Principal diagnosis

Identifying and Definitional Attributes

Data Dictionary:	NHDD		
Knowledgebase ID:	000136	Version number:	1
Metadata type:	DATA ELEMENT		
Registration Authority:	NHIMG	Admin status:	SUPERSEDED
		Effective date:	30-JUN-93

Definition: There are two definitions of principal diagnosis in common use:
1. That condition which best accounts for the period of stay. This definition is used by most States in Australia and is sometimes phrased in terms of ?that condition which consumes the greatest resources? (Hindle 1988b).
2. The diagnosis or condition established after study to be chiefly responsible for occasioning the admission of the patient to hospital. This is used by South Australia, Department of Veterans? Affairs (at least in South Australia and Tasmania) and in the USA.

Where principal diagnosis is recorded prior to discharge (as in the annual census of public psychiatric hospital in-patients), it is the current provisional principal diagnosis. Only use the admission diagnosis when no other diagnostic information is available. Of course, the current provisional diagnosis will often be the same as the admission diagnosis.

Context: The principal diagnosis is one of the most valuable data items in the National Minimum Data Set. It is used for epidemiological research, casemix studies and planning purposes.

All States and Territories have moved or are moving to the use of ICD-9-CM. This coding of diagnoses is required by Diagnosis Related Group groupers.

Relational and Representational Attributes

Datatype:	Numeric
Representational form:	CODE
Representation layout:	?

Minimum Size: 5

Maximum Size: 5

Data Domain: NOVAL — ICD-9-CM at the 5-digit level. Where conditions require an aetiology and a manifestation code, the latter should be coded as the principal diagnosis and the aetiology coded as an additional diagnosis. This is the opposite of the convention used for ICD-9 coding.

Related metadata: has been superseded by Principal diagnosis - ICD-9-CM code version 2
is a qualifier of Principal procedure version 1
is a qualifier of Principal procedure version 2
is a qualifier of Principal procedure - ICD-9-CM code version 3
is used in the derivation of Major diagnostic category version 1
is an alternative to Nature of main injury - non-admitted patient version 1
is an alternative to Bodily location of main injury version 1

Administrative Attributes

Source Document:

Source Organisation: National minimum data set working parties

Comments: These comments are based on position papers submitted to the Morbidity Working Party by its South Australian representative, John Pilla, and by Don Hindle (1988b) and on a study by Roberts et al. (1985) of the effect on Diagnosis Related Group classification of the two definitions.

Roberts et al. coded 1,064 medical records according to the two definitions (referred to hereafter as the Australian and the USA definitions respectively). They found that the principal diagnosis differed according to the two definitions in 6.4 per cent of the 1,064 cases. This led to a change in Diagnosis Related Group in 4.0 per cent of the total cases. As the multiple diagnoses were the only ones for which potential existed for a change in principal diagnosis, the records for which principal diagnosis and Diagnosis Related Group changed were 1.6 per cent and 7.4 per cent respectively as a proportion of the number of patients with multiple diagnoses (which was 557 of the total sample).

Roberts et al. concluded that the use of the Australian interpretation of principal diagnosis should not deter us from using Yale Diagnosis Related Groups. In fact, it should move some patients to a Diagnosis Related Group which better reflects their

use of resources. However, it may lead to other problems such as more frequent classification to DRG 468 (operating theatre procedure unrelated to principal diagnosis).

Pilla gave four reasons for preferring the USA definition over the Australian definition.

1. Consistency
By defining the principal condition as that which caused the admission, the coder is able to make a more objective decision about which diagnosis becomes principal.

2. Quality assurance
There is value in using the USA definition as a tool in quality assurance. Patients with a particular principal diagnosis who have an unusual length of stay would be highlighted in any review. If the length of stay is the factor that determines the principal diagnosis, then any length of stay is more easily justifiable.

3. Purposes of a morbidity collection
One of the main uses of a morbidity collection is to determine the reason for admissions to hospitals. This is most easily done by referring to principal conditions which have been assigned on the basis of the USA definition.

4. Effect on Diagnosis Related Groups
Since the Diagnosis Related Group system was derived on the basis of the USA definition, this definition is to be preferred a priori. Hindle (1988b) also argues that the USA definition is preferable for use with Diagnosis Related Groups. He gives the example of the elderly person who is admitted for acute care (say, fractured neck or femur), and who subsequently remains for an indefinite period for nursing care.

According to the Australian definition, this patient would have a principal diagnosis of 820.8, and therefore be assigned to DRG 236 (fractures of hip and pelvis).

This problem is resolved by the recommendation of the Morbidity Working Party that patients be discharged and readmitted upon change of status so that the acute and non-acute episodes are separate (see comment to item P21). In those States where changes of status are recorded within a single discharge summary, the working party recommended that the principal diagnosis relate to the acute part of the episode.

Unlike Hindle and Pilla, Reid (1991) argued that problems of consistency were greater for the USA definition than the Australian definition. For complex cases in which there are several conditions present at admission, it is usually easier to judge which condition consumes most resources (using costing studies or medical benefits schedules) than to judge which is the reason for admission. For multiple trauma cases - for example, motor vehicle accident - it is not possible to logically choose one of the injuries as the principal reason for admission, but it is possible to rank them according to cost of procedures required for treatment of the injuries using the medical benefits schedule.

In practice, the discrepancies between States arising from the use of the different definitions of principal diagnosis are likely to be much less significant than errors arising from diagnostic errors (due to the inherent fuzziness of the underlying clinical data) or errors in selection of the principal diagnosis. According to Reid (1988), clinicians often use an underlying cause definition of principal diagnosis which is probably the result of training in the completion of death certificates.

The Morbidity Working Party thus decided to accept data based on either definition in the National Minimum Data Set, and not to specify one or other definition as the preferred definition.

Public psychiatric hospitals
The relative merits of ICD-9 and DSM-3 were discussed. Psychiatrists all use DSM-3 instead of ICD-9 and this affects the distribution of principal diagnosis. DSM-3 Axis 1 diagnosis is usually written down as principal diagnosis. This is not always correct and affects results. Some diagnoses never appear as principal, although they should be according to the Australian or USA definition of principal diagnosis.

All systems use ICD-9 in coding, but psychiatrists would probably prefer DSM-3 (DSM-4 is to be released soon) which dominates psychiatric training.

The Psychiatric Working Party decided to recommend ICD-9-CM as the preferred coding system (all acute hospital morbidity systems are using this, or will be, but not all State psychiatric systems are using this) and decided that at the national level there was no need to include DSM-3. For a national minimum data set, international comparisons had also to be borne in mind.

Nursing homes
The NH5 requires a qualified medical practitioner to complete details of major medical diagnoses, duration and medication / treatments. Principal diagnosis is clearly not coded for nursing homes and cannot therefore be easily transcribed to a data set.

Dr Howe pointed out that principal diagnosis is not widely in use in nursing homes and would need development. Issues would also arise as to whether it was the condition on admission, discharge or some interval in between.

The Nursing Homes Working Party considered recommending a small number of principal diagnosis options, along the lines of the provisional diagnosis boxes 1-9 in the New South Wales Health Department Census of Long-stay Institutions and Long-stay Patients in Acute Hospitals. However, this did not cater for the multiple conditions common in the elderly. The working party generally queried the relevance of principal diagnosis to nursing homes and finally rejected this item.

In relation to this Dr Howe pointed out that, while diagnosis may not be as important as in acute hospitals in relation to care needs, it is still very important in explaining why people are being admitted to nursing homes and so is of importance for other studies. She suggested that it might be useful to group diagnoses into 'physical' and 'mental', if ICD-9 provides for such a division.

In addition to principal diagnosis, all other clinical data items relevant to acute hospitals and private psychiatric hospitals in the National Minimum Data Set (additional diagnosis, principal procedure, additional procedures, external cause, place of occurrence of external cause and Diagnosis Related Group - derived) were not considered relevant to nursing homes.

Data Element Links

Information Model Entities linked to this Data Element

NHIM Physical wellbeing

Data Agreements which include this Data Element