



Data Quality Plan

VERSION 2
30th April, 2001

Table of Contents

1. Introduction.....	2
1.1 Background.....	2
1.2 Objectives.....	3
1.3 Principles.....	3
2. Key Risk Areas Identified.....	4
3. Audit Tools - Check List.....	5
Risk Area A: Data Collection.....	6
A1 Check of Provider Forms.....	6
A2 Check data against Manual Records.....	8
A3 Data Exception Reports.....	11
Risk Area B: Lead Provider IM Systems:.....	13
B1 Change Control Management.....	13
Risk Area C: File Upload.....	15
C1 Compliance Scripts.....	15
C2 'Control' Report.....	17
C3 Lead Provider Database Reconciliation.....	19
Risk Area D: National Database.....	21
D1 Accreditation.....	21
Risk Area E: Reports and Monitoring.....	23
E1 Benchmarking and Reasonableness tests.....	23
E2 Data Validation Reports.....	25
Risk Area F: Total Process.....	27
F1 Data Model - BSA Change Management Framework.....	27
APPENDIX A: Monthly File Upload Control Report.....	29
APPENDIX B: Manual Records Check Form.....	32
APPENDIX C: Database Reconciliation File Format.....	39
APPENDIX D: Data Exception Reports.....	40
APPENDIX E: Data Validation Report.....	45

1. Introduction

1.1 Background

BreastScreen Aotearoa (BSA) is a nationally co-ordinated, population-based, breast screening programme. The key objective of the National Breast Screening Programme (BreastScreen Aotearoa) is to reduce deaths from breast cancer, by detecting breast cancer, at a very early stage, when it is potentially curable.

The BSA National Operations Manual documents the high-level national policies and processes of the programme. These are designed to ensure consistency throughout the national screening programme. Lead Providers are required to incorporate these national policies and processes into their operational processes and procedures. This is to ensure consistency and reliability of service delivery throughout BreastScreen Aotearoa.

There are six Lead Providers in the BreastScreen Aotearoa programme. Three different IM systems are used in the programme at a provider level. Data recorded in these systems is sent monthly to a National BSA Database, managed and located at NZHIS. The Data Management Manual sets out the definitions and business rules for data collection in the programme. This includes mandatory and optional items.

Data in the National BSA Database is used for a number of critical functions, including:

- performance and monitoring of Lead Provider
- performance & monitoring of the BSA Programme
- comparison against targets
- Lead Provider comparison against other Lead Providers
- international comparisons

It is vital that data collected is accurate and reliable, and that all users have confidence in it. We therefore need to strive for reliability, comparability and validity, to enable data driven decisions for quality outcomes. This requires the collective commitment of all the key players to achieving and maintaining high levels of data quality and consistency.

To meet this objective a Data Quality Plan has been established to specify the minimum requirements for "monitoring data" quality assurance activities in the BSA programme, to create and maintain data quality and consistency in the programme.

1.2 Objectives

To outline a clear strategy to manage and improve the quality of information that is delivered BSA. This should clearly identify and ensure collection of uniformly defined information necessary to plan, manage, operate and evaluate the programme.

These goals cannot be achieved without the existence of, and compliance with, a common set of policies and standards for health information management.

The Data Quality Plan has been developed using the following approach:

- Identify key quality assurance processes and data flows
- Identify the key risks to data quality that need to be addressed
- Set out a method of dealing with each risk area
- Set out goals, and measures to monitor the implementation of the Quality Plan

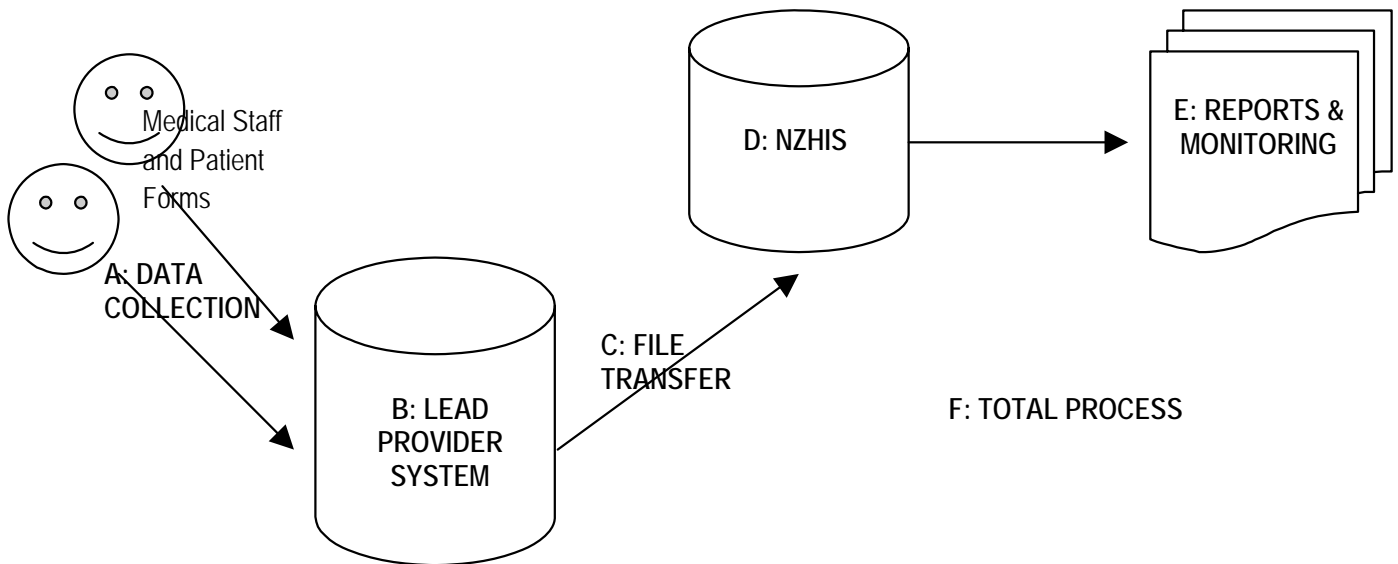
1.3 Principles

The principles underlying the policies in this plan are:

- Information is a vital resource for the programme that must be managed
- Information management has the potential to improve the quality of health services delivery, improve the productivity of health services delivery and to reduce health system costs
- Information is an essential tool in monitoring the programme, to ensure it is safe for women taking part, and likely to provide the benefit promised, that is a reduction in breast cancer mortality
- The principles applied to the management of information should be the same as those applied to the management of other resources
- Lead Providers have the authority, responsibility and accountability for the management of information in the programme
- Other principles and requirements as documented in the DMM

2. Key Risk Areas Identified

The following diagram shows the data flows and process in BSA. This also highlights areas where it is expected that threats or risks to data quality and consistency will arise.



This shows 7 key risk areas to Data Quality in the programme:

- A. Data Collection
- B. Lead Provider's System
- C. File Transfer to NZHIS
- D. NZHIS System
- E. Reports & Monitoring
- F. The Total Process (Information flowing from Data Collection to Reports and Monitoring)

3. Audit Tools - Check List

Audit tools (mechanisms) to mitigate the risk to Data Quality in each of the key risk areas have been developed and are presented in this section.

AUDIT TOOL	FREQUENCY	DATA QUALITY CHECK
A1: Check of Provider Forms	Quarterly	<ul style="list-style-type: none"> Send forms to the NSU Quarterly or when major Form changes
A2: Check Against Manual Records	Monthly	<ul style="list-style-type: none"> Random subset of : <ul style="list-style-type: none"> - Screening Records - Assessment Records - Cancer Records Check manual and computer files for all sites
A3: Data Exception Reports	Monthly	<ul style="list-style-type: none"> Investigate exceptions Correct records where necessary Re-submit corrected records
B1: Change Control Management:	During System Upgrades	<ul style="list-style-type: none"> Change control procedures in place Change control procedures documented
C1: Compliance Testing	After System Upgrades	<ul style="list-style-type: none"> Compliance Scripts to be submitted Compliance given
C2: Control Reports	Monthly	<ul style="list-style-type: none"> Control report sent with Monthly File Extract
C3: LP/NZHIS Database Reconciliation	Quarterly	<ul style="list-style-type: none"> Reconciliation Extract sent Investigate differences Correct records where necessary Re-submit corrected records
D1: National Database Accreditation	After System Upgrades	<ul style="list-style-type: none"> Ensure National Database conforms to standards and protocols from the DMM
E1: Benchmarking & Reasonableness Test	Report Development	<ul style="list-style-type: none"> Ensure reports extract correct and accurate information
E2: Data Validation Reports	Monthly	<ul style="list-style-type: none"> Ensure all information sent to National Database Highlight data issues
F1: BSA Change Control Management Framework	On-Going	<ul style="list-style-type: none"> Change control procedures in place Implementations nationally managed

Risk Area A: Data Collection

A1 Check of Provider Forms

A1.1 Overview

Quality data, in the Breast Screening programme, must be collected to ensure that an accurate, adequate, timely, and consistent set of health data is available nationally for comparative purposes. Lead Providers are required to develop and maintain their own information system. The IM Systems collect, store, and report on Programme data. Lead Providers are obligated to transfer data from their own systems to the National BSA Database on a monthly basis. The Lead Provider's information system is based, at a minimum, on the details contained in the following Data Management Manual.

A1.2 Objectives

- Data collection systems and forms need to be compliant with the minimum mandatory data set.
 - Mandatory data items must be consistently recorded.
 - Mandatory data items must be entered accurately into the IM system.
 - Wording and definitions need to be nationally consistently.
-

A1.3 Process

Steps:

1. Data Managers are required to send forms on a regular basis (quarterly) to the NSU, or as soon as changes are made that impact the collection of mandatory data items.
 2. Before making changes to any forms Data Managers are to make sure all mandatory items are recorded consistently with the definitions in the Data Management Manual.
 3. The NSU will check forms comply with the Data Management Manual and that all mandatory data items can be collected.
 4. The NSU will sign off compliant forms.
 5. The NSU will keep a current copy of Lead Provider forms on file.
-

**A1.4
Frequency**

- Six Monthly except where changes impact on collection of mandatory reporting data fields, which should be sent to the MOH to get signoff before the new form is implemented.
-

**A1.5
Responsibilities**

- Data Managers are to provide The NSU with all forms when requested, and on a regular basis (6 Monthly)
 - The NSU is responsible for checking that forms sent meet national BSA standards.
-

A2 Check data against Manual Records

A2.1 Overview BSA Lead Providers have computer systems in place to record and collect information from the programme. Each system records data either generated automatically (e.g. dates, scanned from barcodes) or manually entered into the system. Data manually entered into the system is either captured on paper forms, over the phone or from other means. In some cases Lead Providers have an independent manual system.

Information collected by Lead Providers in the BSA is used for making clinical & business decisions, monitoring purposes, research, payment and many other important functions. Mandatory data items are sent through to the National Database and so it is important that there is consistency in reporting around the country.

Data quality will be compromised if data entered into the system is entered incorrectly. It is important to minimise this risk, and to check that data is being entered accurately. Lead Providers need a mechanism to monitor and manage this risk.

One tool is to retrospectively check information stored in the database is accurate and matches what was manually recorded on the data entry forms. Lead Providers are required to pull a set number of manual files each month and check that the information recorded in the IM system matches the manual file information.

A2.2 Objectives

- Minimise risk of data entry errors.
 - Check data entry accuracy
 - Check data at source.
 - Check data entry processes.
 - Check Data Entry personnel understand the process and rules.
-

A2.3 Process

- A random subset of manual files should be pulled each month.
- This is to include screening, assessment and final diagnosis of cancer files.
- Each Lead Provider screening site, that performs data entry, is to perform this audit check.
- The number of records to be checked each month depends on the average screenings for that site per month (see table below)
- The Manual Records Check form to be used is included in Appendix B
- Checking should be conducted by a different person than the person entering the data

The following table shows how many records need to be checked each month:

Monthly Manual Records to Check, per Site	< 150 Screens per Month	< 750 Screens per Month	> 750 Screens per Month
Screening Records	5	20	30
Assessment Records	5	10	20
Cancer Records	All cancer records should be checked		

E.g. A site that screens on average less than 750 women per month is required to manually check 20 Screening records, 10 Assessment records and all records with a final diagnosis of Cancer.

Steps:

- 1) Data Manager to pull a random set of Manual files of Screening, Assessment and Cancer Women for each Screening site.
 - Screening records checked is to be a randomly chosen subset of women notified of screening results in the last month.
 - Assessment records checked is to be a randomly chosen subset of women notified of assessment results in the last month.
 - All women who have a final diagnosis of cancer should have their manual file information checked against the IM System.
- 2) Data Manager to check each manual file against the IM system to check that:
 - Correct operational definitions and procedures were followed
 - All data was entered.
 - All data was recorded correctly
- 3) Data Manager to fill in the Manual Records Check form once each record has been checked.
- 4) Data Manager to document any problems and investigate. Problems or errors found should be noted on the form, stating what action was undertaken to correct the problem and minimise the risk of these errors happening again in the future.
- 5) Data Managers are to collate the forms from each site and email them into the NSU.
- 6) The NSU will file Manual Records Check forms
- 7) Manual Records Check forms will be inspected by Auditors.

**A2.4
Frequency**

- Monthly.

**A2.5
Responsibilities**

- Data managers are responsible for managing this process.

A3 Data Exception Reports

A3.1 Overview

The Data Exception reports run a series of tests against the National Database looking for exceptions and inconsistencies. Data Exception reports are then sent to Lead Providers highlighting the exceptions at a NHI level. This allows Lead Providers to investigate each exception by pulling NHI records from their database and manual files.

The number of data validity and “reasonable” checks will grow as data issues are raised in subsequent IMG Monitoring reports and more “reasonableness guidelines” are established.

A3.2 Objectives

- To assist Lead Providers investigate and correct data errors.
 - These reports are an extension of Lead Providers data quality monitoring checks and audits.
-

A3.3 Process

Steps:

1. The NSU produces and distributes Data Exception reports. A description of the current Data Exception reports is included in Appendix D
2. Data Managers to investigate each data exception highlighted by the reports.
3. Where errors are found Data Managers are to correct these in their IM System
4. Data Managers are to include any corrected records in the next monthly data extract to the BSA National Database.

A sample of the current set of Data Exception reports is included in Appendix D.

A3.4 Frequency

- Monthly or as required.
-

A3.5 Responsibilities

- The NSU will run Data Exception reports on a regular basis and distribute to Lead Providers.
 - Data Managers are responsible for investigating and correcting exceptions.
-

Risk Area B: Lead Provider IM Systems:

B1 Change Control Management

B1.1 Overview All lead provider systems have been through an accreditation process and have been signed off. This process was intended to provide the NSU with assurance that the delivered systems and processes would be capable of meeting the national monitoring requirements, and would meet with minimum requirements expected of an information system of this nature.

The NSU require that appropriate checks and control have been put in place to ensure quality information is collected, and that this is collected consistently nationally. Lead Providers must be fully compliant with the mandatory data set as stated in the Data Management Manual to be accredited.

This is a one off accreditation process, but it is understood that Lead Providers systems will evolve over time. This may be because of bug fixes, additional functionality, changed business practices etc. The system needs to remain compliant after modifications.

Lead providers must ensure there are adequate processes and procedures in place to ensure changes to the IM system are implemented risk free and that these changes comply with the existing programme rules and procedures.

B1.2 Objectives

- IM Systems should comply with BSA standards and processes
- IM Systems are required to be compliant with the Data Management Manual
- Changes should be thoroughly tested and user accepted

B1.3 Process Any requests for modifications or improvements should go through a change control process.

Change control process should include:

- Changes should be implemented in the development system first.
- Changes tested thoroughly in the test system
- Changes should be tested for compliance with the Data Management Manual and all business rules.
- Documentation should be updated to reflect updates
- Staff should be informed of changes
- Users should acceptance test any changes before going live.
- Checks that standards and protocols are met
- Checks that data quality won't be affected by the change.

This ensures that:

- The Quality of data in the National BSA Database isn't compromised
- The Data Management Manual is still being adhered to
- There is agreement in the organisation for the requested modification
- Change requests are prioritised and tracked
- There is an appropriate budget allocated
- It will not impact the collection and reporting of mandatory items
- All data collected is still consistent
- All Existing business rules are not violated
- The File upload to NZHIS is not affected

**B1.4
Frequency**

- Ongoing process.
- Lead Providers should have change management processes and procedures in place that will deal with any modifications to their IM system.
- Change control procedures should be documented
- Acceptance test documents and test plans should be kept, and be available for any BSA review.

**B1.5
Responsibilities**

- Lead Providers are responsible for ensuring the integrity and accuracy of their systems and information.

**B2.6
Monitoring**

- The periodic Data Audit of each Lead Provider will review the change control process.

Risk Area C: File Upload

C1 Compliance Scripts

C1.1 Overview Leader Providers are required to provide monthly screening and assessment data. This is to be transferred to NZHIS complete and error free by the 20th of the month. Data is submitted to the National Database according to the rules specified in Appendix C of the Data Management Manual.

It is important that data sent to the National BSA Database is accurate and nationally consistent. Mandatory data items have to meet the standards set out in the Data Management manual. It is important the transfer process sends these records through correctly. The record selection process must also conform to the existing business rules.

C1.2 Objectives

Compliance Scripts check that:

- Records are correctly formatted
- Data fields are populated with a valid value
- Updates records can be sent
- Acknowledgements can be received and processed.
- The file upload process conforms to the business rules specified in the Data Management Manual

The Compliance Scripts do not check the quality of the data sent by provider systems.

C1.3 Process

Steps:

1. Data Managers to enter each scenario into their test IM System
2. Data Managers to send a compliance extract to the National BSA Database
3. The NSU will process the compliance extract to check that correct records were received for each scenario
4. Data Managers are to get their Vendors to correct any errors found.
5. The NSU will issue compliance once the compliance extracts are error free.

Compliance Script information is documented in “Breast Cancer Screening Compliance Testing”, Revision 5.2, August 1st 2000

C1.4 Frequency

Lead Providers are required as a one off for accreditation to:

- Run the compliance scripts
- Send the results into NZHIS

NZHIS is required to:

- Process and Check all scripts
- If the system meets the test criteria, NZHIS will issue compliance.
- If the system fails NZHIS will issue an error file

Once compliant Lead Providers will be allowed access to the production system, so they may send breast-screening data to NZHIS for inclusion in the National BSA Database.

If Lead Providers make any changes to their system, compliance scripts should be resent. This is to verify that the change has not affected the file upload process, and it is still compliant.

C1.5 Responsibilities

- Lead Providers are responsible for ensuring compliance of their file upload process.
 - Lead Providers are responsible for submitting compliance scripts to gain compliance of their file extract process when required.
-

C2 'Control' Report

C2.1 Overview

All records that should have been transferred into the National Database, based on BSA policies on submitting records, should be transferred each month. There is always a risk involved when information is transferred from one system to another. Data may be corrupted, missed or duplicated by the transfer process.

The control report is a tool to check that the file upload process has successfully transferred all records that were supposed to be included in the transfer process.

C2.2 Objectives

- Ensure all data that should have been sent was included in the file extract.
 - Ensure all data sent to the National Database has been imported correctly.
 - Ensure there is nothing in the National Database that shouldn't be there.
-

C2.3 Process

Steps:

1. Data Managers to produce a Control report.
2. Data Managers to check that the totals on the Control report are correct.
3. Data Managers to check that the correct months data has been extracted, the monthly file is named correctly.
4. Data Managers to attaching a Control Report to the monthly file sent to the National BSA Database
5. The NSU will process the monthly file and import the data to the National BSA Database.
6. The NSU will produce a Control report run against the National BSA Database and check that the totals match.
7. Data Managers to check that the monthly file has been returned and acknowledged correctly with no errors.

A copy of the Control report to be used, and definitions of the calculations for the report is in Appendix A.

C2.4 Frequency

- Monthly

C2.5 Responsibilities

Data Managers are responsible for:

- Sending monthly file uploads
- Ensuring correct data is sent.
- Attaching a Control Report to all data sent
- Checking an acknowledgement file is returned and error free

C3 Lead Provider Database Reconciliation

C3.1 Overview On a regular basis the NSU will undertake a full Database Reconciliation between the Lead Provider database and National BSA database.

The Database Reconciliation will check that all records in the Lead Provider database are correct in the National database. The National database will also be compared against the Lead Provider database to ensure there are no records in the National database that shouldn't be there.

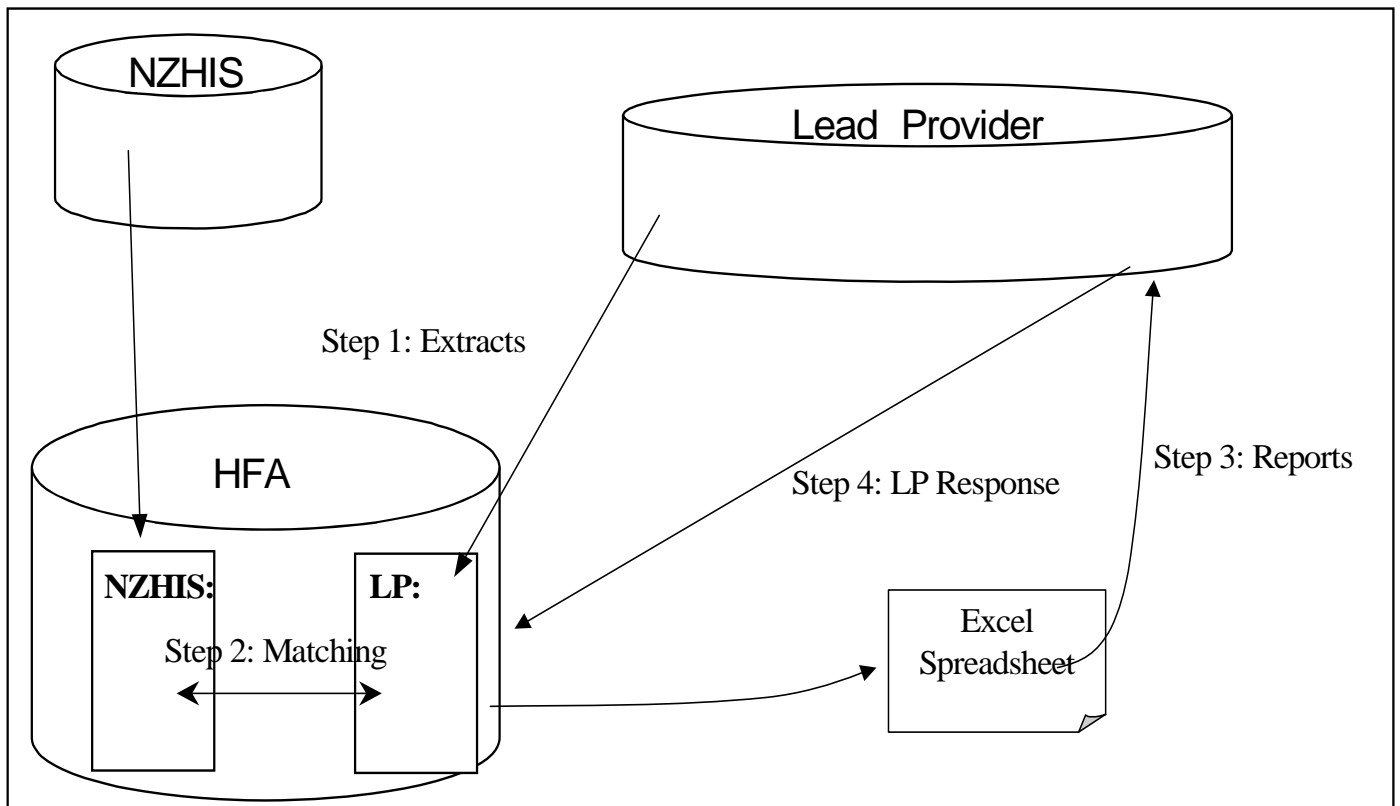
C3.2 Objectives Compare all data in Lead Providers database against the National Database at a record level to:

- Ensure data complete and correct
- Identify potential data issues
- Invoice reconciliation

C3.3 Process Steps:

1. Data Managers are required to provide the NSU with a full database reconciliation extract when requested. The reconciliation extract will include records, in the required format, for all women in the Lead Provider database.
2. The NSU will process this extract and match the records against the National Database.
3. The NSU will produce detailed reconciliation reports. The reconciliation reports will show database differences for each woman concerned.
4. Data Managers to investigate and provide explanations for every data differences highlighted in the reconciliation reports.
5. Data Managers to correct records in their IM System or the National Database where required.

Appendix C details the format for the Reconciliation Extract.

Database Reconciliation Process:

**C3.4
Frequency**

- The Database Reconciliation will happen as part of the Data Audit (every 2 years) and when there is a specific issue that needs to be investigated.
 - Either the NSU or Lead Providers can request this when needed
-

Risk Area D: National Database

D1 Accreditation

D1.1 Overview All Lead Provider systems have been through an accreditation process and have been signed off. The national database has also been through a similar accreditation process.

This process was intended to provide the NSU with assurance that:

- National monitoring requirements can be met
- National database meets minimum requirements
- Appropriate checks and controls have been put in place
- Quality information can be collected
- National BSA Database is fully compliant with the mandatory data set
- National BSA Database validation rules are correct.

Changes or modifications to the National BSA Database will require an Accreditation review to ensure the system remains fully compliant with the mandatory data set and validation rules as stated in the Data Management Manual.

D1.2 Objectives

- To ensure that the BSA Database contains nationally consistent data that can be used for reporting on the programme
- To ensure that the National database conforms to the standards and protocols for data management, as outlined in the Data Management Manual.

This includes:

- Definitions
 - Data Models
 - Standards
 - Cross validation rules
-

D1.3 Process

The accreditation process checked that the national database complied with all BSA standards, process's, rules and definitions.

Key points checked in the accreditation process are:

- Existence of index(key) uniqueness
- Database population
- Referential Integrity
- Version Control
- Year 2000 Compliance
- Business Continuity Planning
- Record Validation
- Lead Providers resubmitting data to fix data errors
- Technical skills of staff
- Risk Management
- Implementation project plan

Once the NSU is assured of the integrity and compliance of the National BSA Database, it is formally signed off (Accredited)

D1.4 Frequency

- An accreditation will be performed following the implementation of any upgrades or enhancements to the National BSA Database.
-

Risk Area E: Reports and Monitoring

E1 Benchmarking and Reasonableness tests

E1.1 Overview The NSU has a series of reports that are used for monitoring and payment purposes. It is important that these reports are designed and written correctly.

E1.2 Objectives • To ensure that all reports present correct and accurate information.

E1.3 Process Steps:

1. Establish the user requirements of the report. These will include:
 - Format of the report.
 - Report periods.
 - Information required.
 - User definable report criteria
 - Assumptions behind the report.
2. Establish benchmarks, standards and expectations
3. Report developer to use test plans when developing reports.
4. Report developer to compare report results against manual extract queries
5. Once a report is developed it should be user accepted. This should check:
 - All information required is included in the report
 - Report data is reasonable
 - Report data matches benchmarks, standards, expectations
 - Report format meets the user requirements
6. If the user acceptance is not satisfactory the report developer should correct and fix any problems.
7. Once the user is happy with the report it should be signed off.

E1.4
Frequency

- One off when reports are developed
 - On going reasonableness check that report data is reasonable.
-

E2 Data Validation Reports

E2.1 Overview

Lead Providers submit monthly data extracts to the National BSA Database for screenings and assessments relating to the prior month. This builds up a cumulative picture of BSA. This information is used in monthly reports, and in quarterly extracts of the database to the BSAIMG.

The entire NZHIS database is sent to the BSAIMG quarterly. This data is the basis for the Quarterly Monitoring Reports. Any data issues impact on the ability of the BSAIMG to monitor the programme

The NSU checks the information stored to the database to ensure data quality and completeness. These checks verify that all data is correct and present. The validation checks are run after each monthly data submission cycle, and before the quarterly extract to the BSAIMG is sent.

E2.2 Objectives

- To identify data issues promptly and, where possible, implement resolutions before the IMG data transfer deadline.
-

E2.3 Process

Steps:

1. The NSU produces Data Validation reports from the National BSA Database.
2. The NSU use the reports to check that all monthly extracts, from all Lead Providers, have been successfully submitted to the National BSA Database.
3. The NSU use the reports to check that BSAIMG targets have been met. E.g. Incomplete Assessments rate
4. The NSU will notify Lead Providers if there are any issues found.
5. Data Managers to investigate and correct issues and resubmit files if required

A sample of the current Data Validation report is included in Appendix E

**E2.4
Frequency**

- Monthly and Quarterly
-

**E2.5
Responsibilities**

- The NSU will run Data Validation reports on a regular basis and distribute to Lead Providers.
 - Data Managers are responsible for investigating and correcting any differences or issues highlighted by the reports.
-

Risk Area F: Total Process

F1 Data Model - BSA Change Management Framework

F1.1 Overview

The purpose of the Data Management Manual is to give contracted Lead Providers the information they need to set-up and maintain a data information system that will deliver the requirements of the National Monitoring Indicator Set.

The manual prescribes minimum standards for:

- Data capture
- Data Validation
- Maintenance
- Privacy and security of data and information
- National monitoring requirements
- Audit

The manual is owned and maintained by the NSU. The Lead Providers IM System is based, at a minimum, on the details contained in the Data Management Manual, and follows the processes set out in the National Operations Manual, to ensure consistency and reliability of service delivery throughout BSA.

It is likely during the life of the programme that issues will be raised. Resolution of these issues will result in data management changes. This has to be reflected in changes to the Data Management Manual. These changes will flow into the Lead Providers IM Systems. This process of change has to be managed so that everyone in the programme is in sync. Everyone should be working from the same policies and procedures to ensure quality data is collected and maintained in the programme.

- F1.2 Objectives**
- Ensure for data recorded in the programme is consistent and accurate.
 - Ensure any changes to the DMM are communicated clearly to all parties involved in the programme so that this can be incorporated consistently into all systems in the programme.
 - Ensure the DMM reflects the business practices
 - Require any changes to the Data Model and rules are consistent with existing business rules and procedures.
-

- F1.3 Process**
- The NSU is currently developing a Change Management Framework.
 - Once completed this will be documented and distributed to all parties in BSA.
-

- F1.4 Frequency**
- On going process
-

APPENDIX A: Monthly File Upload Control Report

Control Report Selection Criteria:

The report should take the form of a one-page report, with the following seven indicators in it (these are all taken from Appendix B in the Data Management Manual).

Indicators:

- 1) # screened women
- 2) # women recalled for technical recall
- 3) # women referred to assessment
- 4) # women undergoing core biopsy
- 5) # women undergoing FNA biopsy
- 6) # women having open biopsy
- 7) # women with diagnosed cancer

1) # screened women

Count of screening episode records where the last screening attendance record does not have a value in Mammogram Completion Status (B05.10) of "3=Not completed - exited", and date of notification of this result (B08.03) is before month end.

Count (B03.01) where
(B05.03 = max(B05.03) and B05.10 <> "3")
and B07.03 = "1,2 or 3"
and B08.03 <= MonthEnd

2) # women recalled for technical recall

Count of Screening Attendance records where Final Decision by Radiologist (B07.03) = "2 technical recall", and date of notification of this result (B08.03) is before month end.

Count (B05.01) where
B07.03 = "2"
and B08.03 <= MonthEnd

3) # women referred to assessment

Count of Screening Attendance records where Final Decision by Radiologist (B07.03) = "3 Recall for assessment ", and date of notification of this result (B08.03) is before month end.

Count (B05.01) where
B07.03 = "3"
and B08.03 <= MonthEnd

4) # women undergoing core biopsy

Count of Needle Biopsy records where Type of needle biopsy procedure (B14.04) = "2 core" or "3 both", and Date of notification of final diagnostic biopsy results to the woman (B18.06) is before month end, and Final Diagnosis is not " 9=Unknown"

Count (B14.01) where
B14.04 = "2 or 3"
and B18.06 <= MonthEnd
and B18.07 <> "9"

5) # women undergoing FNA biopsy

Count of Needle Biopsy records where Type of needle biopsy procedure (B14.04) = "1 FNA" or "3 both", and Date of notification of final diagnostic biopsy results to the woman (B18.06) is before month end, and Final Diagnosis is not "9=Unknown"

Count (B14.01) where
B14.04 = "1 or 3"
and B18.06 <= MonthEnd
and B18.07 <> "9"

6) # women having open biopsy

Count off Open Biopsy records where Type of open surgical biopsy (17.05) <> "0 none", and Date of notification of final diagnostic biopsy results to the woman (B18.06) is before month end, and Final Diagnosis is not "9=Unknown"

Count (B17.01) where
B17.05 = "1 or 2"
and B18.06 <= MonthEnd
and B18.07 <> "9"

7) # women with diagnosed cancer

Count of Assessment Episode records where Final Diagnosis (B18.07) = "2 Cancer", Date of first level assessment (B10.03) is before month end, and Date of notification of final diagnostic biopsy results to the woman (B18.06) is before month end or is blank.

Count (B09.01) where
B18.07 = "2"
and B10.03 <= MonthEnd
and B18.06 <= MonthEnd

These indicators should be calculated using information stored in the Lead Providers system, and not based on what is actually in the file upload. This is to be independent of the file upload.

This can then be compared against what is in the National Database. This can then be used as an audit check that all information in the Lead Provider system, that should have been transferred, has been successfully transferred



Monthly File Upload Control Report

Lead Provider:

Month of Data Sent:

Indicators	Provider	NZHIS	Variance
# screened women			
# women recalled for technical recall			
# women referred to assessment			
# women undergoing core biopsy			
# women undergoing FNA biopsy			
# women having open biopsy			
# women with diagnosed cancer			

NZHIS Monthly Sign-Off

Name:

Position:

Date:

Signed:

This report is to accompany all Monthly Data Extracts sent to the BSA National Database.

APPENDIX B: Manual Records Check Form



MANUAL RECORDS CHECK FORM

- Screening Records

Lead Provider: _____

Site: _____

Month: _____

Please tick (✓) where record recorded correctly, cross (✗) where inaccurate, or dash (-) where N/A

#	NHI	Registration Recorded	Screening Recorded	Outcome of Screening Correct	Letters Sent	Sent to NZHIS
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
	Checked					
	Accurate					
	Inaccurate					



MANUAL RECORDS CHECK FORM

- Assessment Records

Lead Provider: _____

Site: _____

Month: _____

Please tick (✓) where record recorded correctly, cross (✗) where inaccurate, or dash (-) where N/A

#	NHI	Outcome of Screening Correct	Assessment Information Correct	Final Diagnosis Correct	Letters Sent	Sent to NZHIS
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
	Checked					
	Accurate					
	Inaccurate					



MANUAL RECORDS CHECK FORM

- Final Diagnosis of Cancer Records

Lead Provider: _____

Site: _____

Month: _____

Please tick (✓) where record recorded correctly, cross (✗) where inaccurate, or dash (-) where N/A

#	NHI	Outcome of Screening Correct	Assessment Information Correct	Final Diagnosis Correct	Letters Sent	Sent to NZHIS
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
	Checked					
	Accurate					
	Inaccurate					



- Comments

Lead Provider: _____

Site: _____

Month: _____

Comments and Actions taken:

Where inaccuracies exist or information is missing for a patient record, please note the number of the patient and the action taken to correct this. Also show any actions taken or planned to minimise this risk in the future.

Multiple horizontal lines for writing comments and actions taken.

Name: _____

Position: _____

Date: _____

Signed: _____

- Checklist

The following checklist should be completed for all Manual records checked:

- Filing
 - File can be found
 - Manual file is in the correct place
- Registration Data (check all fields are present and correct)
 - Patient Name
 - Date of Birth
 - Domicile code
 - Ethnicity information
- Screening Data (check all fields are present and correct)
 - Site
 - Screening Date
 - Films taken, Films rejected
 - Final Decision by Radiologist
 - Notification date
 - Woman notified of Outcome of Screening and all relevant letters sent
- Assessment Data (check all fields are present and correct)
 - Date of first level assessment
 - Outcome of Clinical Assessment
 - Outcome of Assessment Mammogram
 - Outcome of Ultrasound
 - Outcome of 1st Level Assessment
 - Outcome of 2nd Level Assessment (if applicable)
 - Date of Needle Biopsy Procedure (if performed)
 - Date of Open Biopsy (if performed)
 - Date of notification of final biopsy results
 - Final Diagnosis
 - Woman notified of Final Diagnosis and all relevant letters sent

APPENDIX C: Database Reconciliation File Format

File Extract - Template

The following table lists the fields Lead Providers that need to be populated in the Database Reconciliation file.

Fields Required	DMM Reference	Reason Wanted
NHI	B03.01	For Matching records
Screening Episode	B03.02	For Matching records, Invoice Reconciliation
Type of Unit	B04.03	Mobile or Fixed Site
Date Screening Performed	B05.06	For Matching records
Mammogram Completion Status	B05.10	Outcome of Screening
Radiologist	B06.03	To determine the screening site
Final Decision by Radiologist	B07.03	Outcome of Screening
Date of First Offered Assessment	B09.04	For Matching records
Date of First Level Assessment	B10.03	For Matching records, Invoice Reconciliation
Assessment Centre	B10.04	To determine the assessment site
Radiographer completing films	B11.06	To determine the assessment site
Radiologist performing ultrasound	B12.04	To determine the assessment site
Clinician performing physical examination	B13.04	To determine the assessment site
Initial Outcome	Provider Field	To determine why record was not sent to NZHIS e.g. 6 month recall
Type of Needle Surgical Biopsy	B14.04	Determine if a NB was performed
Number of Needle Biopsy's Performed	Provider Field	Invoice Reconciliation
Date of Needle Biopsy	B14.05	Invoice Reconciliation
Guided Biopsy Method	B14.08	Stereotactic = prone table, Invoice Reconciliation
Type of Open Surgical Biopsy	B17.05	Determine if a OB was performed
Date of Open Biopsy	B18.05	Invoice Reconciliation
Number of Open Biopsy's Performed	Calculated Field	Invoice Reconciliation
Additional Comments, Summary	Provider Field	To determine why record was not sent to NZHIS e.g. patient exits
Final Diagnosis	B18.07	Outcome of Assessment
Number of Screening Attendances	Calculated Field	Invoice Reconciliation
Number of Assessment Attendances	Calculated Field	Invoice Reconciliation
Total Attendances	Calculated Field	Invoice Reconciliation

APPENDIX D: Data Exception Reports

The current Data Exception reports are:

1. Registration Checks

Registration Records with Multiple Date of Birth Values

There are women in the database that have been registered by more than one Lead Provider and also have a different date of birth. The report shows both Lead Providers that have submitted Registration records for the women. Each Lead Provider will have to contact the other relevant Lead Provider and determine the correct Date of Birth. The provider with the incorrect date of birth will need to correct and resubmit the data.

2. Ethnicity Not Stated

Registration Records with no Ethnicity Stated

NHI details for Registration records with have no Ethnicity stated e.g. "99 Not Stated" in B02.11, B02.12, B02.13 are included in the Ethnicity Not Stated report. Lead Providers are to check their manual files for each woman. Where there has been a data entry error, ethnicity information is to be updated.

3. Screening Detail Checks

Films Rejected greater than Films Taken

Films rejected should be less than films taken. Where films rejected is greater than films taken, the file will need to be reviewed, correct values entered and the data resubmitted.

Films Taken greater than 15

It is considered that more than 15 films taken is likely to be a data entry error. These records should be checked to determine the correct values. If there has been an error, corrected records need to be resubmitted to NZHIS. Lead Providers should keep a list of NHI's where a value of 15 or greater is valid, so these don't have to be rechecked again in the following month.

Values in Mammogram Completion Status or Final Decision by Radiologist invalid

This checks that all values stored in B05.10 & B07.03 are valid. Valid values and combinations of these fields can be found in the Data Management Manual ver 2.12. Corrected records are to be resubmitted.

4. Screening Episode Checks

Incomplete Assessment

This report checks for women that have a screening outcome of "Recall for Assessment", but no Assessment record present two months after date of screening. These files will need to be reviewed to check if the Woman has exited the programme, Assessment has not been completed, or the assessment record has been rejected by NZHIS and not resubmitted correctly. Missing or corrected records are to be resubmitted.

Invalid Screening Notification Date

Screening Notification Date should contain a valid date, which must be greater than the Date Screening performed. These dates need to be checked and incorrect dates corrected. Corrected records are to be resubmitted.

Invalid Type of Unit

Valid values in this field are "1- Fixed Unit", or "2- Mobile Unit". These records should be checked to see that they comply with these rules. Corrected records are to be resubmitted.

Late Screening Notification

This report checks that women have been notified in a timely manner. Where a women has been notified more than a month after Date of Screening, Lead Providers should check that the Screening Notification Date and Date of Screening are correct, and not data entry errors. Corrected records are to be resubmitted.

5. Assessment Episode Checks

Invalid Date of First offered Assessment

Date of First offered Assessment should contain a valid date, which must be greater than the Screening Notification Date. These dates need to be checked and incorrect dates corrected. Corrected records are to be resubmitted.

Date of First offered Assessment

This report checks assessments are offered in a timely manner. If Date of First Offered Assessment is more than a month after Screening Notification Date then Lead Providers should check that these dates entered are correct, and not data entry errors. Corrected records are to be resubmitted.

6. 2nd & 3rd Level Assessment Checks

Timeliness of Open Biopsy

This report checks that Open Biopsy's are performed in a timely manner. If Date of Final Diagnostic Biopsy is more than a month after Date Offered for Open Surgical Biopsy then Lead Providers should check these dates entered correct, and not data entry errors. Corrected records are to be resubmitted.

Specimen Weight

It is considered that a specimen weight of more then 99grams or less than 6 grams is likely to be a data entry error. These records should be checked to determine the correct values. If there has been an error, corrected records need to be resubmitted to NZHIS. These trigger targets may need to be adjusted if Lead Providers investigate and consider these values to be valid.

7. Women ReScreened Elsewhere

This report shows where the same NHI has screening episodes with multiple Lead Providers and the Screening Episode and Screening Date are not in sync, are where the time between Screening dates is less than 16 months.

Data Exception Report - Registration Check

as at end of Month - Dec-00

Provider

Multiple ED records with different Date Of Birth values

NHI:	Otago Records			Other Provider Records			
	Round:	Screening Date:	Date of Birth:	Other Provider:	Round:	Screening Date:	Date of Birth:
XXXX	1	25/06/99	13/05/46	LPxxx	1	18/05/01	9/04/48

Total Multiple ED records, for LPxxx, with different Date of Birth values: 1

Data Exception Report - Ethnicity Check

Printed 2/04/01

as at end of Month - Dec-00

Provider

Unknown Ethnicity

Otago Records	NHI:	Screening Date:	Source of Identification:	Ethnicity		
				1:	2:	3:
	XXX1234	13/10/00	9	99	99	99
	YYY1234	17/10/00	9	99	99	99

Data Exception Report - Screening Detail Checks

as at end of Month - Dec-00

Provider

Films Taken - High Value

Films Taken greater than 15

NHI:	Screening Episode:	Attendance Num:	Screening Date:	Films Taken:	Films Rejected:	Mammogram Status:	Final Decision:
XXX1234	1	1	05-Jul-99	22	0	1	1

Total Screening Detail records, 'Films Taken - High Value': 1

Technical Recall Dropoff

Final Decision of Radiologist of Tech Recall, but no followup Screening Attendance

NHI:	Screening Episode:	Attendance Num:	Screening Date:	Films Taken:	Films Rejected:	Mammogram Status:	Final Decision:
XXX1234	3	1	13-Jun-00	2	0	1	2

Total Screening Detail records, 'Technical Recall Dropoff': 1

Total Screening Detail records: 2

Data Exception Report - Screening Episode Checks

as at end of Month - Dec-00

Provider

Invalid Screening Notification Date

Screening Notification Date is blank or before Date Screening Performed

NHI:	Screening Episode:	Attendance Num:	Screening Date:	Notification Date:	Type Of Unit:	Mammogram Status:	Final Decision:
XXX1234	1	1	17-Jan-01		1	1	2

Total Screening Episode records, 'Invalid Screening Notification Date' : 1

Late Notification

Screening Notification Date more than one month after Date Screening Performed

NHI:	Screening Episode:	Attendance Num:	Screening Date:	Notification Date:	Type Of Unit:	Mammogram Status:	Final Decision:
XXX1234	4	1	19-Jan-99	24-Feb-99	1	1	3

Total Screening Episode records, 'Late Notification' : 1

Total Screening Episode records: 2]

Data Exception Report - Assessment Episode Checks

as at end of Month - Dec-00

Provider

Timely First Offered Assessment

Date of First Offered Assessment more than 28 days after Notification of Screening Results

NHI:	Screening Date:	Screening Notification:	1st Offered Assessment:	Date of 1st Assessment:	Final Biopsy Date:	Final Notification:	Final Diagnosis:
XXX9999	22-Jan-99	01-Feb-99	03-Mar-99	03-Mar-99		13-Mar-99	1

Total Assessment Episode records, 'Timely First Offered Assessment' : 2

Total Assessment Episode records: 2

Data Exception Report - 2nd & 3rd Level Assessment

as at end of Month - Dec-00

Provider

Specimen Weight Small
Specimen Weight <6 grams

<i>NHI:</i>	<i>Screening Date:</i>	<i>1st Offered Assessment:</i>	<i>Outcome of 2nd level:</i>	<i>Specimen Weight:</i>	<i>Date Offered for OB:</i>	<i>Final Biopsy Date:</i>	<i>Final Diagnosis:</i>
XXX9999	12-Feb-99	08-Mar-99		4	15-Mar-99	15-Mar-99	1

Total NB && OB records, 'Specimen Weight Small' : 1

Total NB && OB records: 1

Data Exception Report - Woman ReScreened Elsewhere

as at end of Month - Dec-00

Provider

		<i>Screen Date</i>	<i>Episode</i>	<i>Visit</i>	<i>Final Decision</i>
XXX1234	LP1	06-Jan-99	1	1	Return to routine rescreening
	LP2	18-Jan-01	3	1	Return to routine rescreening
YYY9999	LP2	26-Mar-99	2	1	Return to routine rescreening
	LP3	08-Feb-01	1	1	Return to routine rescreening

APPENDIX E: Data Validation Report



QUARTERLY REPORTS

For Quarter ending 31 December, 2000

Quarterly Validation Report

Totals for BreastScreen Provider

	Oct 2000	Nov 2000	Dec 2000	Prior Qtr	Current Qtr
Women Screened					
Technical Recall - Radiologist Decision	0	1	0	9	1
Outcome of Screening: Return to routine rescreening	1000	500	1000	3000	2500
Outcome of Screening: Recall for assessment	100	50	100	300	250
Completed Screenings	1100	550	1100	3300	2750
Women Referred to Assessment					
Women referred to Assessment, Incomplete Assessment	0	0	0	10	0
Final Diagnosis: Unknown	0	0	0	3	0
Final Diagnosis: Not cancer	95	45	95	277	235
Final Diagnosis: Cancer	5	5	5	10	15
Women referred to Assessment, Completed Assessment	100	50	100	290	250
Rates Analysis					
Ethnicity Rate (% not stated)	1%	0%	0%	0%	0% ✓
Recall for Assessments Rate	9%	9%	9%	8.9%	9.1%
Completed Assessments Rate	100%	100%	100%	97.4%	100% ✓
Final Diagnosis of Cancer Rate (per Woman Assessed)	5%	10%	5%	3.4%	6.0%
Cancer Detection Rate (per 1000 Women Screened)	4.54	9.09	4.54	3.03	5.45

BreastScreen Aotearoa Confidential

Note: Information from BSAIMG December 2000 Extract (March 8th, 2001)

✓ indicates value is within Target

Date Screening Performed is used to determine the month of Screening and Final Diagnosis

"Outcome of Screening - Tech Recall" is NOT a measure of the Technical Recall rate. This shows records where the last attendance (in the national database) for a Woman is Tech Recall.