



**Queensland
Government**

‘Current’ vs. ‘Ever’ coded diabetes – How many diabetics are in Queensland public hospitals?

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Type I and Type II diabetes are chronic, non-curable diseases; meaning once a patient develops, or is diagnosed with diabetes, they will need to have treatment for life. Developing diabetes doesn't automatically mean that diabetes will always be coded for a patient, for every subsequent hospital episode post diagnosis. Diabetes can only be currently coded as a principal diagnosis or as an additional or other diagnosis if it meets the requirements as specified by the Australian Coding Standards.

“The national morbidity data collection is not intended to describe the current disease status of the inpatient population, but rather, the conditions that are significant in terms of treatment required, investigations needed and resources used in each episode of care.”¹

The coding of diabetes has been impacted by changes in specific Australian Coding Standards between ICD-10-AM editions^{2,3}. The change from the sixth edition to the seventh edition ICD-10-AM has had a considerable impact on the number of episodes with diabetes coded, with a greater focus on cause and effect than the previous edition. Changes in the coding standards can also have flow-on effects to influence clinical indicators which are based on the hospital morbidity data⁴, for example: potentially preventable hospitalisations. An approach to usurp the problematic coding changes would be to identify diabetes for all admissions where it is present, regardless of the relationship to the cause of admission and requirements of the Australian Coding Standards.

This report aims to compare the number of episodes that are ‘currently’ coded with diabetes with the number of episodes where the patient has been previously or ‘ever’ coded with diabetes. The intent is to ascertain potentially how many diabetics have hospital episodes which are not coded with diabetes.

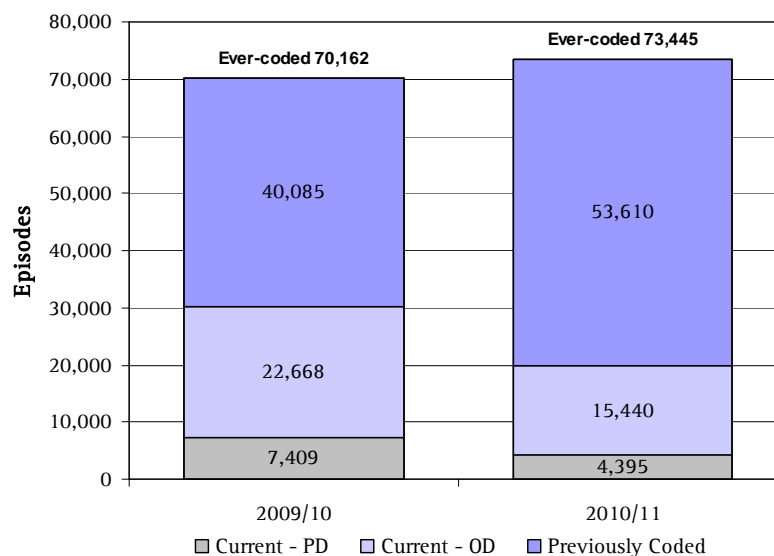
Data were extracted from Queensland Hospital Admitted Patient Data Collection (QHAPDC) from 1 July 2002 to 30 June 2011 (extracted September 2011). The Queensland Hospital Client Directory was used to allow the linkage of episodes for an individual patient across selected public hospitals in Queensland. Patient episodes with Type I (E10.x) or Type II (E11.x) diabetes coded were used to determine if a patient had been ‘ever’ coded with diabetes. Accordingly a future episode (post the first episode with a diagnosis of diabetes) for a patient coded with diabetes was determined to be an ‘ever’ coded diabetic episode. Episodes with a principal diagnosis of renal dialysis (Z49.x) were excluded due to the known inconsistent coding practices of diabetes as co-morbidities across different facilities in Queensland⁴.

Overall

In 2009/10 there were an estimated 70,162 episodes of care in Queensland public hospitals where the patient had been 'ever' coded with diabetes. This comprised 30,077 episodes (43%) which were coded with diabetes ('current') and 40,085 episodes (57%) where the patient had been previously coded with diabetes. (Figure 1)

In 2010/11 the overall number of 'ever' coded episodes increased by 4.6% to 73,445 episodes. Coinciding with the changes from sixth to seventh edition ICD-10-AM the proportion of episodes coded with 'current' diabetes dropped to 27% (19,835), a fall of just over 10,000 episodes or a 33% decline from the previous year. The reduction occurred in the coding of both principal diagnoses (PD) and other diagnoses (OD) episodes*.

Figure 1 'Current' vs. 'Ever' coded diabetes episodes, Queensland, 2009/10 – 2010/11p



p – preliminary. Subject to change.

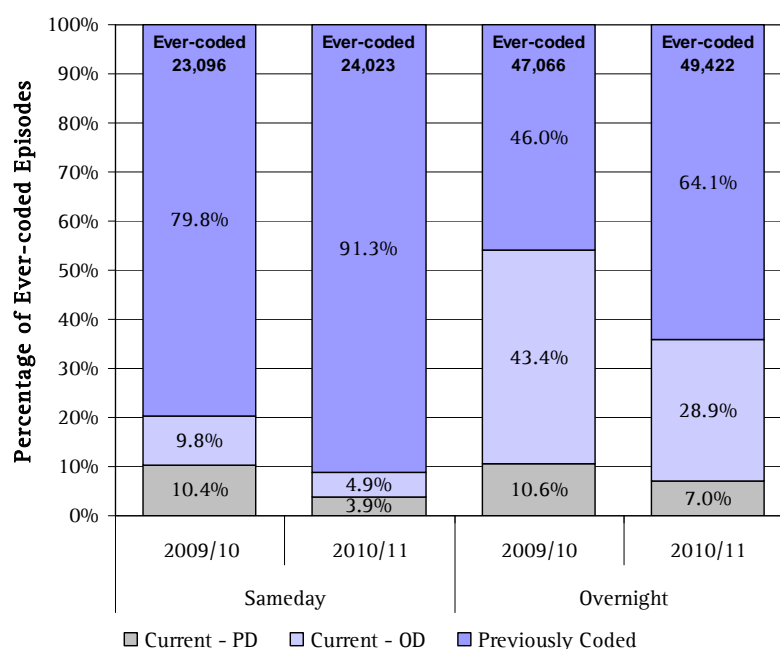
Source: Queensland Hospital Admitted Patient Data Collection

Sameday vs. Overnight

There were an estimated 24,023 sameday 'ever' coded episodes of care in 2010/11, of which 9 out of 10 sameday episodes did not have diabetes coded (Figure 2). In both 2009/10 and 2010/11 sameday episodes were less likely to be coded with diabetes than overnight (one night or more) patients, but this reflects current coding standards.

The change from sixth to seventh edition reduced the coding of diabetes in sameday episodes by over 50% from 20% (4,661) in 2009/10 to 9% (2,098) in 2010/11, with a similar fall in both PD and OD. In 2009/10 just over half (54%) of overnight episodes were coded with diabetes, this proportion has fallen to just above one out of three episodes (36%) in 2010/11.

Figure 2 'Current' vs. 'Ever' coded, by sameday and overnight, Queensland, 2009/10 – 2010/11p



p – preliminary. Subject to change.

Source: Queensland Hospital Admitted Patient Data Collection

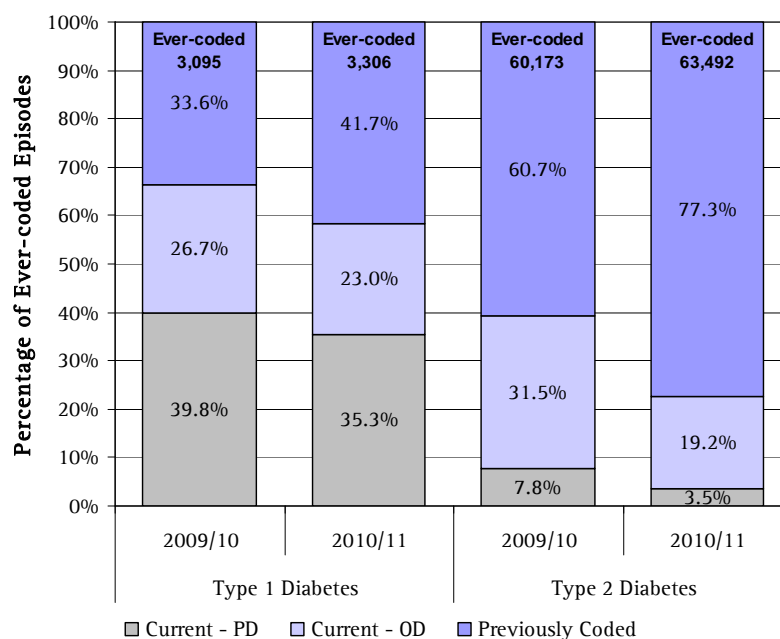
* Note: Where an episode had diabetes coded as both a PD and OD it was counted only as a PD

Type I vs. Type II

In comparing type 1 and type 2 diabetes it is important to understand the underlying differences in the etiology and hence, fundamental differences in each patient group. In part this can be seen through each diabetes type with type 1 coded as a principal diagnosis much more often than type 2 diabetes. Also noteworthy is the considerable difference in the overall total volume of episodes with type 2 having approximately 20 times as many episodes as type 1[†]. (Figure 3)

In comparing the proportion of patients currently coded with diabetes, type 1 is much more likely to be coded than type 2. The proportion of type 1 diabetes coded remained relatively stable between 6th and 7th editions with only a small reduction from 66% in 2009/10 to 58% in 2010/11. Interestingly despite the nature of type 1 diabetes there were still approximately 4 out of 10 episodes in 2010/11 which were not currently coded with type 1 diabetes.

Figure 3 'Current' vs. 'Ever' coded, by diabetes type, Queensland, 2009/10 – 2010/11p



p – preliminary. Subject to change.

Source: Queensland Hospital Admitted Patient Data Collection

Limitations of Analysis

There are some limitations to the totality of this analysis as in principle it is dependant on a patient having a previous admission to hospital which identifies them as a diabetic. The identification of 'ever' coded with diabetes is dependent on the historical coding for the patient at selected public hospitals post 2002/03. In part this limits the possible identification of some diabetic patients and would result in the under-estimation of the total number of diabetic patients admitted to Queensland hospitals. For example where a patient had no prior admission or an episode prior to 2002/03, they would not be identified in this study unless the episode in the financial year of interest was coded with diabetes.

In part these limitations would suggest that there are potentially more hospitalisations of diabetic patients to Queensland hospitals than identified through this analysis. Further the total number of patients identified within QHAPDC would be a considerable under-estimation of the total cohort of diagnosed diabetics in the population as a considerable proportion of the population may not have had a hospital episode during the period of interest.

[†] Approximately 5% of patients 'ever' coded with diabetes had both Type 1 and 2 diabetes recorded. This is likely to be error, as an individual cannot have both types of diabetes; neither can they shift from one condition to the other. These patient records were excluded when analyses were done by type of diabetes.

Table 1 Summary table of records included in this report

Data	2009/10	2010/11	% Change
Number of individual patients with type 1 or type 2 diabetes identified in QHAPDC between 2002/03 to 2010/11 [‡]	91,179	95,327	4.5%
Number of unique diabetic patients admitted to the hospitals during the period	28,433	28,768	1.2%
Ever diabetes episodes	70,162	73,445	4.7%
Current diabetes episodes	30,077	19,835	-34.1%
Principal Diagnosis	7,409	4,395	-40.7%
Other Diagnosis	22,668	15,440	-31.9%

References

- 1 National Centre for Classification in Health (NCCH). Australian Coding Standards Sixth Edition – 1 July 2008. In: The International Statistical Classification of Diseases and Health Related Problems, Tenth Revision, Australian Modification (ICD-10-AM). Sydney: NCCH; 2008.
- 2 Knight L, Halech R, Martin C, Mortimer L. Impact of changes in diabetes coding on Queensland hospital principal diagnosis morbidity data. Technical Report (In print). Brisbane: Queensland Health; 2011
- 3 Knight L, Halech R, Mortimer L. Changes in diabetes coding from the fifth to the sixth and seventh editions of ICD-10-AM Technical Report #8. Brisbane: Queensland Health 2011.
- 4 Wills R, Houweling H, Martin C. Introduction of reporting of 'Queensland Health selected potentially preventable hospitalisations'. Technical Report #5. Brisbane: Queensland Health; 2009.

[‡] Excludes patients who were recorded as 'died in hospital' in previous years or in the specified year. It is recognised that counts may include people who died outside of the selected public hospitals.