - Improved public-private health status ("community immunity"); the outcome is a HEALTHY community
    - Meeting mandates
    - Universal access (serving diverse rural and urban communities)
    - Accountability and quality
  - Components of Solution
    - Organizational model
      - Public/private partnership
        - Members
        - Charter
        - Representative of New Mexico's diversity, etc.
        - Accountabilities

        - Leveraging infrastructure (not duplicating existing organization), experience, and knowledge
    - Technical Solution/Model Categories
        - User Oriented
            - Internet: New economy/community approach
            - Transparent access to “medical home”
            - Secure/trustworthy/highest standards
            - Universal access
            - Standardize and simplify
        - Leveraging Infrastructure
            - Bridging islands of information
            - Compliance/alignment with State strategy and Federal compliance mandates
            - Supports private sector initiatives
            - Sustainability
        - Program Specific
            - Best practices functionality
        - Forward Looking
            - Expandability
            - Distributed/centralized data hybrid model
            - Concrete description
            - Schematic
            - Functional overview
    - Architecture
        - User Oriented
        - Leverage infrastructure
        - Program mandates
        - Supports State IT strategy
        - HIPAA Compliance
- Plans
    - Timelines and major milestones
    - Coalition competencies as critical to success of plans
        - Strategic Plan
        - Implementation Plan
        - Organizational Plan
        - Project Marketing Plan
            - Inclusion
            - Appropriate outreach
            - Education
            - Coalition competencies
                - Community representation
                - Cooperation
                - Alignment
                - Conclusion – “We have nailed this”
        - Funding Plan
            - What is it going to cost?

        - Do we know how to get it?
        - What is your role?
    - Challenges
        - What we need to get to this done
            - Stakeholder commitment
            - Leadership commitment
            - Critical next steps
        - Risks of not proceeding
            - Downside
            - Opportunity/risk of inaction
            - Sanctions
            - Higher costs

8.3 Quick Summary ("Elevator Ride" Speech)

- Problem (or Opportunity)
    - Concern about low vaccination rates and health implications
    - New Mexico's diverse and mobile population
    - Immunization is the most cost-effective health management practice
- Solution/challenges
    - Exciting opportunity to do something better
        - Improve health. "It's not common knowledge, but of all interventions available, immunization is the unquestioned, most effective form of intervention to enhance health."
        - Public/private sector approach—supported by passionate commitment from participants
    - Foundation for future collaboration around clinical information
    - Our solution uses the Internet to link with existing organizations to allow sharing of immunization information. This sharing will make it easier for New Mexico families to do the right thing for their children.
- Plan
    - Our plan is to secure within the next two months the organizational and financial commitment to permit moving the NM SIIS forward to 2000. We will miss this opportunity to help kids and families without your leadership and support.
- Challenges
- Cost savings
    - Every dollar spent now saves $14 later.

APPENDIX A—LIST OF PARTICIPANTS

Name	***Organization***	***Pbone***	***E-Mail***
Matt Bailey	Fox Systems	983-9541	matt@foxsys.com
Marty Berman	Office of the State of New Mexico Chief Information Officer	476-0402	marty.berman@state.nm.us
Mickey Bond	Presbyterian Medical Services	982-5565 ext. 488	
Georgia Cleverley	Medicaid	827-3134	georgia.cleverley@state.nm.us
Bruce Eklund	Indian Health Service (IHS)	248-4034	beklund@albmail.albuquerque.ihs.gov
Mary Gerlach	NM Department of Health	827-2392	maryg@doh.state.nm.us
Roger Gollub	Indian Health Service (IHS)	248-4539	rgollub@albmail.albuquerque.ihs.gov
Betty Hileman	NM Department of Health Vital Records	827-2342	bhileman@doh.state.nm.us
Rose Hessmiller	Consultant to New Mexico Infectious Health Bureau	842-6495	roseh@unm.edu
Mary Houdek	NM Department of Health Vital Records	827-2343	mhoudek@health.state.nm.us
Steve Kanig	NM Medical Society	563-2819	kanig@renalmed.com
Pam Lambert	UNM Law, Institute of Public Law	277-1052	plams@unm.edu
Richard Marek	Lovelace Health Systems	262-3187	richard.marek@lovelace.com
Ron Margolis	UNM Health Sciences Center	272-1952	rmargolis@salud.unm.edu
Peggy Mohoric	BlueCross/BlueShield of New Mexico	837-8626	pbmohor@bluemail.com
Kim O'Brion	New Mexico Medical Review Association	998-9898	nmpro.kobrion@sdps.org
Jo Powell	NM Health Policy Commission	424-3200	yjpowell@hpc.state.nm.us
Jennifer Rudnick	Los Alamos National Laboratory	665-1971	rudnick@lanl.gov
Gary Simpson	Department of Health	827-2471	garys@doh.state.nm.us
Stan Stark	Presbyterian Health Services	260-6800	sstark@phs.org
Robert Stephens	Medicaid	827-6221	robert.stephens@state.nm.us
Robin Tuchler	St. Joseph Medical Center	727-3400	robint@sjhs.org
Rick Ulibarri	Los Alamos National Laboratory	665-0140	eboy@lanl.gov
Suzanne Westman	NM DOH Immunizations Bureau	827-2412	suzannew@doh.state.nm.us
Sandra Zink	Los Alamos National Laboratory	667-5260	zink@lanl.gov

Facilitators	***Organization***	***Phone***	***E-Mail***
Nick Chandler	Sapient	(617) 374-0367	nchandler@sapient.com
Jim Frech	Sapient	(617) 374-0367	jfrech@sapient.com
Andrew Kuklewicz	Sapient	(617) 374-0367	akuklewicz@sapient.com
Andrew Tarab	Sapient	(617) 374-0367	atarab@sapient.com

Technical Support	***Organization***	***Phone***	***E-Mail***
Carlos Lujan	LANL	665-0125	calujan@lanl.gov
Linda Lewis	LANL	665-3354	lewis_linda@lanl.gov
Carolyn Robinson	LANL	665-8163	carolyn.robinson@lanl.gov
Denise Sessions	LANL	665-5110	denise@lanl.gov

APPENDIX B—GLOSSARY

AAP	American Academy of Pediatrics
ACIP	Advisory Committee on Immunization Practice
ACL	Advanced Computing Laboratory (LANL)
Assent	A notice on the screen alerting the user that the site may not be secure; the user needs to simply read the privacy warning (no action is required by user).
BRFSS	Behavioral Risk Factor Surveillance System
CASA	Clinic Assessment Software Application
CDC	Centers for Disease Control and Prevention
CEO	Chief executive officer
champion	synonymous with executive sponsor
CIO	Chief Information Officer
confidentiality	What the law and/or society will protect and keep private with regard to others.
CORBA	Common Object Request Broker Architecture
core team	Core team members include other agencies, individuals, and entities who support the NM SIIS.
COTS	Commercial off the shelf
CPT4	Current Procedural Terminology
CSF	Critical Success Factor
CYFD	Children, Youth and Families Department
Disclosure	Disclosure is the release, transfer, provisions of access to, or divulgence outside of, the entity holding the information (the release, with or without authorization, of individually identifiable health information). Redisclosure is disclosing again (passing on) disclosed information.
DOE	Department of Education

DOH	Department of Health
DUR	Drug Utilization Review
executive sponsor	The “champion” of the NM SIIS
executive sponsorship	Leaders of key public and private sector organizations who have a stake in healthy communities and who are committed to the success of an NM SIIS
executive team	The executive team is the nucleus of decision makers for the NM SIIS organization. The executive team is a subset of the core team.
FAQ	Frequently asked questions
FOIA	Freedom of Information Act
GIS	Geographic Information System
GUI	Graphical User Interface
HEDIS	Health Plan Employee Data and Information Set
HCFA	Health Care Financing Administration
HHS	Health and Human Services
HHSD	Health and Human Services Department
HHS rule making	Proposed rules from the Secretary of HHS regarding the electronic transfer of individually identifiable health information; rules also address individual rights to access health information.
HIPAA	Health Insurance Portability and Accountability Act
HL7	Health Level 7 Standards
HMO	Health Management Organization
HPC	Health Policy Commission
HSD	Human Services Department
ICD9	International Classification of Diseases, 9th revision
ID	Identification

IHS	Indian Health Service
Informed consent	Similar to assent, but in this case the user must take action to affirm he/she has read the privacy warning and is now "informed."
Integrity	The assurance that stored records are secure (no corruption of data; no misuse of records; highest possible level of data accuracy)
IT	Information technology
ITMC	Information Technology Management Commission
JCAHO	Joint Commission on the Accreditation of Hospital Organizations
LANL	Los Alamos National Laboratory
MCO	Management Care Organization
MMIS	Medicaid Management Information System
NCQA	National Commission on Quality Assurance
NMMRA	New Mexico Medical Review Association
NMMS	New Mexico Medical Society
NM SIIS	New Mexico Statewide Immunization Information System
NVAC	National Vaccine Advisory Committee
Opting out	Choosing not to participate; e.g., opting out of being immunized or being entered on the registry
PCC	Patient Care Component (of RPMS)
PKI	Private key infrastructure
PMS	Patient Management System (independent provider)
POS	Point of service
privacy	Refers to an individual's desire to limit the disclosure of personal information, or information that society has deemed should be private.

Profiling	Service-level support of exchanging records (data mining; connection with the user to build loyalty; also used in the field of commerce). Profiling of health data must be under the control of the user (i.e., profiling should not be done without consent). Profiling of health data is also used for reporting.
RFP	Request for proposal
SALUD!	Medicaid Managed Care Program
security	The process that implements and ensures privacy and confidentiality, including the issues of data integrity and availability.
SIIS	Statewide Immunization Information System
Stakeholders	Individuals/organizations who have an interest in healthy communities and who are committed to an SIIS
UNM	University of New Mexico
VACMAN	Vaccine Management Program
VAERS	Vaccine Adverse Event Reporting System
VFC	Vaccines For Children
WIC	Women, Infants, and Children
Y2K	Year 2000