Data Governance and Collection Best Practices

Report

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1. INTRODUCTION

1.1. Purpose

Strategy 16 of the *National Waste Policy; Less Waste, More Resources* relates to the development and publishing of a 3 yearly current and future trends waste/resource recovery report. Underpinning this will be a system providing access to integrated waste and recovery data which will be updated periodically online.

One of the key tasks in developing the underlying system is to agree the needs and purpose of data with all relevant jurisdictions.

As the data required to report on this information is not in a centralised location, the DSEWPaC or some other entity/entities may be required to manage the collection of this data from relevant jurisdictions in a consistent and standardised format.

The purpose of this report is show how the Department of Health and Ageing tackled a similar problem with the collection of data which potentially could be used as a framework for the development of other data collection systems. This report begins with a general discussion of the committees agreements and other parts of the governance arrangements for data health and aged care. It concludes with a discussion of a specific data system example in aged care.

1.2. Definitions

For the purposes of this document, the following definitions apply:

Term	Definition
NDR	National Data Repository (run by university collection agent in Melbourne)
MDS	Minimum Data Set
EU	Evaluation Unit – State/Territory Government body responsible for provision of MDS Data
NTFF	National Transaction File Format – specification of the contents making up the transactions file
CSV	Common Separated Variable – standard file format use for transmission of data
DoHA	Commonwealth Department of Health and Ageing
DSEWPC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
AIHW	Australian Institute of Health and Welfare

1.3. Audience

- Department of Sustainability, Environment, Water, Population and Communities
- Data working Group with states territories and local government
- Waste Industry stakeholders with an interest in waste data and reporting.

2. DATA GOVERNANCE

2.1. Data Governance

As part of Department of Health and Ageing (DoHA), the collection and reporting of data for the Ageing and Aged Care Division is governed by a series of national committees which undertake specific tasks associated with the development and maintenance of national health information. To provide the necessary regulation and standardisation required to achieve the reporting outcomes of information within the health sector the Australian Institute of Health and Welfare (AIHW) acts as an independent statutory authority accountable to the Australian Parliament through the Health and Ageing portfolio and provides secretariat assistance to many of the key committees which govern information in the sector.

Figure 1 below shows the various committees which provide specialised advisory around specific areas of interest in the Health information sector and which feed into the higher level councils.

Figure 1 – Health Sector Governance Committee Structure *(taken from AIHW website)*

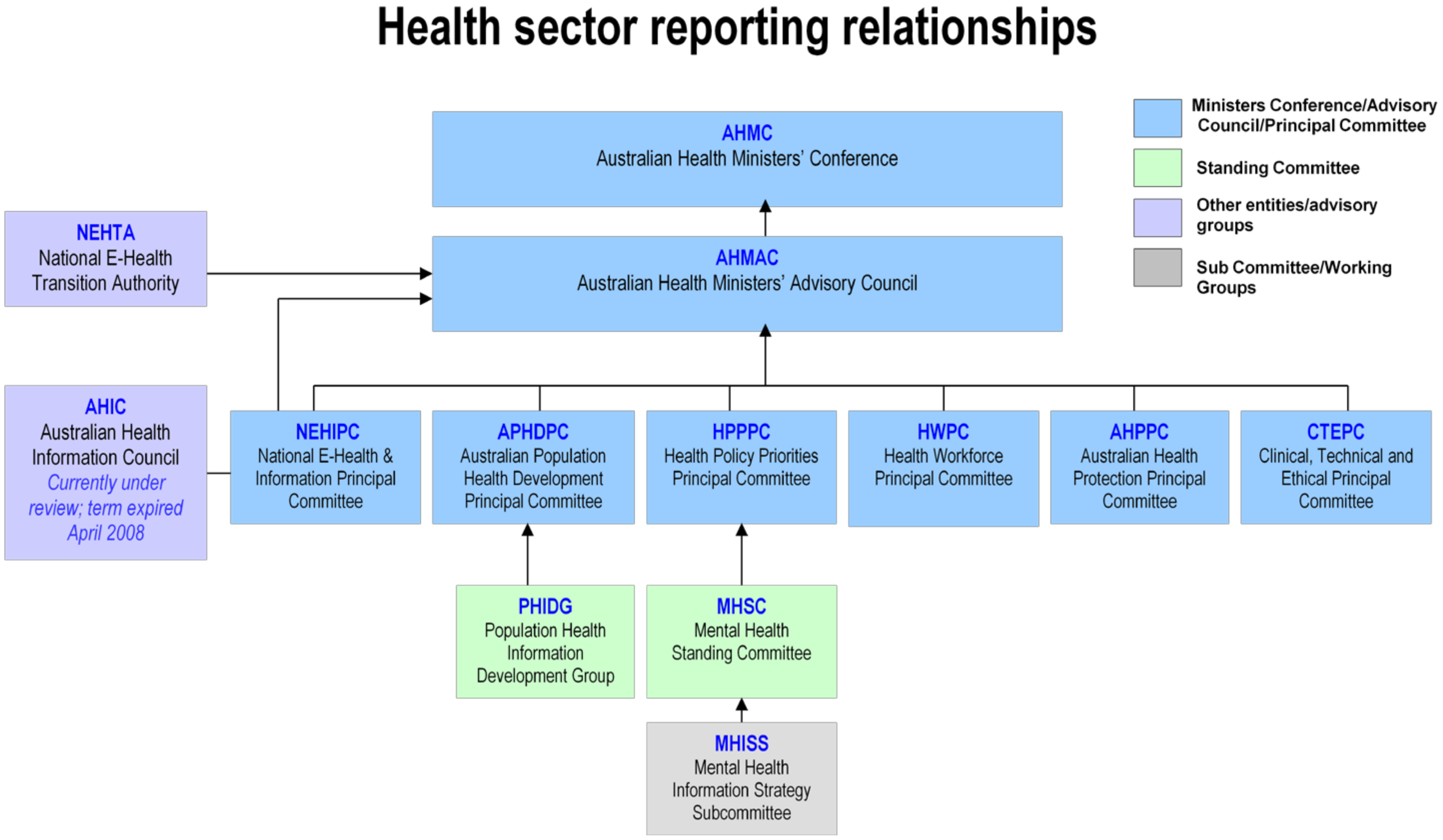

Figure 2: Health Sector (2) Reporting Relationships

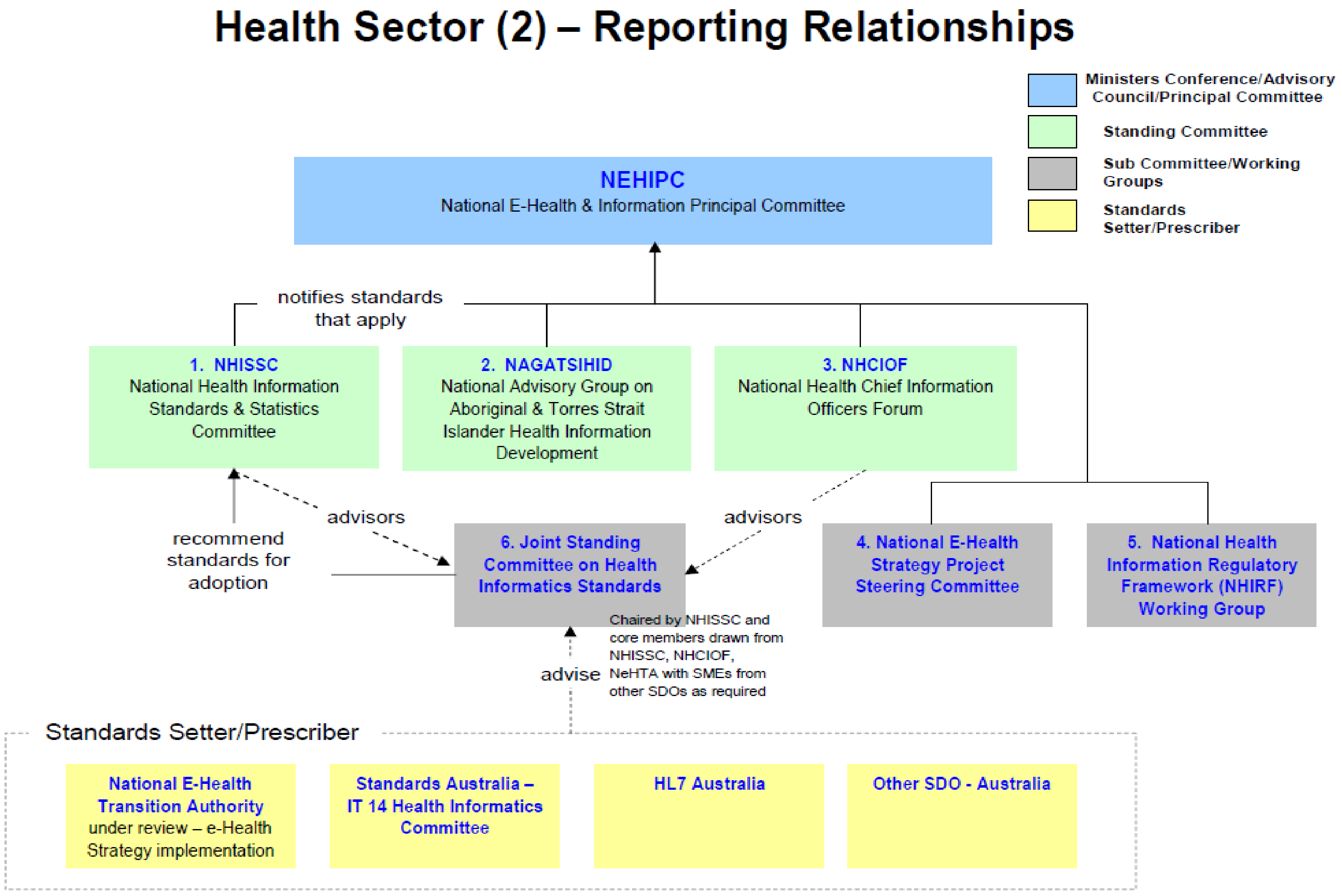

Figure 2 details the data governance and reporting relationships for health and aged care data. Details of each of these committees and their responsibilities are outlined below (information for this section was sourced from the AIHW).

National Health Information Standards and Statistics Committee (NHISSC)
The National Health Information Standards and Statistics Committee (NHISSC) is a standing committee of the National E-Health and Information Principal Committee (NEHIPC). NEHIPC is one of several principal committees that report to the Australian Health Ministers' Advisory Council (AHMAC). AHMAC provides support to the Australian Health Ministers' Conference (AHMC) under arrangements for the Council of Australian Governments (COAG).

NHISSC was formed in August 2008. NHISSC assumed roles previously undertaken by the Statistical Information Management Committee (SIMC), the Health Data Standards Committee (HDSC), and some of the roles of the National Health Performance Committee (NHPC).

The role of NHISSC is to:

- provide strategic advice to NEHIPC on issues relating to health information standards;
- endorse national information standards for the health sector; and
- endorse specifications for statistical collections of national health information.

The National Health Information Group (NHIG)
The NHIG has responsibility for providing AHMAC with strategic advice on national health information and for advising AHMAC on:

- national priorities for health information; and
- planning and management requirements for national health information, including funding requirements.

The NHIG is also responsible for:

- overseeing the implementation and ongoing development of the National Health Information Agreement;
- managing and allocating resources to health information projects and working groups;
- endorsing national information standards, including National Minimum Data Sets; and
- endorsing the work plans of committees which report to it, including the Statistical Information Management Committee (SIMC) and the Health Data Standards Committee (HDSC), the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data (NAGATSIHID) and the National Public Health Information Working Group (NPHIWG).

The chair of the NHIG is a member of AHMAC and is appointed by AHMAC for a two year period.

The Statistical Information Management Committee (SIMC)
The SIMC is responsible, under the direction of the NHIG, for:

- developing, reviewing and implementing the National Health Information Agreement and coordinating all proposals to the NHIG concerning the Agreement;
- developing national health information priorities and the associated work plan;
- developing and coordinating the implementation of National Minimum Data Sets; and
- negotiating with other groups and individuals for the collection and dissemination of information which will enhance the provision of health information.

The SIMC is also responsible for advising the NHIG on national health information priorities and on national health statistics.

The SIMC will include representatives of parties to this Agreement and other members as agreed by NHIG from time to time, with a chair appointed by the NHIG.

The Health Data Standards Committee HDSC)
The HDSC is responsible for:

- maintaining the development and revision of the National Health Data Dictionary and developing, maintaining and promoting the use of appropriate metadata standards; and

- reviewing and making recommendations for SIMC endorsement about National Minimum Data Sets in the health field.

The HDSC will include representatives of parties to this Agreement, as well as representatives or other agencies or interests as agreed by the NHIG from time to time.

The National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data (NAGATSIHID)

The NAGATSIHID is responsible for:

- providing NHIG with broad strategic advice on the improvement of the quality and availability of data and information on Aboriginal and Torres Strait Islander health and health service delivery;
- drawing together a range of activities in relation to health information and data on Aboriginal and Torres Strait Islanders to provide a coordinated and strategic process;
- continuing the implementation of the National Indigenous Health Information Plan (NHIP) until this process is completed;
- advising AIHW and ABS on priorities in its workplan; and
- providing advice to NHIG and the Steering Committee for Aboriginal and Torres Strait Islander Health (SCATSIH) on the National Performance Indicators and targets for Aboriginal and Torres Strait Islander Health reporting and associated activities.

NAGATSIHID membership comprises representatives of the ABS, the AIHW, the Commonwealth Department of Health and Ageing; a National Aboriginal Community Controlled Health Organisation; the Aboriginal and Torres Strait Islander Service; Australian Institute of Aboriginal and Torres Strait Islander Studies, the SCATSIH and the SIMC as well as Indigenous experts on Aboriginal and Torres Strait Islander health and welfare and an epidemiologist with expertise in Indigenous health issues.

The National Public Health Information Working Group (NPHIWG)

The National Public Health Information Working Group (NPHIWG) is a sub-committee of the National Public Health Partnership (NPHP) and the National Health Information Group (NHIG). It advises and reports to the NPHP and the NHIG on:

- national public health information issues, including the development and implementation of the National Public Health Information Plan;
- collection, dissemination and analysis of national public health information; and
- harmonisation and collaboration between jurisdictions in relation to public health information.

Membership includes representatives of the Australian Government (including the Australian Bureau of Statistics) and State and Territory government health departments, and the Australian Institute of Health and Welfare.

2.2. Data Agreements

Due to the number and variety of legislation at local, state and national levels, through which each of the stakeholders in the health sector are controlled, a common agreement is essential for the collection, compilation and interpretation of national information. The agreement covers definitions, standards and rules of collection of information and guidelines for the co-ordination of access, interpretation and publication of national health information.

As part of the National Health Information Agreement, the Commonwealth Department of Health and Ageing, the Commonwealth Department of Veterans' Affairs, the Health Insurance Commission, the Australian Institute of Health and Welfare and State/Territory Health Authorities are responsible for:

- ensuring that the information they collect, maintain and collate is consistent with the national protocols, definitions and standards contained in the National Health Data Dictionary and other guidelines endorsed by the NHIG;
- maintaining the information they collect under the aegis of the Agreement in such a way that it can be readily made available to approved individuals, groups and authorities for purposes which require access to national health information kept under the terms of the Agreement; and

- ensuring that the information they hold is maintained in such a way as to ensure that the privacy provisions of the Agreement are observed.

In addition, the specific responsibilities of the parties to the Agreement are set out below.

Australian Bureau of Statistics (ABS)
The Australian Bureau of Statistics, consistent with its functions, including statistical coordination, will be responsible for:

- collecting, compiling, analysing and disseminating statistics and related information for which they have specific responsibility;
- developing and promoting compliance with statistical standards; and
- providing specialist advice in relation to statistics.

Australian Institute of Health and Welfare (AIHW):
The AIHW will also be responsible for:

- convening and providing secretariat assistance to the committees as set out in Schedule A to this Agreement;
- in consultation with the ABS, developing specialised statistical standards and classifications relevant to health and health services;
- undertaking specific research, using national data, to improve the efficiency and effectiveness of the health care system;
- assisting other Parties to the Agreement in using and interpreting national health information; and
- ensuring that the National Health Data Dictionary and other quality control standards to encourage accuracy and consistency in the collection and reporting of health information are maintained and enhanced as agreed by the NHIG reporting to AHMAC.

2.3. Data Standards

The AIHW manages Australia's national health, community services and housing metadata items and standards, which provide the national infrastructure for metadata development.

Many areas of the Institute are also involved in developing metadata standards for specific program/policy area or sectors. This involves working with clients (within the AIHW and external to the AIHW) to identify national information requirements and the development of data set specifications (e.g. National Minimum Data Sets), including development of specific data dictionaries, guidelines, and other supporting documentation.

The Dictionary is designed to improve the comparability of data across the health field. It is also designed to make data collection activities more efficient by reducing duplication of effort in the field, and more effective by ensuring that information to be collected is appropriate to its purpose.
The objectives of the National Health Data Dictionary are to:

- establish a core set of uniform definitions relating to the full range of health services and a range of population parameters (including health status and determinants);
- promote uniformity, availability, reliability, validity, consistency and completeness in the data;
- accord with nationally and internationally agreed protocols and standards, wherever possible;
- promote the national standard definitions by being readily available to all individuals and organisations involved in the generation, use and/or development of health and health services information;
- facilitate and promote the development of good data definitions across the health sector.

An example of the information captured and maintained in the Health Data Dictionary can be found in Appendix A.

3. DATASET AND DATA USES

Data System health and Aged Care
Example: Minimum Data Set Solution in Aged Care

The Department of Health and Ageing (DoHA) faced a similar problem to DSEWPC in that it was required to collect data from assessment teams located in different geographies. The Ageing and Aged Care Division within DoHA required this information as it is used to guide the determination of the level of care needed by individuals and to help them provide the best possible care available.

The Division of Ageing and Aged Care makes up one of the fifteen divisions within the department. It has responsibility for all aspects of the National Ageing and Aged Care Program, which provides care and support services to older people and their carers, and promotes healthy ageing. The Program also provides care and support for people with a disability.

3.1. Overview

Previously the division had outsourced its collection of the aged care assessments data to La Trobe University. The process that was generally used to collect and pass on the data is as follows:

1. The assessment teams provided their data to the State offices
2. The State offices collated all data from the assessment teams and passed on to Latrobe University on a quarterly basis
3. Latrobe University did some basic validations and once all data had been integrated and collected from all the States generated a standard set of reports which were passed on to DoHA.

This previous method of collecting and storing the assessment data resulted in limitations on the types of enquiries that could be made of the data and considerable time was taken and expense incurred in requesting reports from the system to answer enquiries. It made it almost impossible to undertake meaningful research/analysis using the information due to the collection/storage method, cost involved and the limited budget for this purpose. Requests for information, even basic enquiries, required processing and publishing time that rarely met business deadlines. Another issue with outsourcing the data collection was that it became hard for the Department to improve the quality of the data being collected as it was not directly involved in its acquisition.

In order to achieve timelier reporting and be able to enforce a higher standard of data quality, DoHA decided to pilot the data collection in-house. The requirement also existed for the management of other Minimum Data Sets (MDS) for the department.

A similar solution was used at the Department of Defence to manage the collection of data for the reporting of KPIs in an Air force scorecard. DoHA used this solution as a starting point for developing its own capability.

With the in-house collection solution in place the state based Evaluation Units (EU) have the ability to load the data directly. The implementation of this solution did require a change to the current data collection process; however it improved the data quality of the collection process by providing the ability to validate the input data upfront – as defined by the department.

3.2. Data Collection

The following sections provide a more detailed review of the data that is collected for the assessment program.

This represents a data set that was managed by Lincoln Centre for Research on Ageing, La Trobe University through an outsourcing contract managed at La Trobe University in Melbourne. It was the view to mobilise the new MDS solution and move the management of the data collection back within the department.

The dataset is a collection of information relating to the health profile of a potential recipient of care. The format of the data is specified in the National Transaction File Format (NTFF) specification which has been agreed amongst all the stakeholders. This is a csv file that contains approximately 160 fields.

It is expected that each of the Evaluation Units will submit a file each quarter; each file will be validated through a number of rules including validating individual fields against the list of code values below.

An EU can upload the data as many times up until a cut-off date when the data if finalised. Each upload effectively overwrites the previous upload. This allows the EU to update any invalid data if necessary.

A detailed audit trail is recorded to understand any data changes that occurs between uploads to emulate point in time reporting; such that a report can be regenerated if the user changes the data. i.e. for annual reporting purposes.

3.3. Data Usage

To meet the business outcomes set for access to the information, the data is loaded into the divisional data warehouse providing a framework for improving the management and use of information received. Data collection reporting is achieved directly off the data collected by the MDS solution, while management reporting is done through the data warehouse.

Figure 3 illustrates the dataflow, key policy and decision points across the state and federal network.

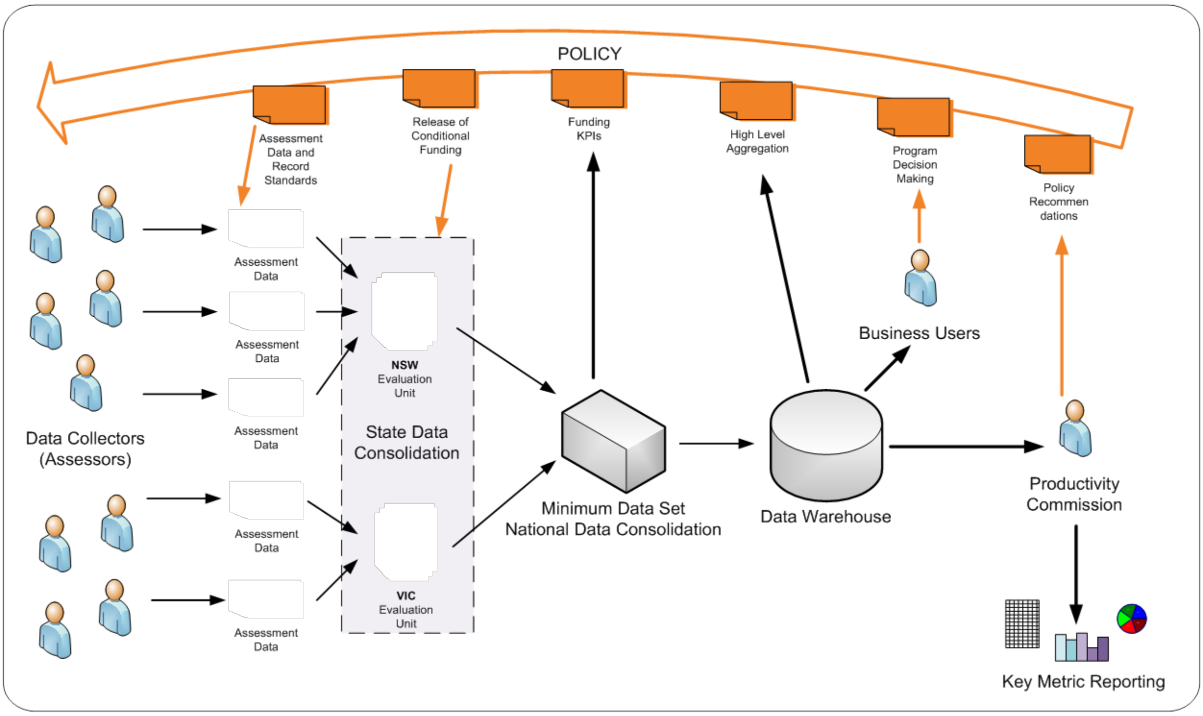

Figure 3 - High Level Aged Care Assessment Dataflow

3.4. Data Validation Rules

A number of data validation rules were required to be implemented as the file is uploaded to the solution. The data validation happens on upload and returns as an error to the user if any particular row fails. For large files, an error file can be downloaded and reviewed. Some examples of some of the data validations that were implemented are;

1. Date Specific cross column rules: i.e. Date A <= Date B <= Date C <= Date D.
2. Column specific cross column rules i.e. if column A = 1 then column B must be 8,9 or 10
3. Suburb and post code validation
4. Basic code reference data validation for the following reference data sets (note these reference data sets are to be maintained by the MDS Solution interface as data sets themselves, so that if the code values change, it can be managed by the business)
    - Country of Birth
    - Indigenous Status
    - Etc.

The above are only a selection of data validation rules however there is no limit on the number of data validation rules that are allowed.

These rules can be modified at any stage.

4. SYSTEM DESIGN

4.1. Overview

The solution allows for the distributed data contribution function where multiple state or location based agents contribute data into a consolidated data store, whilst proving integrity reporting; both at the time of data contribution and once data has been staged.

The following key points outline the basis of the solution;

1. Data is validated at time of loading into the MDS Repository.
2. Data sets from multiple locations are consolidated and managed into a single data set.
3. The appropriate security and auditing provisions are implemented so that ‘revised data sets’ are known and audited (in the case where users change data for the same client / form submission).
4. MDS data is ‘staged’ within a dedicated MDS architecture. Validation reports are created – as required in the meta data configuration.
5. The solution will be driven by metadata so that additional data sets can be easily added for managing new data sets and requirements as they arise.

4.2. System Requirements

The following summarises the main system design requirements of the MDS solution.

MDS proposed data sources:

- All form based MDS data.

MDS business process requirements:

- Ability for State / Territory Evaluation Unit’s users to upload MDS data directly
- Auditing of MDS data extract uploads, based on time variance analysis
- Elimination of third party processing (National Data Repository).

MDS file processing error management and reporting requirements are summarized as follows:

- Ability to categorize errors and report at specific points in the MDS end to end process
- Configurable error management based on key end-to-end points.

Reporting:

- Configurable reporting based on set, department defined dimensions
- Ability to report on errors, audit points and MDS data
- Delivery of reports using the department standard reporting tool.

MDS Business report requirements are summarised as follows:

- MDS upload, staging report and segmentation
- The business should have the ability to stipulate what data is available in the reports that are produced at any point in the end to end architecture.

MDS Generic Solution:

- Ability to allow CSV format files to be uploaded to a staging database for reporting use
- Ability to implement integrity on data being uploaded through business validation of the data
- Ability to report business rule failure at the time of upload to the user in an interactive way
- Ability to change the data formats and data validations easily
- Ability to track on audit and security issues pertaining to the data uploaded
- Ability to make the solution available to both internal and external users.

Key MDS application user roles include:

- General MDS User – MDS front end user. Ability to upload MDS data from remote sites around the country.
- Administration MDS User – Same privileges as a general user with the additional ability to use all the MDS administration features.

- Master MDS User – As above, with the additional ownership of the MDS meta data storage and change control mechanisms.

Key reporting user roles identified include:

- Remote / General User – Assessment Section and Evaluation Unit users. A remote, State / Territory located EU user who can access the MDS web application and upload. Assessment Section and EU users who run reports through reporting tools, have access to prompting reports, subscribing, printing in multiple formats, saving to personal folders.
- Analytical User - All of the above + ability to add attributes to multidimensional reports.
- Advanced User - All of the above + ability to create reports based on underlying data models, publish reports to the portal, push reports to users, manage user logons/access.
- Administration User – Ability to add and manipulate the MDS solution meta data in an administrative capacity to allow the addition of new datasets and so on.

The number of users has been identified:

- Remote Users (1x representative from each EU)
- General Users
- 5 Analytical Users
- 1 Advanced User
- 1 Administration User.

Source Data:

- All MDS source data is received from State / Territory specific evaluation unit's (EU). Each State / Territory has an EU, hence MDS data will be drawn from all 8 State / Territories.
- Source (MDS) data will be received in a recognised format – the National Transaction File Format (NTFF), further to the provision of a specific, pre-defined, MDS file version reference.

4.3. Business Requirements

The following summarises the main system design requirements of the MDS solution.

- Timely delivery of MDS information to a single consolidated location
- Integrated solution enabling MDS data analysis and reporting, in particular
- Ability to analyse program outcomes, and impacts across programs
- Analysis of service providers and individuals across programs
- Common understanding of the availability and use of MDS information
- Reduction in the end to end time for delivery of a reporting capability for MDS data
- Eliminate the need to send MDS data to a third party prior to analysis
- Ability to manage the error checking, categorisation and reporting functions of the MDS upload and validation process
- Enable the use of 'clean data' by pushing the validation (and subsequent rectification) of MDS information back to the source i.e. the evaluation units
- Ability to track and report on time variant data resulting from multiple uploads of Assessment files
- Auditing suite. Delivery of a set of pre-defined auditing functions to allow audit tracking and resolution.

5. OPERATIONAL FEATURES

5.1. Overview

The MDS staging area reports are related to auditing purpose for assessment team. These reports include the information related to different types of errors returned while the EU's trying to upload the data. The reports are categorised on the basis of different business rules.

Overall the MDE application will consolidate spreadsheet (CSV) data into the MDS staging area data store as Figure 4 - High Level MDS Upload Solution Design.

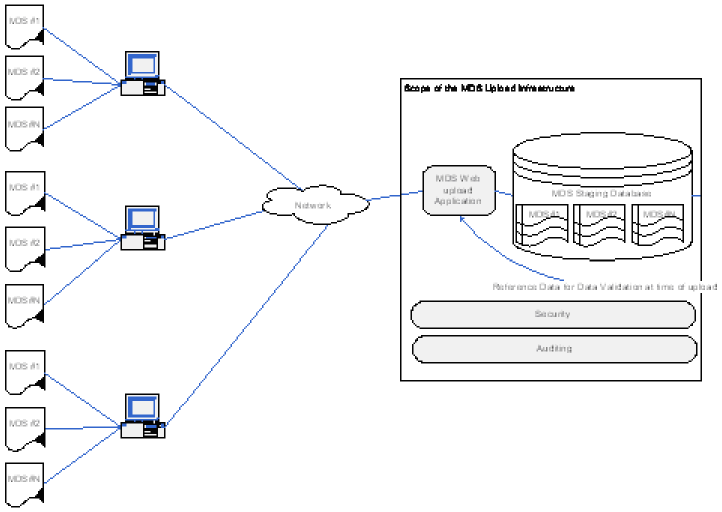

Figure 4 - High Level MDS Upload Solution Design

The key functions for the MDS solution, as represented by a menu listing in Figure 5 – MDS Solution Menu Functionality.

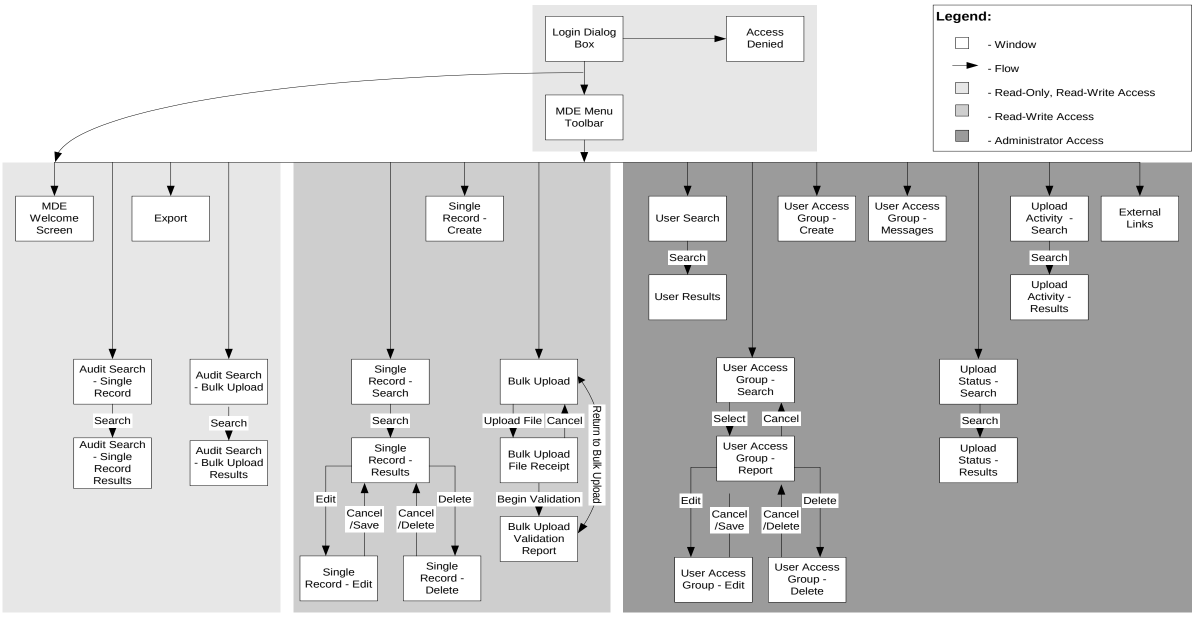

Figure 5 - MDS Solution Menu Functionality

The following Data Collection Process outlines the discrete steps involved in the data load, validation and capture process.

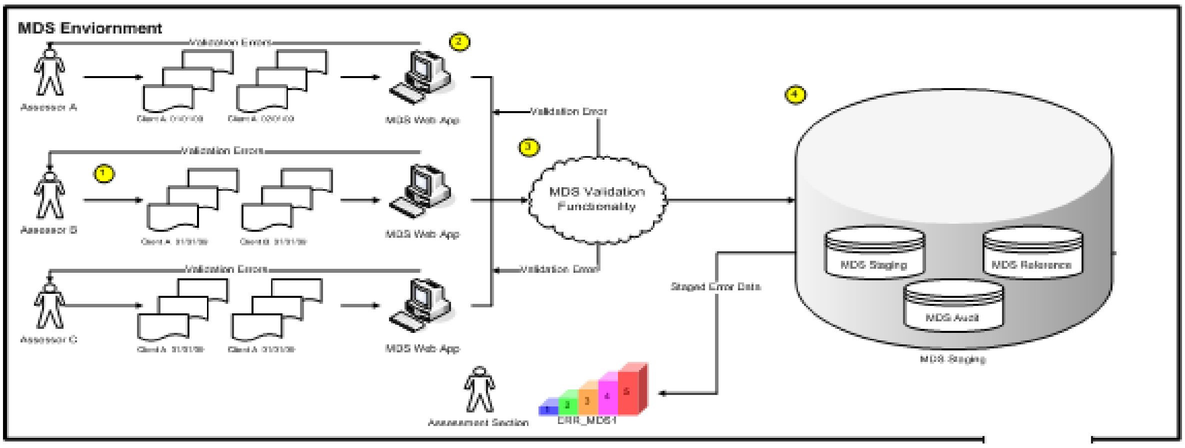

Figure 6 – Detailed Data Collection Process

Legend

1 - Evaluation Unit user MDS upload process. The Evaluation Unit user has the ability to directly load MDS data to the MDS staging area. The MDS solution will audit file uploads and track the current file for reference, reporting and CASPER integration purposes.

2 - A geographically independent web portal will be delivered to enable the file upload process. All users will have the ability to access the web site with the provision of LDAP security and pre-defined user group allocations.

3 - The MDS solution will validate the uploaded file in real time and provide:

- An upload summary
- Error summary.

4 - Data is staged in an MDS database – reports are generated from this staged area based on the error reporting configuration (as defined by the business).

6. ROLES AND RESPONSIBILITIES

For the scope of the specific aged care assessments dataset, the ongoing management of operational and policy change is driven and controlled at multiple levels within the department and across the various stakeholders within the wider national user base. The primary governance structures and each role or groups' responsibilities for the data collection and usage are illustrated in Figure 7:

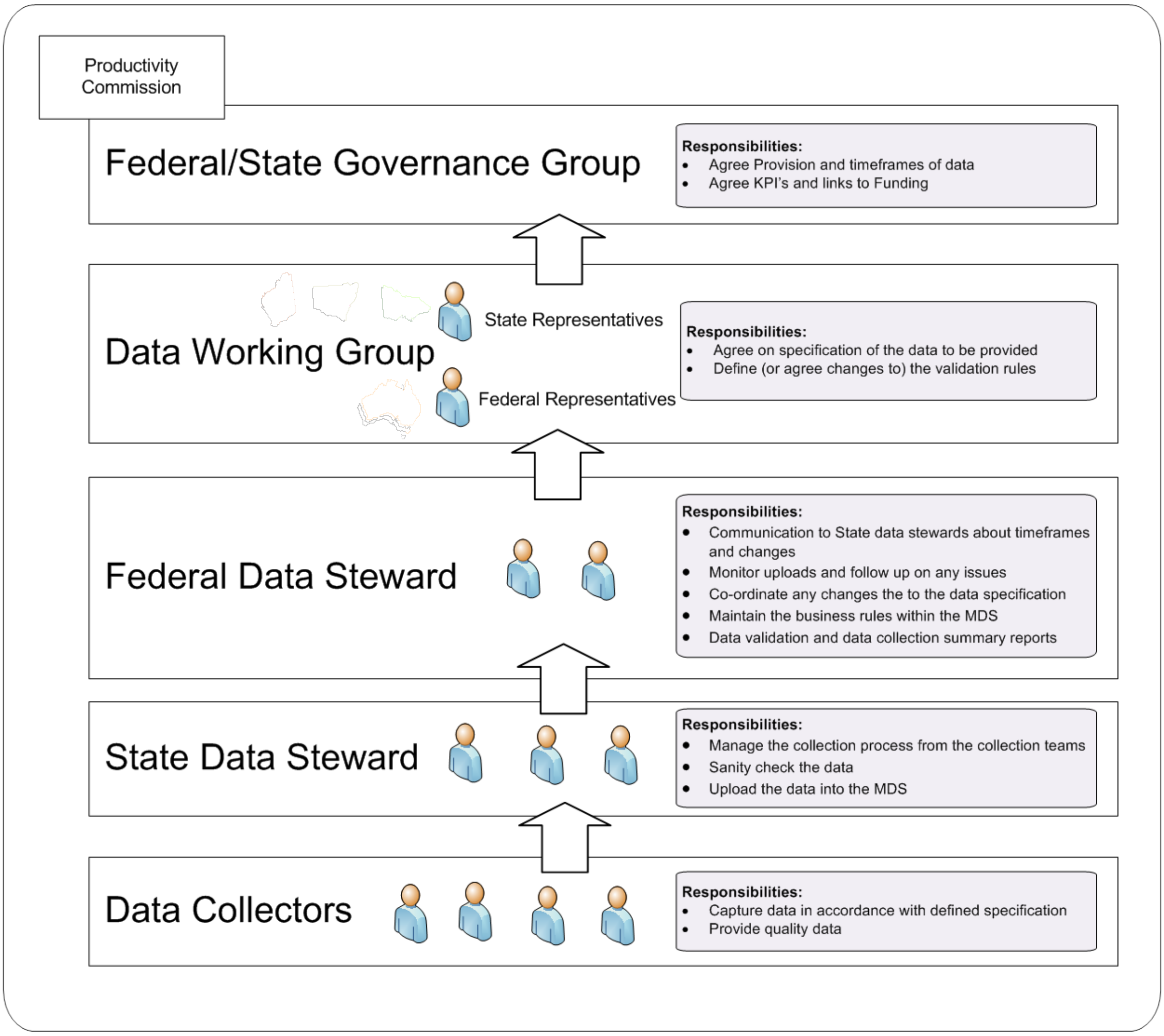

Figure 7 – Aged Care Assessment Data Governance Structure

The following details the key roles and responsibilities for each party in the data collection process:

- Divisional Reporting Steering Committee – This is a combination of representatives from across relevant sections within the division. Key duties of this committee are determining the usage and distribution of data both within the department and to external parties. The steering committee meets on a quarterly basis.

- Federal/State Governance Group – This group are the key relationship stakeholders between the State and Federal Government. Responsible for the ongoing administration and up keep of standards which data flowing into the department. This is an ongoing role within the department. Their key responsibilities are to:
  - Agree provision and timeframes of data
  - Agree KPI's and links to funding.

- Data Working Group (DWG) – This group is responsible for the details of the interface and the operation. This is made up of representatives from each of the state offices and members of the department. The role of this group is to define and agree on changes to the standard National Transaction File Format (NTFF) and any policy implications arising from these changes. It was seen that involving the state based stakeholders in the decision making process, though at times challenging, was key to achieving the ongoing outcomes required to maintain this as a viable source of information. The working group meets on a quarterly basis. They:
    - Agree on the specification of the data to be provided
    - Define (or agreed changes to) the validation rules.

- Data Collectors – These people are the ones on the ground collecting the data and entering it into some form of operational system.

- State Data Stewards – This group pulls data together data from all the different data collection teams into a state wide repository. Their primary role is to consolidate the data from their various assessment teams ensuring timeliness and standardisation of submissions which then flow to the federal department. Specific reward schemes have been setup for state contributors to match ongoing high quality data submissions with access to funding streams. This role has a peaked workload around the quarterly submissions, but does involve ongoing communications with the federal data steward, ACAT data collection bases and will often form part of the data working group. Their key responsibilities are:
    - Manage the collection process from the collection teams
    - Sanity check the data
    - Upload the data into the MDS.

- Federal Data Steward – This person is responsible for managing the overall process of data collection each quarter on a timely basis. Their key responsibilities are:
    - Communication to State data stewards about timeframes and changes
    - Monitor uploads and follow up on any issues
    - Co-ordinate any changes the to the data specification
    - Maintain the business rules within the MDS
    - Data validation and data collection summary reports.

- Business Users – This group uses the end data to make end business decisions. These users are a combination of state and federal roles which use a variety of reporting and analytical information to guide the policy which governs the aged care assessments with Australia. Typical interactions with the data would allow integration down to an individual team (ACAT) for key performance indicators around waiting times for assessments and the demographics, current health conditions and recommendations. This information is then used to target funding or policy to improve the quality and speed of service.

- Productivity Commission – uses the information obtained to report on key metrics as a result of the data upload. As a conduit for a broad spectrum of data from the department the productivity commission takes highly summarised data to guide it's decision making on recommendations for aged care policy.

7. SYSTEM COSTS AND TIMELINES

7.1. Costings

The total cost of the MDS project to the department was estimated to be approximately $250 000.

7.2. Project Timelines

The pilot MDS project was implemented in multiple phases over a 5 month period. The key phases and duration included:

Phase	Duration
Requirements Gathering	2 weeks
System Design	3 weeks
Build	6 weeks
Testing	6 weeks
Transition and Deployment	3 weeks
TOTAL	**20 weeks**

8. SYSTEM BENEFITS

8.1. Key System Benefits

Timeliness of Data - the implementation of a new data extraction process and direct access to the data has enabled a more timely response to data requests and considerably more information available for enquiries on the data.

Business Confidence - Validation and correction of data errors has enabled the business section to be more confident in the quality of data and, with the ability to categorise validation errors in terms of severity and reporting point identification, require fewer caveats on responses to enquiries which previously did not allow for confident use of the data.

Consolidation and Quality - The MDS solution allows for multiple EU users to contribute data, which is consolidated into a central data store for reporting and analysis. The solution provides data validation and audit traceability on the data being loaded. The MDS solution improves the data quality of the collection process by providing a staggered error checking and validation mechanism. File upload errors will be validated at upload – the business will have the ability to define which errors are validated at upload and report on error rates of submissions.

Improved Capability - The solution provides a robust mechanism moving forward for miscellaneous data collections for the department where the data is not contained in core departmental IT systems. Additionally as the MDS data is integrated with other divisional data the reporting capability across structured information holdings has enormous value.

8.2. Benefits

The MDS solution allows for multiple EU users to contribute comma delimited data formats, which will be consolidated into a central data store for reporting and analysis. The solution will provide data validation and audit traceability on the data being loaded.

The MDS solution however is not limited to csv files only. It can also cater for XML, fixed width file formats as well so allows it to be used for many applications where csv files aren't available.

The MDS solution improves the data quality of the collection process by providing a staggered error checking and validation mechanism. File upload errors will be validated at upload – the business will have the ability to define which errors are validated at upload. Additionally, a further level of data error reporting will be implemented at the MDS data staging area – again, configurable as needed.

The solution was developed as metadata driven application, additional data sets can be easily added for other format MDS data collections. The solution provides a robust solution moving forward for miscellaneous data collections for the department where the data is not contained in core departmental IT systems.

From a divisional perspective, a reporting capability across an integrated data store of the Division's structured information holdings has enormous value. It provides easier access to better data across all programs and resources consumed in collecting and verifying data will now be able to be applied to the analysis of the available data and be able to use the data to take a more proactive approach in identifying and actioning risk across programs.

Also, the implementation of a new data extraction process and direct access to the data will enable more timely responses to data requests and considerably more information available for enquiries on the data. Validation and correction of data errors will enable the Sections to be more confident in the quality of data and, with the ability to categorise validation errors in terms of severity and reporting point identification, require fewer caveats on responses to enquiries which currently do not allow for confident use of the data.

8.3. Leveraging the Investment

Now that the pilot program has been deemed a success, the department are now looking at other programs that could benefit from doing the data collection in-house. The MDS solution that has been developed can easily be modified for use with other datasets.

9. LESSONS LEARNT

9.1. Stakeholder Analysis and Engagement

A number of key Change Management activities were needed as part of bringing the data collection in house.

Additionally, ongoing divisional change management was provided to promote the acceptance and useability of the solution within all levels of the department.

Stakeholder management was identified as a key component in the success of the MDS Solution. Our approach to managing stakeholder input was based on the principles of:

- Consultation
- Communication and
- Supporting Processes.

It ensured business ownership of the MDS Solutions be managed through the transition stages throughout the life cycle of the project. This was achieved by:

- Developing a clear understanding of who our stakeholders are and how we communicate with them
- Developing a formalised framework for stakeholder input, decision and issue management
- Developing an integrated approach to managing communications to and from the project
- Implementing a “critical point” review of the project and the stakeholder and communication strategies and realigning activities to ensure continued support and ownership
- Transitioning knowledge and skills to the business
- Expanding stakeholder groups to include greater representation of the Branch / Office impacted by the transition stage and incorporating representatives from the STOs (State and Territory Offices).

9.2. Post-Implementation Tuning

As with all projects particularly involving external stakeholders and ongoing policy updates the ACAT MDS implementation once receiving live data from state users produced additional challenges which required intervention from the business owners to ensure the agreed data quality was met. Although these issues were initially varied the ability to enforce stricter levels of validation and building a working relationship was key in working with the state users to meet their required data quality threshold.

Highlights of this scalable validation included:

- A minimum threshold for the number of validation errors allowed
- The ability to tailor each states levels according to their data maturity level
- Strong audit trail to enable the business area to track data submissions and take appropriate action based on both immediate changes and trends over time.

Over time different aspects of the data validation were removed or decreased in severity once stakeholders were able to demonstrate a consistency of data submission.

10. APPENDIX A – SAMPLE OF DATA DICTIONARY

The following example is taken from AIHW online metadata registry (METeOR):

Service provider organisation—standards assessment indicator, yes/no code N

Identifying and definitional attributes

Metadata item type: ℹ	Data Element
Short name: ℹ	Standards assessment indicator
METeOR identifier: ℹ	356457
Registration status: ℹ	Health, Standard 05/12/2007
Definition: ℹ	Whether a service provider organisation routinely undertakes or undergoes formal assessment against defined industry standards, as represented by a code.
Data Element Concept:	Service provider organisation—standards assessment indicator

domain attributes

Representational attributes

Representation class: ℹ	Code
Data type: ℹ	Boolean
Format: ℹ	N
Maximum character length: ℹ	1
Permissible values: ℹ	

Data *element* attributes

Collection and usage attributes

Guide for use: ℹ	Formal assessment against the relevant standards may occur via self-assessment or external assessment methods. A 'formal' self-assessment should involve a number of aspects, including the planning and development of a clear structure for the assessment process; the use of an accepted evaluation method such as a peer review; and the use of validated tools where these are available. A 'formal' assessment also includes a formal in-depth review against the relevant standards by an independent external reviewer. This may take place in the context of an accreditation process for the service provider organisation or the organisation of which the service provider organisation is a sub-unit. CODE 1 Yes The service provider organisation routinely undertakes or undergoes formal assessment against the specified healthcare standards. CODE 2 No The service provider organisation does not routinely undertake or undergo formal assessment against the specified healthcare standards.
Collection methods: ℹ	Record only one code.

Source and reference attributes

Submitting organisation: ℹ	Palliative Care Intergovernmental Forum

Relational attributes

Implementation in Data Set Specifications: ℹ	Indigenous primary health care DSS 2011-2012 Health, Standardisation pending 30/05/2011 Palliative care performance indicators DSS Health, Standard 05/12/2007