
National Patient Information Reporting System: National Data Warehouse

Service Level Agreement

NDW Data Mart Test Environment

Version 2.0

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Document Information

Revisions/Rescissions

Revision

Exceptions to Procedure

None

Review

This document will be reviewed annually to maintain its currency and will expire in three years from the date of its approval.

Automatic Rescission Date

This document will be rescinded three years from the date of its approval.

Supersedes

Production and Test Environment Based Data Marts V1.0, May 2007

Version History

Version	Date	Notes
1.0	May 2007	Initial version, part of the Production & Test Environment Based Data Marts SLA.
2.0	February 2008	Data Mart Test Environment based information was removed from the V1.0 SLA to this document and updated for the FY 08 Bridge contract. COTR acceptance April 10, 2008

Signature Page

This signature page represents the acceptance of this Service Level Agreement. In signing this document, all parties agree to the Service Level Agreements detailed within this document.

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1. Overview

The Indian Health Service (IHS) has requested that the National Patient Information Reporting System (NPIRS) Primary Contractor provide a Service Level Agreement (SLA) for those data marts that the NPIRS Primary Contractor “hosts” (other Contractor/Vendor built data marts). This Service Level Agreement sets expectations between the authorized users and the NPIRS Primary Contractor, as agreed to by NPIRS Program Management.

Within the context of this document, a data mart is defined as the end “product” received by the customer; a data mart is *not* interim data extracts provided to external entities/developers that are then used for data mart development.

This Service Level Agreement sets forth the service level expectations for the **Data Mart Test Environment**.

For the Data Mart Test Environment, the Service Level Agreement addresses the following aspects of **service**:

- Availability
- Monitoring
- Status reporting
- Preventative and corrective maintenance
- Infrastructure support and interface management
- User access
- Data mart refreshes
- Change management
- Knowledge management
- Help Desk user support

In addition, this Service Level Agreement addresses the following **management elements** for the Data Mart Test Environment:

- Service tracking & reporting
- Addressing service information

- Resolution of service-related disagreements
- How agreements will be reviewed and revised

Also, for facilitating data mart development, this Service Level Agreement addresses the following aspects of service:

- Infrastructure Support and Interface Management
- User Access
- Data Refresh
- Change Management
- Knowledge Management

This is an “internal” Service Level Agreement (IHS customers of NPIRS, or support provided on behalf of the NPIRS Program Manager) that establishes the service levels that can be expected, as well as the communications and corrective action that will address any interruptions in these service levels, to satisfy the Indian Health Service contract obligations.

2. NDW Data Mart Test Environment

2.1 Design and Operation

2.1.1 Contents

The NDW Test Data Mart environment was developed to enable authorized users the ability to analyze the data available for data mart development. The Test Data Mart contains:

- Current versions of all the physical structures of the NDW database that we currently anticipate will be accessed by data marts (e.g., target, but not staging tables)
- Representative data
- Sufficient free space required to allow data mart developers to fully develop and test their products prior to their being added to the production environment

2.1.2 Design Parameters

The NDW Data Mart Test Environment has been created with the following parameters:

- The Data Mart Test Environment exists on a separate machine from the NDW Production Environment.
- The subset of data is chosen by the IHS customer, per requirements.
- The subset of data may potentially include data from all IHS regions.
- The representative data in the Data Mart Test Environment will include a subset of the live production data, chosen to provide a reasonable sample for data mart development activity.
- The representative data in the Data Mart Test Environment will not include any scrambling, cleansing, or encryption; nor use other methodologies to disguise patient identifiable data.
- The Test Environment Data Mart uses approximately 32 GB, which includes database and process space.
- NPIRS Program Management, working in collaboration with the authorized users, will specify to the NPIRS Primary Contractor those who will be granted access to the data in this mart, as well as the time period during which they will be granted access.
- The Data Mart Test Environment will be enterprise compliant, to allow various environments to access the database, including ODBC, JDBC, OLE, CLI. These are some of the environments and protocols that may be used to access the Data Mart Test Environment depending on the user's needs, access protocols, and environments.
- An environment will be provided so that SAS and DB2 software can work together.

The NDW Data Mart Test Environment will be populated initially with sampled Areas. The initial sampled Areas are Tucson and Phoenix Areas.

2.1.3 Access

Only authorized users will be allowed access to the Data Mart Test Environment. Any authorized user will be allowed access to all data for all regions in the mart. Authorized users of the Data Mart Test Environment will be granted READ ONLY access to the data

Security controls commensurate with those in the production NDW database and adhering to IHS standards (as outlined in separate security documents), will be enforced.

2.2 Service Level Agreement

2.2.1 Time Period

As of the date of approval, this Service Level Agreement will be reviewed annually, to maintain its currency.

2.2.2 Services Included

Services include:

- Ensuring availability of the NDW Data Mart Test Environment as specified in the *Test Environment Data Mart Technical Guide*, Version 1.0 (September 2007).
- Monitoring the Data Mart Test Environment for runaway processes/ queries, process time limitations, operational issues, and system performance.
- Status reporting, as required, to report service levels for the Data Mart Test Environment.
- Performing preventative and corrective maintenance to ensure system and data integrity.
- Controlling and monitoring user access to ensure privacy, as restricted by National and Area level data access
- Refreshing data monthly during periods that the NDW is updated.
- Implementing change management, utilizing industry standards, including System Development Life Cycle (SDLC) processes and user notifications.

- Knowledge Management (i.e., data-information-knowledge-expertise), will be limited to assisting authorized users in understanding the meta data via database meta tables or additional user documentation.

This service level agreement does not normally include assisting the authorized user in constructing queries using SAS, SQL, or other database query tools. It is expected that the technical sophistication of authorized Test Data Mart users does not require this level of service. If requested, the Primary NPIRS Contractor can provide assistance in constructive query development.

- Help Desk user support will include assisting authorized users with access issues and general system information as required.

Additionally, the *General Data Mart Getting Started Guide* (Version 2.2) is available at the IHS National Data Warehouse Intranet web site:

<http://www.ndw.ihs.gov/what-if-I-have-other-questions.asp>

2.2.3 Availability

The Data Mart Test Environment will be available to authorized users from 5:00 AM MST Monday through 8:00PM Friday, except for various and occasional periods required for maintenance purposes. If the Data Mart Test Environment is not available during expected availability, the NPIRS Primary Contractor will provide as much advance notice as possible. A maintenance and operations schedule will be provided

2.2.4 User Support

The NPIRS Primary Contractor will provide User support between the hours of 9:00 AM MST and 6:00 PM MST, Monday through Friday.

2.2.5 Monitoring

IBM's DB2 Query Patroller is used to fully monitor and manage the following:

- Runaway processes
- Query scheduling (little ones can go before big ones)
- Which queries run when

- The number of queries that can be run at the same time
- Helps identify indexes to assist in user queries

2.2.6 Status Reporting

Status reporting will be included in the monthly NPIRS System Performance Report. For services stated within this Service Level Agreement, reporting will include:

- System availability (including database space metrics)
- Issues/problems (including resolution and turn around time)
- User access requests (number of requests and turn around time)
- Exceptions to monthly refresh, including date/time
- Any system maintenance to optimize performance or prevent potential problems

2.2.7 Preventative and Corrective Maintenance

Continuous database structure and process improvement occurs as new technology emerges and customer needs are better understood. This agreement between the NPIRS Primary Contractor and authorized Data Mart Test Environment users, ensures that any enhancements or corrective activity implemented to processing within NPIRS will be applied to the data mart structure/processing when available and appropriate, along with appropriate documentation and release notes. A Life Cycle Management document will discuss specific technology and processing enhancements in detail.

2.2.8 User Access

The NPIRS Primary Contractor will act on a new Data Mart Test Environment user access request within two (2) workdays, per the approved IHS operating procedures. General system access must already be approved and in place. Data access approval specifying the designation of appropriate National or Local area access from the appropriate IHS management must be provided.

Periodic reviews of user access, as required by the *General User Security Handbook* SOP 06-11a (May 2006, or as revised) will be conducted as necessary, to ensure that compliance with IHS operating procedures is maintained.

2.2.9 Data Refresh

The Data Mart Test Environment data will be refreshed monthly. Any necessary deviations will be broadcast and also reported in the monthly System Performance report.

2.2.10 Change Management

Industry-standard System Development Life Cycle (SDLC) methodologies and procedures will be utilized to implement enhancements or corrective application/database changes. This includes appropriate development and test environments, unit and acceptance testing, and change documentation (release notes, white papers, and user guide updates, as appropriate). Documentation will be stored and available on request of NPIRS Program Management.

2.2.11 Knowledge Management

Authorized Data Mart Test Environment users will have access to the data dictionary (meta data) tables within the Data Mart Test Environment. The data dictionary (meta tables) and the Logical diagram are available at the IHS Meta Data Lookup Internet web site:

<http://www.ihs.gov/CIO/scb/metadata/>

In addition, User and Technical Guides will be made available for the Data Mart Test Environment.

The NPIRS Primary Contractor will not be responsible for developing or manipulating an authorized user's database queries. It is expected that the technical expertise of authorized Data Mart Test Environment users does not require this level of service.

2.2.12 Help Desk User Support

The NPIRS Primary Contractor will acknowledge general requests within one (1) workday of the request from the authorized Data Mart Test Environment user. This will include providing status, a tracking number, and at least an initial proposed interim action together with an anticipated plan for how a final resolution will be pursued.

Note: The exception to this agreement would be critical path processing or system outages that would elicit an immediate response.

2.3 Storage and Processing Management

A reasonable storage area is currently provided to users for the purpose of performing typical data queries. Processing capabilities of the server are also adequate for most processes. However, both process and storage capabilities are finite, and as additional users utilize the system, additional management of these resources may be required in the future to ensure optimization of the government's investment.

2.4 Management Elements

2.4.1 Service Tracking & Reporting

NPIRS Program Management will be provided with various reports to confirm that service level agreements were met, in addition to having access to internal documentation to confirm that service performance methodologies were utilized.

The **System Performance Report**, provided monthly, outlines system performance activity and includes:

- System availability (including database space metrics)
- Issues/Problems (including resolution and turn around time)
- User access requests (number of requests and turn around time)
- Exceptions to scheduled refresh
- Any system maintenance to optimize performance or prevent potential problems

The NPIRS Primary Contractor will maintain the Data Mart Test Environment related program activity on a public directory for access by NPIRS Program Management. This directory will include all System Development Life Cycle (SDLC) documentation to assure adherence to IHS and industry-wide technology standards.

2.4.2 Addressing Service Information

NPIRS Program Management will be the point of contact for reviewing and addressing service information related to the Data Mart Test Environment service level agreements. NPIRS Program Management will address any concerns to the NPIRS Primary Contractor for clarification or resolution, if service level performance is in question.

2.4.3 Resolution of Service-related Disagreements

NPIRS Program Management will be the point-of-contact for resolving any differences that may arise regarding service levels. This should be initiated by the party questioning the service level performance, and include documentation explaining the difference between the service level promised and the service level received.

NPIRS Program Management will review this information and take appropriate action to resolve the difference, including meeting with the parties to facilitate resolution.

2.4.4 How Agreements will be Reviewed and Revised

This agreement will be formally reviewed and revised annually. Additional review may be required, and the Data Mart Test Environment user or the NPIRS Primary Contractor may request this review from NPIRS Program Management. NPIRS Program Management will determine whether additional review is necessary, based on the information provided by the initiating party.

3. Facilitating Data Mart Development and implementation

3.1 Infrastructure Support and Interface Management

New data marts may be designed and built by another entity (e.g., another contractor). The resultant data marts may be hosted by the NPIRS Primary Contractor or entirely by the developing entity.

In the first case, the NPIRS Primary Contractor will “host” the Data Mart in the NPIRS hardware environment for the developing entity.

In the second case, the NPIRS Primary Contractor will facilitate the overall process by providing infrastructure support to include the NDW Test Environment and General Data Marts.

In both cases, NPIRS Program Management must approve all requests.

3.2 Service Level Agreement

3.2.1 Services Included

In providing the infrastructure support to those data marts being designed, built, and maintained, the NPIRS Primary Contractor will provide the IHS a number of services including, but not limited to

- 1) Assistance in determining the amount of disk space required
 - Space used from existing hardware
 - Adding space to ESS
 - Separate disks on a new server
- 2) CPU Usage - number of CPUs required for support processing
 - CPU Time on existing hardware
 - New server
 - Setup and support of new machine
 - Physical space requirements
 - TSM impact:
 - Increased tape usage
 - Additional time required to run backups
 - Network usage
 - Power Requirements
- 3) RAM required

- 4) Software requirements
 - Use of existing software
 - Installing new software
 - In-house knowledge
 - Training employees on new software, if needed
 - Hiring additional personnel to manage additional workload
- 5) Security provided within the DB2 and server environment
- 6) Backup and disaster recovery services provided at the level of the entire NDW environment
- 7) Maximize data mart performance by using all available database tools, including indexing of the database as appropriate for the needs of the client
- 8) Working with the client to determine appropriate support levels, and setting service level expectations
- 9) A proposed schedule for implementing the new Data Mart in the NPIRS environment (noting that if additional funding is required, this schedule could not be implemented until it was provided)
- 10) Any additional funding that would be required to provide the proposed infrastructure support beyond what is already funded in this contract
- 11) Grant access to the Data Mart Test Environment for authorized users so that they may become familiar with the data and structure

In addition to infrastructure support, the NPIRS Primary Contractor will work with the authorized user to define the interface process. This will include determining user requirements. This may include, but is not limited to (depending on technology required)

- Flat file creation and transmission methodology
- Type of Data Mart required
- DB updates (“push” or “pull” data)
- Frequency of updates or file creation

3.2.2 User Access

The NPIRS Primary Contractor will provide access to Data Mart Test Environment authorized users, and will act on a new Data Mart Test Environment user access request within two (2) workdays, per the approved IHS operating procedures. General system access must already be approved and in place. Data access approval specifying the designation of appropriate National or Local area access from the appropriate IHS management must be provided.

3.2.3 Data Refresh

The Data Mart Test Environment data will be refreshed according to agreed upon schedules to best accommodate the developing entity, but at a minimum, monthly. Any necessary deviations will be broadcast and also reported in the monthly System Performance report.

3.2.4 Change Management

Industry-standard SDLC (System Development Life Cycle) methodologies and procedures will be utilized to implement enhancements or corrective application/database changes. This includes appropriate development and test environments, unit and acceptance testing, and change documentation (release notes, white papers, as appropriate). Documentation will be stored and available on request of NPIRS Program Management.

3.2.5 Knowledge Management

User and Technical Guides will be made available for the base Data Mart Test Environment.

The NPIRS Primary Contractor will not be responsible for developing or manipulating an authorized user's database queries. It is expected that the technical expertise of authorized Data Mart Test Environment users does not require this level of service.

3.3 Future Technologies and Directions

As new technologies become available, this SLA does not prevent the NPIRS Primary Contractor from providing these technologies or enhancements. The Primary Contractor will continue to work toward providing and improving overall service and delivery of data. These services may include improved or enhanced interfaces, web access, or user documentation and/or training.