



## Accuracy of the 'mode of separation' code for patients being transferred out and the 'source of referral' code for patients being transferred in to Queensland public hospitals, 2003/2004 to 2007/2008

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### Key findings

This report focuses on the accuracy of the 'mode of separation' code for patients being transferred out and the 'source of referral' code for patients being transferred in within the Queensland Hospital Admitted Patient Data Collection (QHAPDC). Accuracy of these data items was assessed by independently identifying inter-facility transfers using data linked as part of the Client Directory (CD) project (selected public facilities only) and examining coding of these data items for patients identified via the linkage process as transfers out and transfers in. Key findings of this analysis are:

- 84.8% of potential transfers out recorded a separation mode of 'transfer to another hospital'.
- 62.1% of potential transfers in recorded a referral source of 'admitted patient transferred from another hospital'. Admission through emergency (22.0%) and outpatient (6.1%) departments of the destination hospital were other leading sources of referral.

The increasing capacity for linking patient records across hospitals in projects such as the Client Directory project and in work being undertaken within the Health Statistics Centre at Queensland Health means that alternative methods are increasingly available for studying transfer patterns. However, the inaccuracy of mode of separation and source of referral fields as well as the admission and discharge times recorded in the admitted patient data means definitive identification of transfers will remain problematic. Work is needed to address the entry of data into admission and discharge time fields.

### 1.0 Background and purpose of the report

When a patient is transferred between hospitals, the Queensland Hospital Admitted Patient Data Collection (QHAPDC) should record at least two episodes for that patient: one at the transferring (or source) facility and another at the admitting (or destination) facility. The record at the source facility should indicate in the 'mode of separation' field that the patient was transferred to another hospital, and the record at the destination facility should indicate in the 'source of referral' field that the patient was transferred in from another hospital. We have previously found that the number of episodes identifying that a patient was transferred to another hospital do not match the number of corresponding episodes identifying that a patient was admitted as a result of a transfer from another hospital.

The purpose of this report is to determine the accuracy of the 'mode of separation' code for patients being transferred out and the 'source of referral' code for patients being transferred in within the Queensland Hospital Admitted Patient Data Collection (QHAPDC).

## 2.0 Methodology

The accuracy of the 'mode of separation' data item for transfers out and the 'source of referral' data item for transfers in was assessed by independently identifying inter-facility transfers using data linked as part of the Client Directory (CD) project and examining coding of these data items for patients identified via the linkage process as potential transfers out and transfers in.

### 2.1 The Client Directory (CD) project

Each patient is assigned a unit record number by the hospital when they are first admitted to that hospital. This patient identifying number is maintained across all subsequent admissions by the same patient to the same hospital. However, when the patient is admitted to a different hospital, the second hospital assigns them a unit record number according to their own system. Individuals admitted to (including transferred to) different hospitals accumulate multiple patient identifiers.

The Client Directory Project takes patient records from the Hospital Based Corporate Information System – admitted patient module (HBCIS) and links patient identifiers which correspond to the same individual. Records are linked based on patient identifying information (ie. name, date of birth, sex, address etc.). The outcome is a list of individual patients each identified by a Client Directory Number (CDN). Each CDN is associated with all episodes of care at all facilities attended by a patient.

CDNs are primarily designed to assist with patients' clinical management and record keeping. However, this linked data also allows for identification of patient flow and continuity of care across different facilities<sup>1</sup>.

Private hospitals are not included in the Client Directory Project. In addition, a number of smaller public acute care facilities and the Mater hospitals were excluded from the Project. These exclusions were due to several issues including the quality of identification variables for patients in these hospitals (ie. name, date of birth, address etc.). Included hospitals are listed in Appendix A.

### 2.2 Definition of a 'potential transfer'

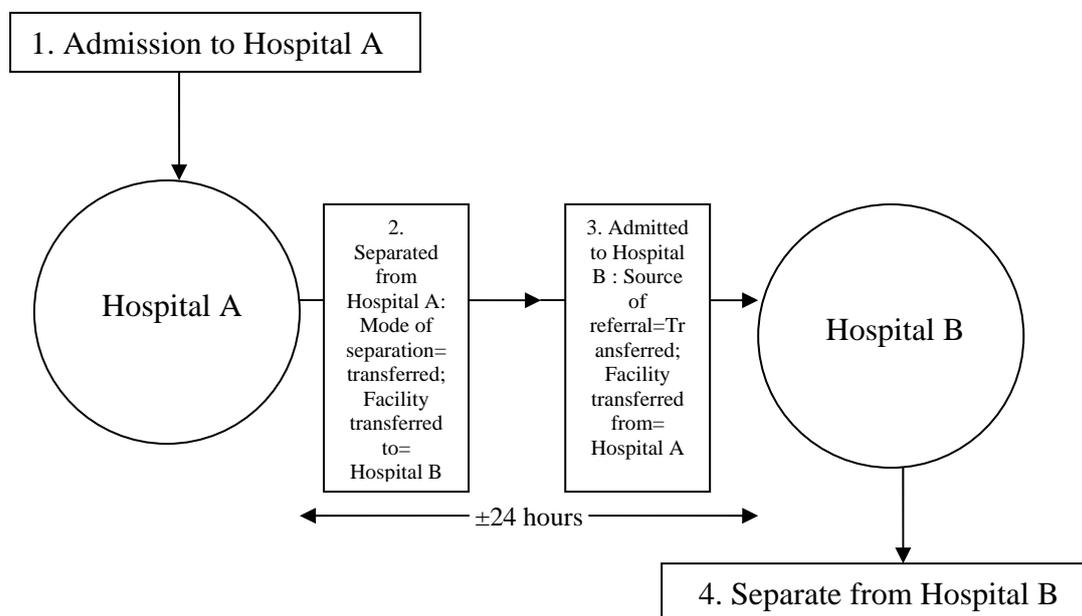
CDNs were merged onto QHAPDC data for the period 2003/04 – 2007/08\*. Based on this linked data, if a patient was separated from one facility and re-admitted to a different facility within 24 hours, this was considered to be a 'potential transfer'. To account for suspected inaccuracies in recording of discharge and/or admission time, if an admission at Hospital B took place within the 24 hours before the separation at Hospital A it was also treated as a 'potential transfer'. Figure 2.2.1 provides a schematic

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\* CD data were extracted in September 2008

representation of a correctly recorded patient transfer. Identification of ‘potential transfers’ was based only on time and the patient identifier. No other variables were used to validate the link.

**Figure 2.2.1 Schematic representation of a correctly recorded patient transfer**



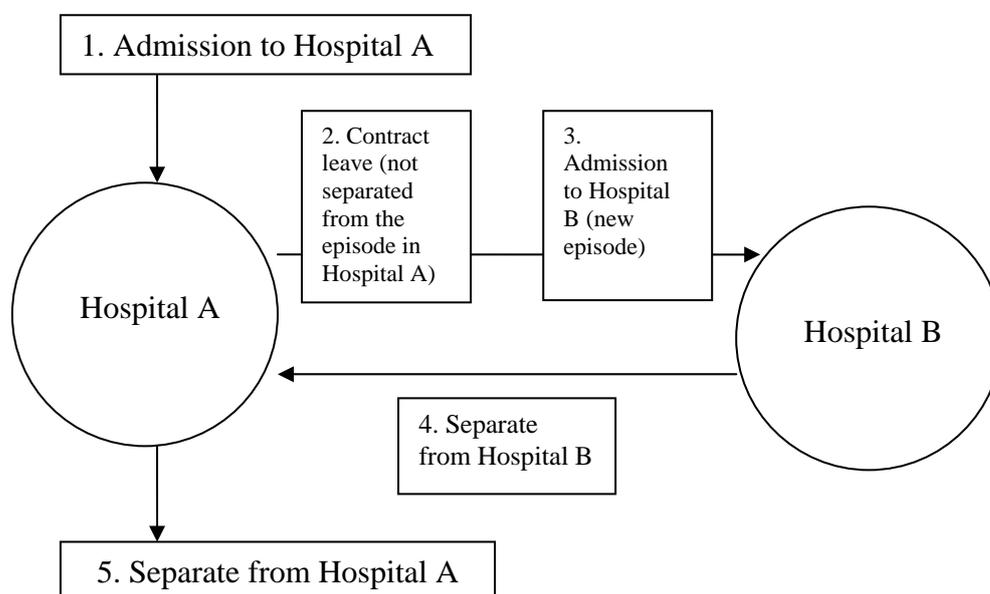
### 2.3 Exclusions

Episodes with care type of organ procurement were excluded from the analysis as technically a deceased person cannot be re-admitted. Episodes from psychiatric hospitals were also excluded as there were cases where these facilities were regarded as the patient’s usual residence, which inflated the number of incorrectly recorded transfers.

Episodes incorporating contract leave were also excluded from the analysis where possible. Contract leave is an arrangement made between two facilities allowing a patient to be admitted to a different hospital and to return without being separated from the original facility<sup>2</sup>. Figure 2.3.1 illustrates a schematic presentation of a Type 2 (ABA) contract leave.

The QHAPDC includes information on contract leave, however, completion of this information seems to be very poor. Attempts to determine the existence of contract leave based on this information exaggerated the number of possible transfers and had the potential to omit those possible transfers which were of interest for this report. To overcome this problem, a record was excluded if the admission time of a patient in hospital B was **after** the admission time in hospital A, **and** the separation time from hospital B was **before** the separation from hospital A. This has the potential to exclude cases of interest if the times were recorded inaccurately at both facilities and also, applying this criterion did not rule out all the potential contract leave episodes. However, this approach considerably reduced the impact of the problem outlined above on analyses.

Figure 2.3.1 Schematic representation of a Type 2 contract leave between hospitals



### 3.0 Results

#### 3.1 Quality of mode of separation recorded by source facility

Table 3.1.1 shows the mode of separation of ‘potential transfers’ out recorded by the source facility. The most commonly recorded separation mode was ‘transfer to another hospital’ (84.8%) followed by ‘home/usual residence’ (12.0%) and ‘other health care accommodation’ (2.3%), which includes alcohol and drug centres.

Table 3.1.1 Mode of separation recorded by the source facility of ‘potential transfers’, selected public hospitals, Queensland 2003/2004 to 2007/2008

Mode of separation	Count	Percent
Transfer to another hospital	114,595	84.8
Home/usual residence	16,263	12.0
Other health care accommodation	3,159	2.3
Discharged at own risk	404	0.3
Other	336	0.2
Boarder	204	0.2
Residential Aged Care Service	90	0.1
Non return from leave	56	<0.1
Correctional facility	37	<0.1
Episode change	6	<0.1
Died in hospital	5	<0.1
Medi-hotel	1	<0.1
<b>Total</b>	<b>135,156</b>	<b>100</b>

### 3.1.1 Further investigation of 'died in hospital' mode of separation

There were five records with a recorded separation mode at the source hospital of 'died in hospital' (Table 3.1.1). Closer examination of these records found that:

- One appeared to be the result of an incorrectly recorded admission time at either the source or the destination hospital, where the admission time recorded at the destination facility was prior to the admission time recorded at the source facility.
- The remaining four cases recorded in-hospital deaths of the same patient at multiple hospitals (i.e. at the source and destination hospitals).

### 3.1.2 Further investigation of 'episode change' mode of separation

'Episode change' was recorded as the separation mode for six 'potential transfers' (Table 3.1.1). Further investigation revealed that these were contract leave episodes with incorrectly recorded times.

## 3.2 Quality of source of referral recorded by destination facility

The sources of referral recorded by the destination facilities for 'potential transfers' identified in CD linked data are shown in Table 3.2.1. The most commonly recorded source of referral was 'admitted patient transferred from another hospital' (62.1%), followed by 'emergency department – this hospital' (22.0%), 'outpatient department – this hospital' (6.1%) and 'non-admitted patient referred from another hospital' (5.4%).

**Table 3.2.1 Source of referral recorded by destination hospitals of potential transfer episodes, selected public hospitals, Queensland 2003/2004 to 2007/2008**

Source of Referral	Count	Percent (%)
Admitted patient transferred from another hospital	83,870	62.1
Emergency department – this hospital	29,756	22.0
Outpatient department – this hospital	8,297	6.1
Non-admitted patient referred from another hospital	7,285	5.4
Other health care establishment	2,075	1.5
Routine readmission not requiring referral	1,832	1.4
Private medical practitioner (not psychiatrist)	681	0.5
Community service	467	0.4
Boarder	344	0.3
Correctional facility	179	<0.1
Other	134	<0.1
Law enforcement agency	95	<0.1
Residential aged care service	75	<0.1
Other hospital – not contract	36	<0.1
Born in facility	13	<0.1
Episode change	10	<0.1
Private psychiatrist	7	<0.1
<b>Total</b>	<b>135,156</b>	<b>100.00</b>

### 3.2.1 Emergency or outpatient department source of referral

The relatively high proportion of emergency department (22.0%) or outpatient department (6.1%) referrals (Table 3.2.1) indicates that when a patient is transferred from another facility, the subsequent transfer in at the destination facility may originate in the emergency or outpatient department. Although admission via this path is plausible, the source of referral for all patients transferred from another hospital for a continuation of care should technically be recorded as 'admitted patient transferred from another hospital'<sup>2</sup>

### 3.2.2 Further investigation of 'born in facility' source of referral

There were 13 records for which the source of referral recorded in the destination facility was 'born in facility' (Table 3.2.1). Further analysis of these records revealed that:

- 5 of the cases were not true transfers. The records were incorrectly linked in the CD project.
- The remaining 8 records were likely to be due to the recording of referral source of 'born in facility' of the same baby twice at both the source and destination facilities. The separation mode was correctly recorded by the source facility as 'transfer to another hospital', but the referral source in the destination facility was 'born in facility' rather than 'admitted patient transferred from another hospital'.

## 4.0 References:

1. Fahey, P., Howell S., Breckell, C. *A summary of the Client Directory's coverage of Queensland public acute hospitals, 2006/2007*. Health Statistics Centre, Queensland Health
2. Data Collections Unit. *2008.2008/2009 Queensland Hospital Admitted Patient Data Collection Manual of instructions and procedures for the reporting of QHAPDC data*. Queensland Health

**Appendix A: List of Queensland acute care hospitals included in the Client Directory Project Data**

Facility code	Facility name	Facility code	Facility name	Facility code	Facility name
00004	The Prince Charles	00094	Inglewood	00171	Clermont
00007	Royal Children's	00095	Jandowae	00172	Mackay
00011	Princess Alexandra	00097	Miles	00173	Moranbah
00015	Ipswich	00098	Millmerran	00174	Proserpine
00016	Redcliffe	00099	Oakey	00175	Sarina
00022	Queen Elizabeth II	00100	Stanthorpe	00176	Dysart
00024	Wynnum	00101	Tara	00191	Ayr
00028	Redland	00102	Taroom	00192	Bowen
00029	Logan	00103	Texas	00193	Charters Towers
00030	Caboolture	00104	Toowoomba	00194	Collinsville
00041	Beaudesert	00105	Warwick	00195	Home Hill
00042	Boonah	00111	Augathella	00196	Ingham
00043	Caloundra	00112	Charleville	00197	Joyce Palmer HS
00044	Esk	00113	Cunnamulla	00200	Townsville
00045	Gatton	00114	Dirranbandi	00201	Royal Brisbane and Women's
00046	Kilcoy	00115	Injune	00211	Atherton
00047	Laidley	00116	Mitchell	00212	Babinda
00048	Maleny	00117	Mungindi	00213	Bamaga
00049	Nambour	00118	Quilpie	00214	Cairns
00050	Gold Coast	00119	Roma	00215	Chillagoe
00061	Biggenden	00120	St George	00216	Cooktown
00062	Bundaberg	00121	Surat	00217	Croydon
00063	Cherbourg	00122	Thargomindah	00218	Forsyth
00064	Childers	00131	Alpha	00219	Georgetown
00065	Eidsvold	00132	Baralaba	00220	Gordonvale
00066	Gayndah	00133	Biloela	00221	Herberton
00067	Gin Gin	00134	Blackwater	00222	Innisfail
00068	Gympie	00135	Emerald	00223	Mareeba
00069	Hervey Bay	00136	Gladstone	00224	Mossman
00070	Kingaroy	00139	Mount Morgan	00225	Mount Garnet OPC
00071	Maryborough	00140	Moura	00226	Thursday Island
00072	Monto	00141	Rockhampton	00227	Tully
00073	Mount Perry HC	00142	Springsure	00228	Weipa
00074	Mundubbera	00143	Theodore	00243	Cloncurry
00075	Murgon	00144	Yeppoon	00244	Hughenden
00076	Nanango	00151	Aramac	00246	Mount Isa
00077	Wondai	00152	Barcaldine	00248	Richmond
00091	Chinchilla	00153	Blackall	00908	Dimbulah OPC
00092	Dalby	00156	Longreach	00917	Malanda OPC
00093	Goondiwindi	00159	Winton	00920	Millaa Millaa OPC
				00924	Ravenshoe OPC