Agreement between diagnosis recorded in Emergency Department and admitted patient data, Queensland Hospitals, 2007/08

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Hospital Emergency Department (ED) data collection systems are utilised for a number of purposes, such as to monitor, report and manage ED workloads and performance. ED data has also been explored as a potential source for secondary purposes, such as developing population health surveillance systems[1]. A patient's diagnosis is often central to such monitoring, reporting or management purposes, and accuracy and consistency in recording of diagnosis is particularly important. Previous analysis of ED data in Queensland has suggested that the quality of the diagnosis field in ED data is variable, with large proportions of missing or non-descriptive codes observed at some facilities[2].

In order to broadly assess the usefulness of diagnosis codes assigned in the ED in Queensland hospitals, the agreement between diagnosis as coded in ED data with that assigned to admitted patients was assessed in Queensland for 2007/08. ED records for those patients who were admitted to hospital following their ED presentation were linked to admitted patient records in the Queensland Hospital Admitted Patient Data Collection (QHAPDC). The linkage methodology has been described in a previous report[3]. The diagnosis field in the ED data is designed to capture the diagnosis of a non-admitted patient in the ED and there is a single field for recording the primary diagnosis. In QHAPDC, both a principal diagnosis (PD) as determined at separation from hospital and unlimited 'other' diagnoses are recorded. Diagnoses in both the ED and QHAPDC data sets are coded using the *International Statistical Classification of Diseases and Health Related Problems, Tenth Revision, Australian Modification* (ICD-10-AM).

We analysed consistency of diagnosis by comparing the ICD-10 coding at the 3-character core classification level (eg. K35: Acute appendicitis), the more detailed 4-character level (eg. K35.1: Acute appendicitis with peritoneal abscess), and the 5-character level.

As shown in Table 1, at the 3-character level, approximately 46% of the ED data recorded the same diagnoses as the principal diagnosis field in the QHAPDC data. This increased to 55% if other diagnoses recorded in QHAPDC were also considered. The proportion dropped to 28% and 34% respectively at the more detailed 5-character code level. The matching proportions were marginally higher when the ED data were compared to observation or ED ward admissions only, with 49% of the ED diagnoses matching the corresponding PD upon admission at the 3-character level.

Table 1. Proportion of emergency department presentations for which diagnosis codes* matched the corresponding hospital admission diagnosis codes, Queensland, 2007/08**

	ICD-10-AM diagnosis code level		
QHAPDC Diagnosis**	3-character	4-character	5-character
Principal Diagnosis (PD)	46%	30%	28%
PD or Other Diagnosis	55%	36%	34%

* as recorded in the Emergency Department (ED) data upon departure from the ED. Diagnosis codes were not reported for 0.4% of linked records. The proportion of all ED records with a diagnosis not recorded was 1.1%[2].
** hospital admission diagnosis code recorded in the Queensland Hospital Admitted Patient Data Collection (QHAPDC)

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2. Johnston T, Endo T. (2009). Data quality issues impacting on reporting on presentations to emergency departments in Queensland hospitals: Data quality issues in emergency department data 2007/08 update. Technical Report – Emergency Department data report #2, Health Statistics Centre, Queensland Health.
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