

Independent Hospital Pricing Authority

Assessing Materiality of Changes Proposed to the National Pricing Model

April 2021



IHPA

Assessing Materiality of Changes Proposed to the National Pricing Model – Version 2.0 April 2021

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Acronyms and abbreviations

ABF	Activity based funding
IHPA	Independent Hospital Pricing Authority
NEC	National efficient cost
NEP	National efficient price
SMAPE	Symmetric Mean Absolute Percentage Error
The Act	<i>National Health Reform Act 2011 (Cwlth)</i>

Definitions

Activity based funding	<p>Refers to a system for funding public hospital services provided to individual patients using national classifications, cost weights and nationally efficient prices developed by the Independent Hospital Pricing Authority (IHPA), as outlined in the Addendum to the National Health Reform Agreement 2020–25.</p> <p>An activity based funding activity may take the form of a separation, presentation or service event.</p>
National Pricing Model	<p>Refer to the link below to the <i>National Pricing Model Technical Specifications</i>.</p> <p>https://www.ihoa.gov.au/what-we-do/pricing/national-pricing-model-technical-specifications</p>
Pricing Authority	<p>The governing body of IHPA established under the <i>National Health Reform Act 2011</i> (Cwth).</p>
Symmetric Mean Absolute Percentage Error	<p>Measure of the accuracy of the national pricing model. It is an overall measure of how well the model predicts the cost of individual patients.</p>

1. Executive summary

1.1 Background

A key objective of the Independent Hospital Pricing Authority (IHPA) is the development and implementation of systems to support national activity based funding (ABF) for Australian public hospitals.¹ The implementation of ABF provides incentives for efficiency and increases transparency in the delivery and funding of public hospital services across Australia.

IHPA's primary function is to calculate and deliver an annual national efficient price (NEP). The NEP is a major determinant of the level of Commonwealth Government funding for public hospital services, providing a price signal or benchmark for the efficient cost of providing public hospital services. The NEP includes a range of adjustments to account for legitimate and unavoidable input costs that apply to some groups of patients or hospitals that are not adequately recognised by the classification systems used by Australian public hospitals.

1.2 Purpose

The purpose of the Assessing Materiality of Changes Proposed to the National Pricing Model document is to outline the process IHPA follows when assessing the materiality of proposed changes to the national pricing model such as the introduction of new adjustments or alternative pricing policy approaches.

This document provides a high level guide of the issues that the Pricing Authority will consider in reaching a decision.

1.3 Review

The Pricing Authority and Chief Executive Officer of IHPA will review this Policy, including associated documentation, annually or as required.

This document was reviewed in April 2021.

¹ Section 130 of the *National Health Reform Act 2011* (Cwth)

2. Considerations in determining adjustments

IHPA receives adjustment proposals through its Pricing Framework for Australian Public Hospital Services and NEP and national efficient cost (NEC) Determinations consultation processes. Outside of these consultation processes, IHPA may also initiate adjustment proposals. Proposals require IHPA to consider introducing a range of adjustments to recognise the complexity of patients that may not be recognised by the classification systems.

IHPA undertakes analysis of the proposals, including the cost and activity data received from stakeholders to ascertain if there is a case for a new adjustment to address the issues raised.

If there is a clear cost differential between the cohort of patients identified in the proposals and the broader patient population covered by the national pricing model, IHPA would generally recommend an adjustment.

Factors to consider when analysing proposals include:

- Ensuring the models adequately reflect the actual costs of delivering public hospital services².
- Keeping the models reasonably simple and transparent so that relevant price signals can be clearly recognised by jurisdictions, Local Hospital Networks and hospital managers.
- Ensuring the models reflect the Pricing Guidelines as far as practicable.

These elements are considered using a modified cost-benefit approach that measures the:

- Benefits the proposed change has for the performance of the model.
- Costs of implementing the proposed change in the model.

The Pricing Authority also seeks to understand any potential impacts or perverse incentives that may result from introducing an adjustment, for example, incentive to change clinical practice or reporting.

The benefits of model changes are considered in two distinct dimensions as sometimes adjustments that may be justified for some groups of patients may have relatively small impacts on the performance of the model. The dimensions are:

- Improvements in the overall performance of the model, as measured by the Symmetric Mean Absolute Percentage Error (SMAPE) statistic.
- Number of patients impacted and/or the total value of funding redistributed.

Two distinct costs of implementing refinements in the models are considered:

- Increases in the complexity of model (through the introduction of new adjustments).
- Introducing new data elements in National Minimum Data Sets.

² Clause A46 of the Addendum to the National Health Reform Agreement 2020–25.

These two dimensions have been chosen in recognition that costs can be both intangible (model complexity) and tangible (the costs to jurisdictions and hospitals of collecting new data elements).

3. Assessment process

IHPA will analyse the adjustment proposal to ascertain if there is a demonstrable cost differential between the group of patients identified in the proposal and the wider patient population.

The assessment is carried out using activity and cost data supplied to IHPA by jurisdictions as detailed in IHPA's Three Year Data Plan.

If there is no cost differential between the nominated patient cohort and the wider patient population, or if the nominated cohort is less expensive on average than the wider patient population, the proposal is rejected.

If the nominated patient cohort is more expensive on average than the wider patient population, then IHPA will determine:

1. How many patients are in the cohort.
2. The quantum of the adjustment required to address the identified cost differential.
3. How the adjustment would be applied in the national pricing model.
4. Any new data elements required to implement the adjustment.
5. The amount of funding redistributed by introducing the proposed adjustment.
6. The overall change in the performance of the national pricing model, measured using the SMAPE statistic.

IHPA assesses proposals on a case-by-case basis and takes into account consistency with the Pricing Guidelines.

The benefits of the proposals are scored using the criteria in Table 1. The thresholds have been developed with regard to the previous proposals considered by IHPA and reflect the level of impact considered as material.

Table 1: Benefits

Impact on cost allocation	Score	Improvement in cost model performance	Score
Redistributes 0 – \$25 million or impacts less than 10,000 separations	1	Increases SMAPE more than 0.5%	1
Redistributes \$25 – \$250 million or impacts 10,000 to 100,000 separations	2	Less than 0.5% change in SMAPE	2
Redistributes >\$250 million impacts more than 100,000 separations	3	Decreases SMAPE more than 0.5%	3

The implementation costs of the proposals are scored using the criteria in Table 2. The thresholds have been developed to give order of magnitude estimates of the intangible and tangible costs of implementing any proposed adjustments.

Table 2: Costs

Impact on pricing model complexity	Score	Impact on data requirements	Score
Removes existing adjustments	1	Utilises existing data	1
Extends existing adjustments to other patient cohorts.	2	New data items, available in state/territory systems	2
Introduces new variables or specific code sets (e.g. radiotherapy adjustment)	3	New data items, not available in state/territory systems	3

The overall materiality score derived by inserting the scores from the two tables above into the formula below:

$$\text{Materiality} = \frac{(2 \times \text{Impact on cost allocation} + \text{impact on performance})}{(\text{Impact on pricing model complexity} + 2 \times \text{Impact on data requirements})}$$

The maximum permissible score is 3.0.

While the materiality score does not itself determine whether a change to the national pricing model should be considered for implementation, all changes are assessed qualitatively against the Pricing Guidelines. Depending on alignment with the Pricing Guidelines, changes with a score of 1.0 or more are generally recommended by IHPA to the Pricing Authority for consideration of implementation.

From time to time, the Pricing Authority may need to consider criteria that are not included in this process. If the Pricing Authority is required to consider criteria that are not included in this assessment process, IHPA will seek advice from its advisory committees. As such, the Pricing Authority may choose to reject the proposal despite meeting the materiality score threshold, or a proposal may be rejected on the grounds of advice from IHPA's advisory committees or other stakeholders.

Where a change progresses following assessment against the materiality criteria, clauses B10, B37 and B38 of the Addendum to the National Health Reform Agreement 2020–25 require IHPA to undertake consultation with all nine jurisdictions for proposed changes in the national funding model, with special reference to the processes for changing ABF classifications and costing methodologies.

IHPA's Alterations to the National Pricing Model Framework outlines the guiding principles and consultative processes associated with changes that materially impact the application of the national funding model, including thresholds for further consultation with the Council of Australian Governments Health Council, shadow pricing requirements and criteria for provision of a Statement of Impact detailing IHPA's assessment of the proposed change.

Appendix A: Example assessments

Proposal for an adjustment for stroke patients not assigned to a stroke Diagnosis Related Group (DRG) considered for NEP 2015–16.

A jurisdiction proposes an adjustment be introduced for stroke patients who are not assigned to a stroke DRG. This occurs when their principle diagnosis is not stroke related.

IHPA analysis shows that there are 982 patients that meet this description in 2012–13, and an adjustment of 8% would allocate an additional \$1.7 million in the pricing model. The improvement in the performance of the cost model SMAPE is negligible.

The adjustment would be consistent with the Pricing Guidelines. The model complexity would increase as a set of diagnosis codes would need to be identified that the adjustment would apply to. The proposal would utilise existing data.

The table below shows how this information is translated into the scoring system for this example.

Benefits			
Impact on cost allocation	Score	Improvement in cost model performance	Score
Redistributes 0 – \$25 million or impacts less than 10,000 separations	1	Increases SMAPE more than 0.5%	1
Redistributes \$25 – \$250 million or impacts 10,000 to 100,000 separations	2	Less than 0.5% change in SMAPE	2
Redistributes >\$250 million impacts more than 100,000 separations	3	Decreases SMAPE more than 0.5%	3
Costs			
Impact on pricing model complexity	Score	Impact on data requirements	Score
Removes existing adjustments	1	Utilises existing data	1
Extends existing adjustments to other patient cohorts	2	New data items, available in state/territory systems	2
Introduces new variables or specific code sets (e.g. radiotherapy adjustment)	3	New data items, not available in state/territory systems	3

Materiality calculation:

$$\begin{aligned} & \frac{(2 \times \text{Impact on cost allocation} + \text{Impact on performance})}{(\text{Impact on pricing model complexity} + 2 \times \text{Impact on data requirements})} \\ &= \frac{(2 \times 1 + 2)}{(3 + 2 \times 1)} \\ &= \frac{4}{5} \\ &= 0.8 \end{aligned}$$

As the materiality score is less than the target threshold of 1.0, although it is consistent with the Pricing Guidelines, IHPA would not recommend that the Pricing Authority implement the change.

Proposal for an adjustment for patients who receive dialysis whilst admitted to hospitals for other reasons (so are not assigned to DRG L61Z) considered for NEP 2015–16.

A jurisdiction proposes an adjustment be introduced for patients who receive dialysis whilst admitted to hospitals for other reasons (so are not assigned to DRG L61Z).

IHPA analysis shows that there are 26,366 patients that meet this description in 2012–13, and an adjustment of 22% would allocate an additional \$91.3 million in the pricing model. The change in model performance is negligible.

The adjustment would be consistent with the Pricing Guidelines. The model complexity would increase as a set of diagnosis codes would need to be identified that the adjustment would apply to. The proposal would utilise existing data.

Benefits			
Impact on cost allocation	Score	Improvement in cost model performance	Score
Redistributes 0 – \$25 million or impacts less than 10,000 separations	1	Increases SMAPE more than 0.5%	1
Redistributes \$25 – \$250 million or impacts 10,000 to 100,000 separations	2	Less than 0.5% change in SMAPE	2
Redistributes >\$250 million impacts more than 100,000 separations	3	Decreases SMAPE more than 0.5%	3
Costs			
Impact on pricing model complexity	Score	Impact on data requirements	Score
Removes existing adjustments	1	Utilises existing data	1
Extends existing adjustments to other patient cohorts	2	New data items, available in state/territory systems	2
Introduces new variables or specific code sets (e.g. radiotherapy adjustment)	3	New data items, not available in state/territory systems	3

Materiality calculation:

$$\begin{aligned}
 & \frac{(2 \times \text{Impact on cost allocation} + \text{Impact on performance})}{(\text{Impact on pricing model complexity} + 2 \times \text{Impact on data requirements})} \\
 &= \frac{(2 \times 2 + 2)}{(3 + 2 \times 1)} \\
 &= \frac{6}{5} \\
 &= 1.2
 \end{aligned}$$

As the materiality score is greater than the target threshold of 1.0, and is consistent with the Pricing Guidelines, IHPA would recommend that the Pricing Authority accept the proposal.

Independent Hospital Pricing Authority

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