

Data Quality in the National Minimum Dataset (NMDS)

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Overview

NMDS data load process

- File loading process
- Errors and warnings
- Return files .ndr .sqr .ndw
- Business rules around the injury fields
- Warehouse load process
- NMDS data measures of DHB performance
- Data Management DQ measures and feedback
- Change processes summary
 - ICD and DRG history, clinical coding system code
- Areas of interest
 - Occupation, Auditing, changes in clinical practice, changes in data collected, standard vs specific descriptors
- ICD and DRG licensing arrangements

Overview of the load process

- DHBs and private hospitals send files for public and privately funded events
- Format is defined, business rules defined
- Our KPI is 2 days to load the file and provide return files
- DHB KPI is data loaded within 21 days post month of discharge (OPF agreement)

Transactional NMDS

- Files are loaded daily
- Acknowledgement files generated
 - *.err if the format is wrong
 - *.ndw costweight file (DRG and WIES)
 - *.sqr all errors and warnings
 - *.ndr resets the flags within the PMS
- FTP is the usual channel, also CD, diskette, paper
- All load & acknowledgement files stored and backed up

Load rules

- Business rules document published
<http://www.nzhis.govt.nz/moh.nsf/pagesns/295>
- Rules for every field – errors and warnings
- Error records can not be loaded
- Warning records may be loaded
(action code field)

NMDS load file – first few records

HR,86XX,MSU00104.ndm,00248,20080626,PROD,V011.5

HE,XXX8333,ID,20080229,86XX,9,A1,2548,F,20050925,11,,,Y,R,S20,
WN,DR,20080229,,, "",,,,,, "Buller",N,,,34,8656,,,,,MSSPCSII,,
HD,XXX8333,ID,20080229,86XX,9,01,12,A,B,S025,"Fracture Teeth",,
HD,XXX8333,ID,20080229,86XX,9,02,12,B,E,U739,"Unspecified Activity",,
HD,XXX8333,ID,20080229,86XX,9,03,12,B,A,X59,"Injury NOS",,
HD,XXX8333,ID,20080229,86XX,9,04,12,B,A,Y929,"Unspecified
Place",,20080229
HD,XXX8333,ID,20080229,86XX,9,05,12,O,O,9251429,"General
anaesthesia, ASA 29",20080229,
HD,XXX8333,ID,20080229,86XX,9,06,12,O,O,9731100,"Removal of tooth
or part(s) thereof",20080229,

Errors

Examples include

- Mandatory fields not populated eg no operation date provided
- Fields populated when not required eg procedure date field populated for a diagnosis
- Fields populated with invalid codes
- Inconsistencies between fields – eg ethnicity 1, 2, 3
- Values outside of valid range eg admit weight 0000
- Events for the same NHI can not overlap bed nights

Warnings

- Death – DD vs PD check
- Gender
- Low age
- High age
- Normal in NZ
- External cause
- Unacceptable PD (ACS)

Business rules around the injury fields

- Accident flag, ACC claim number, purchaser code, admission date, external cause date
- If the accident flag is Y then the ACC claim number field must not be blank
 - If the ACC claim number field is populated and the injury date is before the admission date then the accident flag must be set to Y
 - If the injury date is between the admission and discharge date then the Accident flag can be N and the ACC claim number field populated
 - If the purchaser code is A0 then accident flag must be Y and the ACC claim number field must not be blank

.ndr Acknowledgement file

AK,AGCxxxx,IP,20080609,XXXX,9,XXX01285.ndm,0000308294,0059,0,"Data processed successfully",,,

AK, AGCxxxx,IM,20080524,XXXX,9,XXX01285.ndm,,00112,0,"Data processed successfully",,,

AK, AGCxxxx,ID,20080604,XXXX,9,XXX01285.ndm,,00314,0,"Data processed successfully",,,

AK,AGCxxxx,ID,20080604,XXXX,9,XXX01285.ndm,0000318227,00315,NZS1045W,"accident_flag not consistent with acc_claim_number",,,

AK,BBQxxxx,IP,20080607,XXXX,9,XXX01285.ndm,0000318384,00160,NZS1002E,"domicile_code is a mandatory field",,,

AK,BGFxxxx,IP,20080611,XXXX,9,XXX01285.ndm,0000318792,01075,NMS3046E,"Purchaser Code 13 is retired from use",,,

.sqr error file

Message function=A1 PMS unique identifier=3340xxx Line=1988
 HCU ID=FVWxxx Local event ID=8 Health specialty code=D01
 Sex=M Event type=IP Principal service purchaser=A0
 Birth date=21/02/1920 Start date=22/12/2009 Health agency code=10xx
 Ethnicity=11;; End date=09/02/2010 Hours on mechanical ventilation=
 Resident=Y Admission source=T Occupation code=
 Domicile code=04xx Admission type=AA Birth weight= Occupation free text=
 Country code= Admission weight= Gestation period=
 Suppress flag=N Event end type=DD Birth status=
 ACC status flag=N Event leave days= Age of mother= Psychiatric leave end date=
 AI claim number= Birth location= Psychiatric leave end type=
 Hours on cpap=
 Mothers NHI= Total ICU Hours= Transfer From=xxxx Transfer To=
 Client system identifier=1708xxx Total niv hours=

*** Warning: [NZS1045W] accident_flag not consistent with principal_health_service_purchaser

*** Warning: [NZS1046W] principal_health_service_purchaser indicates an ACC claim but acc_claim_number not present

Diagnosis Num	Type	Clinical Sys	Type Code	Description	Date of Oper/Proc	Cancer Ext Injury	Melanoma Basis Stage	Lab level thickness code
1	A	13	V	Z509	Care involving use of rehabilitation pro			
2	B	13	B	S7210	Fracture of greater trochanteric section			
3	B	13	B	S7211	Fracture of intertrochanteric section of			
4	E	13	E	W061	Fall from bed, side rails up,must have c	14/12/2009		
5	B	13	A	I269	Pulmonary embolism without mention of ac			
6	B	13	A	J690	Pneumonitis due to food and vomit			
7	E	13	E	W79	Inhalation and ingestion of food causing	22/12/2009		
8	E	13	E	Y9222	Health service area			
9	E	13	E	U732	While resting, sleeping, eating or enga			
10	B	13	V	Z968	Presence of pins and screws to femur R			
11	B	13	V	Z8643	Personal history of tobacco use disorder			
12	O	13	O	6134800	Lung perfusion and ventilation study	29/01/2010		
13	O	13	O	5661900	Computerised tomography of limb	22/01/2010		

Another .sqr record

Message function=A1 PMS unique identifier=3265xxx Line=2151
 HCU ID=XXX2156 Local event ID=9 Health specialty code=S45
 Sex=M Event type=IP Principal service purchaser=35
 Birth date=05/08/1983 Start date=27/08/2009 Health agency code=10xx
 Ethnicity=21;; End date=16/09/2009 Hours on mechanical ventilation=
 Resident=Y Admission source=R Occupation code=
 Domicile code= Admission type=AC Birth weight=
 Country code= Admission weight= Gestation period=
 Suppress flag=N Event end type=DT Birth status=
 ACC status flag=Y Event leave days= Age of mother=
 AI claim number=GSNNNNN Birth location= Psychiatric leave end date=
 Hours on cpap= Psychiatric leave end type=
 Mothers NHI= Total ICU Hours= Transfer From= Transfer To=XXXX
 Client system identifier=1709xxx Total niv hours=

*** Load Error: [NZS1002E] domicile_code is a mandatory field

Diagnosis Num	Clinical Type	Sys Type	Code	Description	Date of Oper/Proc	Cancer Ext Injury	Melanoma Basis Stage	Lab level thickness code
1	A	13	B	S423	Fracture of shaft of humerus R			
2	B	13	B	S4181	Open wound (of any part of shoulder and			
3	B	13	B	S065	Traumatic subdural haemorrhage			
4	B	13	B	S042	Injury of trochlear nerve			
5	B	13	B	S313	Open wound of scrotum and testes			
6	B	13	B	S5250	Fracture of lower end of radius, unspeci			
7	B	13	B	S4200	Fracture of clavicle, part unspecified R			
8	B	13	B	S8081	Abrasion of L posterior thigh			
9	E	13	E	V2441	M/cycle rider in collision with truck	27/08/2009		
10	E	13	E	Y9240	Street and highway, roadway			
11	E	13	E	U739	Unspecified activity			
12	B	13	A	E876	Hypokalaemia			
13	B	13	A	D649	Anaemia, unspecified			
14	B	13	V	Z720	Tobacco use, current			
15	O	13	O	9058000	Debridement of open fracture site R hume	27/08/2009		
16	O	13	O	5013000	Application of external fixation device	27/08/2009		
17	O	13	O	9068601	Nonexcisional debridement of skin and su	27/08/2009		
18	O	13	O	9039700	Suture of laceration of scrotum or tunic	27/08/2009		
19	O	13	O	9251420	General anaesthesia, ASA 20	27/08/2009		
20	O	13	O	9068601	Nonexcisional debridement of skin and su	30/08/2009		

.ndw costweight file

WH,XXXX,XXX02767.ndw,00004,20050801,TEST

WT,1409690,1409690,GYJXXXX,XXXX,9,IP,13,S25.01,S25,05,
5.0,20050720,00003,D11Z,D11Z,06,0,00000,000000000.4881,

WT,1409693,1409693,GYJXXXX,XXXX,9,BT,13,W10.01,P30,05,
5.0,20050712,00001,P67D,P67D,06,0,00000,000000000.2801,

WT,1409696,1409696,GYJXXXX,XXXX,9,IP,13,S00.01,S00,05,
5.0,20050726,00006,J06A,J06A,06,0,00000,000000001.6296,

NMD Warehouse

- Weekly refresh of all new records into the NMD warehouse. E-mails sent to users when complete
- All reporting comes from the warehouse
- BO access is into the warehouse
- Includes additional derived fields not in transactional eg LOS
- BO universes are views of the data, not all of the data

Data is loaded into the NMDS
Phase 2 data quality work begins

Data quality – Formal MOH measures (IDPs, health targets)

1. NMDS timeliness
2. Quality of ethnicity reporting
3. Ambulatory sensitive (avoidable) hospitalisations
4. Elective and arranged inpatient LOS
5. Acute inpatient LOS
6. Acute readmissions to hospital
7. Elective and arranged day of surgery admissions
8. Better help for smokers to quit
9. Standard vs specific descriptors in the NMDS

Data Management DQ NMDS measures include

- Events with LOS >365 days
- Events with no outcome of delivery
- BT with no Z38
- MV hours and ICU hours
- A0 and acute admit type code
- Discharge date is after date of death
- NHIs with multiple BT events reported
- Events that ended after a hospital closed or before it opened

Monthly feedback to DHBs

Includes

- Death data
- Events with poor ethnicity
- Events that fell into error DRGs
- Events where DHB of Service is not DHB of domicile
- Timeliness by facility within each agency
- Events with unknown gender
- Possible duplicate events
- Events with purchaser code A0 but no ACC claim number or accident flag
- Acute events with an e-code and a primary diagnosis beginning with and S or T and the accident flag not equal to Y

Change process

Agreed with DHBs as part of the OPF

Annual process – go live 1 July

- Gather requirements
- MoH does its planning
- MoH notifies the sector (25 December)
- Meets with sector
- Compliance testing
- Goes live at MoH
- Goes live at DHBs
- Same process for every national collection

ICD and DRG versions (clinical code type code)

Financial year	ICD-10 edition	DRG version	Costweight version
99/00	1st edition	3.1 (map back to ICD9 to group)	WIES5
00/01	1st edition	4.1	WIES5a
01/02	2nd edition	4.2	WIES8A
02/03	2nd edition	4.2	WIES8B
03/04	2nd edition	4.2	WIES8C
04/05	3rd edition	4.2 (map back to 2nd edition to group)	WIES8C
05/06	3rd edition	5.0	WIES11a
06/07	3rd edition	5.0	WIES11b
07/08	3rd edition	5.0	WIES11c
08/09	6th edition	5.0 (map back to 3rd edition to group)	WIESNZ08
09/10	6th edition	5.0 (map back to 3rd edition to group)	WIESNZ09
10/11	6th edition	5.0 (map back to 3rd edition to group)	WIESNZ10
11/12	6th edition	6.0	WIESNZ11

Clinical coding system

Clinical Coding System Code

06	ICD9-CMA
10	ICD-10-AM first edition
11	ICD-10-AM second edition
12	ICD-10-AM third edition
13	ICD-10-AM sixth edition

- Shows the ICD version that the record was coded and submitted under
- Used in mapping files eg 1112 is a forward mapping from 11 to 12
1312 is a backward mapping file from 6th to 3rd editions

Areas of interest - occupation

NMDS includes two fields

- Occupation code
- Occupation free text

Issues – coding classification in NMDS outdated (NZSCO90), relevancy of occupation, costs of upgrading DHB systems, occupation at the time of admission

Occupation free text (70 characters) – from July 1999.

Changes in clinical practice

Affects time series patterns.

- Skin lesions, were outpatient procedures now lots done in GP office and reported to NN PAC
- Same day renal dialysis – even though >3 hours not reported to NMDS
- Scopes – some DHBs admit some do as outpatient
- Cataracts – all reported to NMDS event though less than 3 hours
- Change in funding for maternity – secondary can be casemix. Change in health specialty codes led to fewer NMDS events for antenatal, delivery, postnatal, from 2008
- New developments in ophthalmology treatment leads to fewer inpatient admissions
- New developments in cancer treatment leads to fewer admissions

Changes in data collection –

Hours on assisted ventilation

Collection requirements have changed over the years, for example

CPAP (continuous positive airway pressure)

- ▲ Reported before 30 June 2008 for neonates only
- ▲ Tied to procedure codes with business rules
- ▲ Moved to 6th edition and the new procedure codes captured a different concept so didn't map backward

Changed to collecting NIV (non invasive ventilation) hours.

- ▲ Reported for all patients
 - ▲ Includes CPAP, BiPAP, IPPB etc
- Refer to the data dictionary for more details (guide for use)

Standard vs specific descriptors

- Before 1995 DHBs manually recorded every code description – lots of specificity
- 1995 Codefinder software introduced Software included the standard description from the clinical code table
- Australian clinical coder workforce in NZ
- Incentives are about timeliness
- Over the last 4 years trying to build specificity into the descriptions again
- For external cause codes and S and T diagnoses
- For some cases the standard description will be accurate
- Depends on what is recorded in the notes

- Significant improvement since monitoring introduced

Standard vs specific descriptors

Improved specificity of external cause codes and traumatic injury codes via text description eg

W093 – standard description is –

Fall involving slide

NMDS code descriptions include more detail

- ▲ Flew off end of slide landing on back
- ▲ Fell from approx 1.6m from ladder going up to slide and fell backwards
- ▲ Fall involving slide onto right arm

ICD and DRG licensing arrangements

MoH buys a national licence for NZ hospitals to use the ICD-10-AM code table

MoH buys AR-DRG logic licence for NZ from the Australian Department of Health and Ageing

MoH buys 3M DRG grouper for NMDS loading

The ICD-10-AM/ACHI/ACS 6th or 7th edition and AR-DRG manuals, including the clinical code tables, are available from the National Casemix and Classification Centre (NCCC) –
<http://nccc.uow.edu.au/index.html>

Thank you

Any questions?

Please get back to us if you can see data quality issues in the data you use

DQ improvement is very much a partnership