

Linked health data in the Northern Territory

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Introduction

The Northern Territory Department of Health and Community Services (DHCS) is the main service provider of Health and Community Services for over 200,000 residents of the NT. DHCS operates 5 hospitals, 50 urban community health work units and 70 remote health centres.

DHCS has had a functional data warehouse for almost six years. It contains data from over twenty departmental systems as well as from non-government organisations. One of the most important benefits of the data warehouse is that it allows for the linkage of client demographic data from a range of disparate systems in acute hospital and community settings. All clients accessing DHCS services have a CMI assigned at the first episode of care. Data from various systems can be linked using this identifier.

These data can be used to provide information on the range and cost of services accessed by a particular population group at one point in time as well as track changes in health status and service access over time. The data contained in the data warehouse are routinely used for a variety of purposes including:

- Periodic management reporting for various internal and external agencies
- Health economics analyses
- Epidemiological analyses
- Financial Analysis.

Data warehouse

DHCS Executive approved implementation of a Client Master Index (CMI) policy mandating that all corporate client information systems use the CMI for client identification and registration purposes.

Information related to services provided to a client by DHCS is collected at the time of service delivery and entered into various operational systems using the CMI. The quality and completeness of these data are assessed and if they meet predefined standards they are loaded in the data warehouse. This occurs at various times throughout the year.

The advantage of the data warehouse is that it allows tracking of a client over time from various health systems. This enables in-depth research and analysis to inform DHCS policy and program development.

The department has developed and adheres to strict privacy protocols and guidelines to ensure clients' privacy is always maintained. Data is only released to internal and external analysts after the various data custodians have granted permission and appropriate ethical approval obtained.

Complete coverage of episodes of service

Data from the following systems is loaded into the data warehouse:

1. Perinatal information covering hospitals and non-hospital births.

The baby is allocated a CMI at birth and this is used in recording subsequent episodes of care. Regular screening of details on children's growth is also recorded.

2. Patient Travel information is collected for all residents receiving services from the DHCS. The type of information it contains are details of travel, transport and accommodation provided to clients as well as the person accompanying the client who need to travel to a regional service to access health care.

3. Hospital activity information collected by 5 public hospitals in the Territory.

The type of information it contained includes client episode information such as Emergency, Admissions, Theatre Visits, Infection, and many more types of services.

4. Community Care information recording services provided by Community Care Service outlets.

Type of information recorded includes Immunisation, Family and Children services, Mental Health, Aged and Services Care and Community Health Services.

5. Primary Care information collated from various remote communities across the Territory.

The type of information recorded is Client Care Plans, Pathology Results, Immunisation and Vaccinations and Medications.

6. Health Insurance Commission information. These data contain information on Commonwealth pharmaceutical and medical benefits accessed by residents of the Northern Territory.

All these data are loaded into the Data Warehouse periodically and linked using the Client Master Index.

Comprehensive and advanced achievements in data linkage

The major benefit is that all client information is linked using a Client Id in the Data Warehouse. The recording of client's visits to Health services enables comprehensive financial analysis and service planning as well as detailed health research.

Benefits of Data Linkage

Comprehensive data collection is now available to evaluate the effectiveness of health service delivery programs and measure improvements in health outcomes for example:

- There is real evidence of improvements in health service delivery and health outcomes from information produced by Tiwi and Katherine West through monitoring of clients using Primary Care information.
- DHCS can now provide information on health status and associated issues that affect residents in the Northern Territory.

Usages of the data

Some of the ways in which data on clients from communities have been used are listed below:

- Epidemiological type research including longitudinal studies tracking patients over time.
- Menzies School of Health and Research has used the data to review renal dialysis clients and their usage of hospital and community services and the costs associated with providing these services.
- The data has been used to provide the Tiwi and Katherine Health Boards with information on their clients, such as the costs associated with sending their residents with renal disease to hospitals to undergo dialysis.

Possible usages of the data

Other possible uses of data in the warehouse are listed below.

- Analyses of data to help measure the costs of providing services across the care continuum for various population groups within the NT.
- Assessing the effectiveness of health interventions and providing robust information on health outcomes at both individual and population levels.
- Investigation of adverse events by tracking recipients of various services over time.

- Provide evidence of health gains made through increased funding to Indigenous Health Boards.

Conclusion

The Northern Territory has a rich and valuable data source that will assist the department in making decisions on the basis of sound information. It will also enable professionals and health service providers to undertake various studies and research in order to improve the health and welfare of the population in the Northern Territory.