



Health Insurance (Professional Services Review — Sampling Methodology) Determination 2000 (No. 1)

I, MICHAEL WOOLDRIDGE, Minister for Health and Aged Care, make this Determination under subsection 106K (3) of the *Health Insurance Act 1973*.

Dated 2000

Minister for Health and Aged Care

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Section 1

Part 1 Preliminary**1 Name of Determination**

This Determination is the *Health Insurance (Professional Services Review — Sampling Methodology) Determination 2000 (No. 1)*.

2 Commencement

This Determination commences on gazettal.

3 Purpose

This Determination specifies the content and form of a sampling methodology that may be used by a Committee in making findings for an adjudicative referral.

4 Application

- (1) This Determination applies if the Committee decides, in respect of conduct in connection with rendering or initiating the services included in a particular class of the referred services, to have regard only to a sample of the services included in the class.
- (2) The sampling methodology in Part 2 applies to:
 - (a) individual items and multiple item episodes in classes of services; and
 - (b) individual items and multiple item episodes in classes of patients.

5 Definitions

In this Determination:

Act means the *Health Insurance Act 1973*.

class size, in relation to a sample, means the number of services rendered or initiated in the particular class of referred services from which a sample is chosen.

exploratory sample has the meaning given in section 8.

final random sample has the meaning given in section 10.

preliminary random sample has the meaning given in section 6.

Note 1 The following terms that are used in this Determination are defined in subsection 3 (1) of the Act:

- initiate
- patient.

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Note 2 The following terms that are used in this Determination are defined in section 81 of the Act and have the same meaning in this Determination as in Part VAA of the Act:

- Committee
- inappropriate practice
- person under review
- referral
- referred services
- service.

Part 2 Sampling methodology

6 Preliminary random sample

In having regard, under subsection 106K (1) of the Act, only to a sample of the services included in a particular class of referred services, a Committee must ensure that the sample (the *preliminary random sample*) is a random sample.

7 Appropriate sample size

- (1) The preliminary random sample must be of an appropriate sample size to enable prediction with 95% confidence that the percentage of services constituting inappropriate practice worked out from the sample is within $\pm 10\%$ of the actual percentage of inappropriate services rendered or initiated in the class of referred services sampled, at a hypothesised incidence of inappropriate practice of 50% of services rendered or initiated (the incidence requiring the largest sample).
- (2) For a class of services specified in a referral, the appropriate sample size of the preliminary random sample is at least:

$$\frac{N}{1+0.01(N-1)}$$

where:

N = class size.

- (3) If the appropriate sample size worked out is not a whole number, it must be rounded up to the next whole number.

8 Exploratory sample

In making a finding based on statistical sampling, the Committee must:

- (a) examine a sample, preferably of 30 or more services (but not less than 25 services) (the *exploratory sample*), randomly drawn from the preliminary random sample; and
- (b) determine whether or not each of those services constitutes inappropriate practice.

9 Percentage of inappropriate practice in exploratory sample

- (1) After the Committee has determined which of the services in an exploratory sample constitute inappropriate practice, it must work out the percentage of services in the sample that constitutes inappropriate practice.
- (2) The percentage must be expressed as a whole number (being, if necessary, rounded down to the nearest whole number).

10 If percentage of inappropriate practice is 20% or more

- (1) If the percentage worked out under section 9 is 20% or more, the Committee must examine other services from the preliminary random sample until it has examined a random sample (the *final random sample*) of the size worked out as follows:

$$\frac{N (4 d (1 - d) + 0.01)}{4 d (1 - d) + 0.01 N}$$

where:

$d = 0.01 \times$ the percentage of inappropriate practice worked out under section 9.

$N =$ class size.

- (2) If the size of the final random sample is less than the size of the exploratory sample examined by the Committee, the size of the final random sample is taken, for section 11, to be the same size as the exploratory sample.

Example

If the size of the exploratory sample is 30 and the size of the final random sample worked is less than 30, the size of the final random sample is taken to be 30.

11 Percentage of inappropriate practice in final random sample

- (1) The Committee must determine whether or not each of the services included in the final random sample constitutes inappropriate practice and then work out the percentage of services in that sample that constitutes inappropriate practice.
- (2) The percentage must be expressed as a whole number (being, if necessary, rounded down to the nearest whole number).
- (3) The percentage worked out must be reduced by 10 percentage points and the resulting percentage is taken to be the Committee's finding of the percentage of services in the class of referred services that constitutes inappropriate practice.

Note Call the percentage worked out in subsection (1) or (2) 'x'. To a confidence level of 95%, the percentage of services in the sample worked out to constitute inappropriate practice is within the interval $(x \pm 10\%)$. For the purposes of the Committee's findings, the lower limit of that interval (ie, $x - 10\%$) is to be used.

- (4) However, if the final random sample is found to include services that are not identifiable, the Committee's finding of the percentage of services in the class of referred services that constitutes inappropriate practice is the percentage constituting inappropriate practice:
- (a) in the final random sample reduced by the omission of those services that are not identifiable; and

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- (b) reduced by the number of the percentage points worked out as follows:

$$100 \times \sqrt{\frac{4d(1-d)(N-s)}{N(s-1)}}$$

where:

d = $0.01 \times$ the percentage of inappropriate practice based on the reduced final random sample, expressed as a whole number (being, if necessary, rounded down to the nearest whole number).

N = class size.

s = size of the reduced final random sample.

Example

This example is intended to be for illustration purposes only.

Assume that the referral involves 500 services of the same item number.

Applying the formula in section 7, the appropriate sample size of the preliminary random sample is 84. The Committee will consider the first 30 randomly selected services (the exploratory sample) and make a finding as to what number, if any, of those services constitutes inappropriate practice.

If the Committee decides that less than 20% (ie, fewer than 6 of the 30) constitutes inappropriate practice, no conclusion can be drawn because the result may not be statistically valid.

If the Committee decides that 6 or more of the services constitute inappropriate practice, say 10 (33.3%), this percentage is rounded down to the nearest whole number, that is 33%. From the formula in section 10 the size of the final random sample size is 76 (with $d = .33$ and $N = 500$).

Given that a sample of 30 has already been considered, another 46 services must be selected from the remaining 54 services in the preliminary random sample of 84 services (ie, $84 - 30 = 54$) to make up the final random sample.

If the Committee finds that 25 of the 76 services (32%) constitute inappropriate practice, the Committee can conclude that 22% (ie, 32% less 10 percentage points), or 110, of the 500 services constitute inappropriate practice.

