

Independent Hospital Pricing Authority

Back-Casting Policy

May 2022



IHPA

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Acronyms and abbreviations

ABF	Activity based funding
AR-DRG	Australian Refined Diagnosis Related Groups Classification
BM	Back-casting multiplier
IHPA	Independent Hospital Pricing Authority
NEC	National efficient cost
NEP	National efficient price
NHCDC	National Hospital Cost Data Collection
NWAU	National weighted activity unit
The Act	<i>National Health Reform Act 2011</i> (Cwlth)
The Addendum	Addendum to the National Health Reform Agreement 2020–25
The Administrator	Administrator of the National Health Funding Pool
This Policy	<i>Back-Casting Policy</i>
VM	Volume multiplier

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 (the Addendum).</p> <p>An activity based funding (ABF) activity may take the form of a separation, presentation or service event.</p>
Back-casting	<p>The process by which the effect of significant changes to the ABF classification systems or costing methodologies are reflected in the national pricing model the year prior to implementation, for the purpose of calculating Commonwealth growth funding for each ABF service category.</p>
National pricing model	<p>The national pricing model is produced annually by IHPA and defines the national efficient price, price weights and adjustments based on the cost and activity data from three years prior. For more detail, refer to the link below for the National Pricing Model Technical Specifications.</p> <p>https://www.ihoa.gov.au/what-we-do/pricing/national-pricing-model-technical-specifications</p>
Public hospital services	<p>From 1 July 2013, the scope of public hospital services eligible for Commonwealth funding will be^{1,2}:</p> <ul style="list-style-type: none"> • all admitted programs, including hospital in the home programs; • all emergency department services; and • non-admitted services that meet the criteria for inclusion on the IHPA General List of In-Scope Public Hospital Services.
Pricing Authority	<p>The governing body of IHPA established under the <i>National Health Reform Act 2011</i> (Cwlth).</p>

¹ With regard to IHPA's role in defining the scope of public hospital services, refer to the Addendum clauses A16–A32.

² In August 2011, Governments agreed to be jointly responsible for funding growth in 'public hospital services'. As there is no standard definition or listing of public hospital services, Governments gave IHPA the task of deciding which services will be ruled 'in-scope' as public hospital services and so eligible for Commonwealth funding under the Addendum.

1. Executive summary

1.1 Background

Commonwealth funding for hospital services is based on both the change in volume of weighted services and growth in the national efficient price (NEP) and national efficient cost (NEC), therefore it is imperative that the previous year's pricing model accurately reflects the relevant year's data.

The Addendum to the National Health Reform Agreement 2020–25 (the Addendum) outlines that if the Independent Hospital Pricing Authority (IHPA) makes significant changes to the activity based funding (ABF) classification systems or costing methodologies, the effect of such changes must be back-cast to the year prior to their implementation for the purpose of calculating Commonwealth growth funding (clause A41).

In addition to the back-casting requirements set out in clause A41 of the Addendum, IHPA is required to use transitional arrangements when developing new ABF classification systems or costing methodologies (clause A42). The consultative process that IHPA follows when determining transitional arrangements for material changes to the national pricing model is outlined in IHPA's *National Pricing Model Consultation Policy* and will align with the consultation requirements of the Addendum.

1.2 Purpose

The purpose of the *Back-Casting Policy* (this Policy) is to outline the process IHPA will follow when back-casting the NEP or the NEC for the purpose of calculating Commonwealth growth funding, as set out in clause A41 of the Addendum. This Policy is to be applied in conjunction with the *National Pricing Model Consultation Policy*, which outlines the guiding principles and consultative processes associated with changes that materially impact the application of the national pricing model for the purpose of the NEP and NEC Determinations.

1.3 Timeframes

The *National Health Reform Act 2011* (Cwlth) (the Act) and the Addendum do not prescribe any timeframes in relation to IHPA conducting this process, however it is intended that each year IHPA will outline its intention with regards to back-casting in the draft NEP Determination. Jurisdictions will have the opportunity to provide comments to IHPA within the 45-day consultation period. The formal back-casting multipliers will be included in the final NEP and NEC Determinations, to be released in March of the following year.

Where there are significant changes in the underlying data submitted by states and territories, calculated activity growth may not fully reflect real activity growth even after the application of back-casting volume multipliers. In this case, as outlined in clause A36 of the Addendum, further back-casting advice may be required from the Administrator of the National Health Funding Pool (the Administrator) as part of the final reconciliation process for public hospital services.

Where back-casting is required for the calculation of Commonwealth growth funding as required under the Addendum, IHPA will follow the consultation process outlined in the *National Pricing Model Consultation Policy*.

1.4 Review

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

This Policy was reviewed in May 2022.

2. Context

2.1 Calculation of Commonwealth funding

As outlined in clause A34 of the Addendum, the Commonwealth's funding for all ABF service categories will be calculated individually for each state and territory by summing:

- a. *previous year amount*: the Commonwealth's contribution rate for the relevant state or territory in the previous year, multiplied by the volume of weighted ABF services provided in the previous year, multiplied by the NEP in the previous year;
- b. *price adjustment*: the volume of weighted services provided in the previous year, multiplied by the change in the NEP relative to the previous year, multiplied by 45 per cent; and
- c. *volume adjustment*: the net change in volume of weighted services provided in the relevant state or territory (relative to the volume of weighted ABF services provided in the previous year), multiplied by the NEP, multiplied by 45 per cent.

The Administrator will calculate the Commonwealth's funding contribution for each ABF service category, as set out in clause A38 of the Addendum. IHPA will advise the Administrator of the back-cast effect of any changes that IHPA has determined to be significant to the ABF classification systems or costing methodologies.

Back-casting is important to ensure the calculation of Commonwealth growth funding is not adversely impacted by changes in the national pricing model or the calculation of the NEP and NEC over consecutive years.

Detailed below are types of significant changes which may give rise to IHPA back-casting to the year prior for the purpose of calculating Commonwealth growth funding, as set out in clause A41 of the Addendum.

2.2 Classification systems

Where there are significant changes made to the ABF classification systems, these changes may have impacts on the national weighted activity unit (NWAU) and price weights and, as such, will be back-cast when changes are made.

Classifications are reviewed regularly and updated periodically to ensure that they remain clinically relevant and resource homogenous within a service category. Such modifications are based on the outcome of robust statistical analysis, including specialist input from clinicians.

For example, the classification system for pricing admitted acute care was updated from the Australian Refined Diagnosis Related Groups Classification (AR-DRG) Version 9.0 for the NEP Determination 2019–20 to AR-DRG Version 10.0 for the NEP Determination 2020–21. As such, the NEP Determination 2019–20 was required to be recalculated based on the AR-DRG Version 10.0 price weights for the purpose of calculating growth.

IHPA meets regularly with its Jurisdictional and Technical Advisory Committees to provide analysis and early identification of any trends in activity data that may have resulted from changes to classifications. Where a change in ABF classification systems results in significant changes in the underlying data submitted by states and territories, IHPA may be required to undertake additional back-casting, as outlined in Section 3.4 of this Policy.

2.3 Costing standards

Where IHPA determines there are significant changes made to the Australian Hospital Patient Costing Standards, to costing methodologies or processes at the national or jurisdictional level, these changes may have impacts on the scope of expenditure and, as such, will be back-cast to the year prior to their implementation.

2.4 Indexation

IHPA uses the most up-to-date cost data available from the National Hospital Cost Data Collection (NHCDC) for setting the NEP. However, there is currently a three-year time lag between the year of cost data used, and the year for which the price is determined. For example, the NEP Determination 2021–22 (NEP21) is determined using NHCDC 2018–19 cost data and the NEP Determination 2022–23 (NEP22) is determined using NHCDC 2019–20 cost data.

To account for this time lag IHPA applies an indexation rate to escalate the historic costs to future prices. IHPA does this by estimating the expected growth rate over the three years based on historical growth in unit costs, as reported in the NHCDC.

As more up-to-date data becomes available there may be large discrepancies between the predicted growth rate and the actual growth rate. This could impact the growth in the NEP upwards or downwards between successive years.

To account for this, IHPA will use the most recently available NHCDC cost data to back-cast the previous year's NEP for the purpose of determining Commonwealth growth funding. See Section 3.1.1 of this Policy for a practical demonstration of how the Pricing Authority determines a back-cast NEP21 using 2019–20 cost data that was not available at the time the NEP21 was determined.

2.5 Adjustments to the NEP

As outlined in the [Pricing Framework for Australian Public Hospital Services](#), IHPA is committed to a program of ongoing work to establish the factors resulting in legitimate and unavoidable variations in the costs of providing public hospital services. This work is focused on the empirical demonstration of differences in the costs of public hospital services.

The annual review of adjustments to the NEP will include both existing adjustments and potential adjustments. That is, adjustments to the NEP that have been previously approved may not be included on an ongoing basis at the same quantum. Instead, IHPA will undertake a program of ongoing validation, testing and refinement of any price adjustments that it introduces.

Where IHPA determines there are significant changes to price adjustments which impact the NWAU, IHPA may consider the impact of back-casting these changes to the prior year.

2.6 Material changes to pricing methods

Changes to data quality and standards over time may enable improvements to be made to pricing methods. For example, improved identification of funding associated with other Commonwealth programs, such as highly specialised drugs, has enabled associated adjustments to be made to price weights rather than the NEP.

In situations where IHPA determines these improvements result in significant changes to pricing methodology, IHPA may consider the impact of back-casting these changes to the prior year.

2.7 Other factors

There are several other reasons which may give rise to IHPA considering back-casting to the year prior. These are summarised below:

2.7.1 Material changes in counting rules

There may be a number of situations where changes in counting rules lead to a need to restate the previous years' volumes for the purpose of calculating Commonwealth growth funding.

Two specific examples of this are:

1. Changes to the scope of public hospital services eligible for Commonwealth funding

In the event that the Pricing Authority decides to make a change to the services that are in-scope, IHPA will need to restate the previous years' actual volumes in order to allow Commonwealth growth funding to be determined. IHPA will undertake this process in conjunction with any affected jurisdiction/s.

2. Services move from block funding to ABF

In future years, it is expected that some hospitals and services that are currently block funded will move to funding on an ABF basis. For example, where a hospital shifts from block funding to ABF for the NEP and NEC Determinations as a result of the hospital exceeding the 'low-volume' threshold under the block-funding criteria. When this occurs, adjustments to previous years' activity counts will be required to ensure that Commonwealth funding is not under or overstated.

2.7.2 Changes in data reporting

Where changes in the underlying activity data reported to IHPA occur as a result of the implementation and interpretation of new classification or counting rules, further back-casting advice may be required from the Administrator as part of the reconciliation process. For example, the implementation of a new classification version where there is significant change in the reporting of additional diagnosis codes, resulting in substantially increased NWAU for the period.

In such cases where the NEP Determination has already been published, additional back-casting may be required. IHPA will outline in each year's NEP Determination where it has determined that additional back-casting measures may be required. Where back-casting is required for the calculation of Commonwealth growth funding, IHPA will follow the consultation process outlined in the *National Pricing Model Consultation Policy*.

3. Back-casting process

IHPA will back-cast the NEP each year and the NEC as required. The back-cast NEP and NEC are to be used only to calculate the Commonwealth growth funding, as outlined in clause A41 of the Addendum.

3.1 Back-casting the NEP

3.1.1 Back-cast NEP_{n-1}

The back-cast NEP_{n-1} is determined by indexing the average cost (for year n-3) by two years using the latest estimates of annual indexation projections. In effect, this defines the price growth between consecutive NEPs as equal to the price indexation rate applied to calculate the latest NEP.

For example, the back-cast NEP₂₁ was calculated using the 2019–20 average cost indexed by two years using the same price indexation rate applied to determine NEP₂₂.

3.1.2 Back-casting volume

For calculating the actual growth in Commonwealth funding, the Administrator should apply the current year's price weights to the previous year's activity data, to ensure that methodological changes in the national pricing model are accounted for.

However, to allow the Administrator to estimate Commonwealth growth funding each year, prior to actual data being finalised, IHPA will calculate volume multipliers.

The volume multipliers are calculated for each jurisdiction for each particular ABF service category.

The back-cast volume multipliers (VM) for each jurisdiction (for each ABF service category) are calculated as follows:

$$VM = \frac{\text{NWAUs delivered by NEP}_n \text{ model (NWAU}[n]) \text{ applied to latest activity data}}{\text{NWAUs delivered by NEP}_{n-1} \text{ model (NWAU}[n - 1]) \text{ applied to latest activity data}}$$

3.1.3 Calculating actual growth funding

For the purposes of calculating actual growth funding the Administrator will apply the back-cast NEP and the current year's price weights to the previous year's activity.

3.2 Back-casting the NEC

3.2.1 Back-casting for changes in model methodology

The NEC multipliers are used by the Administrator as the base for calculating the growth in Commonwealth funding under the Addendum.

The NEC back-casting multipliers take account of changes in model methodology and the addition and removal of block-funded services as required by the Addendum.

The NEC back-casting multiplier (BM) for each jurisdiction can be expressed as:

$$BM = \frac{\text{Total modelled expenditure delivered by NEC}_n \text{ model in year } n - 1}{\text{Total modelled expenditure delivered by NEC}_{n-1} \text{ model in year } n - 1}$$

This effectively transforms the modelled expenditure used as the base amount in growth funding from the previous year's NEC model to the latest NEC model.

Further details of the back-casting process specific to each year are provided in the [National Pricing Model Technical Specifications](#).

3.2.2 Back-casting for changes in indexation methodology

In addition to changes in model methodology, any changes to indexation of the NEC must be back-cast.

Changes in indexation methodology are accounted for by calculation of the back-cast NEC_{n-1} parameters. The back-cast NEC_{n-1} parameters are determined by indexing the latest NEC fixed cost base and variable amount (for year n-3) forward two years using the new indexation methodology.

For example, for the NEC Determination 2022–23 (NEC22), the back-cast NEC Determination 2021–22 parameters were calculated by taking the NEC22 parameters (based on 2019–20 data) and indexing them forward two years based on the new indexation methodology.

3.3 Quality assurance of back-casting volume multipliers

IHPA engages an independent reviewer of the national pricing models on an annual basis to ensure the accuracy of the price weights, NEP, NEC and back-casting volume multipliers.

Furthermore, IHPA provides health ministers the back-casting volume multipliers as part of the draft NEP and NEC Determinations each year when they are issued for the 45-day consultation period required under the Act.

3.4 Need for further back-casting advice

The Addendum contains provisions relating to business rules around retrospective adjustments, specifically that if IHPA considers there is a potential need for a retrospective adjustment to the national pricing model, a 45-day consultation period is required for jurisdictions to provide submissions on the matter.

Where calculated activity growth may not fully reflect real activity growth due to significant changes in the underlying data submitted by states and territories, the Administrator may request further back-casting advice from the Pricing Authority as part of the reconciliation process.

In determining an appropriate back-casting methodology IHPA will consider an approach that:

- uses available data;
- considers the capacity and practicality involved in collecting additional data variables; and
- accounts for the possibility of developing a statistical model to estimate the impact of the back-casting methodology.

For example, the methodology used to calculate back-casting multipliers for Adjacent Diagnosis Related Groups is set using the 90th percentile threshold, which identifies high growth clinical areas as those that experienced growth in average weighted activity above the 90th percentile.

In the event that IHPA is requested to provide further back-casting advice, it will consult with all jurisdictions prior to doing so.

If additional back-casting is required after the publication of the NEP or NEC Determination, IHPA will follow the consultation process outlined in the *National Pricing Model Consultation Policy* to align with the requirements under the Addendum.

3.5 Shadow pricing

Under clause A42 of the Addendum, IHPA is required to use transitional arrangements when developing new ABF classification systems or costing methodologies, including shadow pricing classification system changes and pricing based on a costing study, for two years or a period agreed with the Commonwealth and a majority of States to ensure robust data collection and reporting to accurately model the financial and counting impact of changes on the national pricing model. Shadow pricing enables jurisdictions to understand and assess the impact of new prices on the calculation of Commonwealth growth funding.

Where jurisdictions fully participate in shadow pricing, the Addendum states that there will be no retrospective adjustments to the national pricing model, excluding adjustments to Commonwealth contributions as a result of service volume reconciliations as set out in clauses A63, A65 and A73 of the Addendum.

The *National Pricing Model Consultation Policy* outlines the specific circumstances under which IHPA will use shadow pricing, including the introduction of new classifications and major structural changes to existing classifications. The *Shadow Pricing Guidelines* establishes guiding principles for commencing shadow pricing, reporting requirements during the shadow pricing period and criteria for progression to pricing.

Any shadow pricing periods will be made explicit in each annual NEP Determination. Jurisdictions will be notified and have the opportunity to provide comment through the 45-day consultation period for the draft NEP and NEC Determinations.

Appendix A: Extracts from the Addendum

Clause	Detail
A34	<p>The Commonwealth's funding for all ABF Service Categories will be calculated individually for each State by summing:</p> <ol style="list-style-type: none"> <i>previous year amount</i> – the Commonwealth's contribution rate for the relevant State in the previous year, multiplied by the volume of weighted ABF Services provided in the previous year, multiplied by the national efficient price in the previous year; <i>price adjustment</i> – the volume of weighted services provided in the previous year, multiplied by the change in the national efficient price relative to the previous year, multiplied by 45 per cent; and <i>volume adjustment</i> – the net change in volume of weighted services provided in the relevant State (relative to the volume of weighted ABF Services provided in the previous year), multiplied by the national efficient price, multiplied by 45 per cent.
A35	<p>Commonwealth funding will be distributed across all ABF Service Categories in each State at a single Commonwealth contribution rate:</p> <ol style="list-style-type: none"> The single Commonwealth contribution rate in each State for all ABF service categories will be calculated by dividing the sum of clause A34 by the relevant year's total volume of weighted services multiplied by the national efficient price. On implementation of the single Commonwealth contribution rate there will be an initial re-distribution of Commonwealth funding at the LHN level within each State but no aggregate change in the amount of Commonwealth funding that a State receives as a result of the introduction of the single Commonwealth contribution rate. States will manage their funding levels such that there will be no impact on service level delivered at individual LHNs as a result of the introduction of a single Commonwealth contribution rate. Adjustments in service levels at individual LHNs and hospitals may still be made by the system managers for reasons other than the introduction of the single Commonwealth contribution rate.
A36	<p>The Commonwealth's contribution to funding public hospital services on an ABF basis (including efficient growth) will be calculated at the start of each financial year, and may be updated or revised during a year based on updated activity estimates, finalised reconciliation processes for prior years, and final activity data from jurisdictions and advice from the Administrator, including a final reconciliation of public hospital services.</p>

A38	<p>The Administrator will provide the Commonwealth and States with a formal forecast of the Commonwealth's funding contribution for each ABF service category before the start of each financial year. The formal forecast will be provided within 14 calendar days of receipt of both:</p> <ol style="list-style-type: none"> a. service volume information for all Local Hospital Networks within a State, as provided in Service Agreements; and b. the published national efficient price from the IHPA.
A41	<p>The national activity based funding model will improve every year, informed by previous years' cost and activity data. If the IHPA makes significant changes to the ABF classification systems or costing methodologies, the effect of such changes must be back-cast to the year prior to their implementation for the purpose of the calculations set out in clauses A34 and A35.</p>
A42	<p>The IHPA will use transitional arrangements when developing new ABF classification systems or costing methodologies, including shadow pricing classification system changes and pricing based on a costing study, for two years or a period agreed with the Commonwealth and a majority of States to ensure robust data collection and reporting to accurately model the financial and counting impact of changes on the National Funding Model.</p> <ol style="list-style-type: none"> a. Where a jurisdiction participates fully in the shadow pricing, including the provision of the best available data over the shadow period to support the implementation of the new ABF classification systems or costing methodologies, the Parties agree there will be no retrospective adjustments to the National Funding Model, excluding adjustments to Commonwealth contributions as a result of service volume reconciliations as set out in clauses A63, A65 and A73. b. Business rules will be developed by the national bodies in consultation with Parties, addressing significance of changes, process and consultation around retrospective adjustments where appropriate. <ol style="list-style-type: none"> i. If the national bodies consider there is a potential need for a retrospective adjustment to the national funding model, national bodies will communicate, consult and collaborate with Parties. The national bodies will hold a consultation period of 45 days to allow Parties an opportunity to provide submissions on the matter. ii. Within 45 days following the jurisdiction 45-day consultation period, national bodies will prepare a report to the CHC, advising them of the national bodies' decision and the nature and circumstances of the recommended adjustment to the national funding model. iii. Once the report is provided to the CHC, the national bodies will incorporate the decision regarding the retrospective adjustment into the national funding model and provide parties with an updated report on funding entitlements from the national model. iv. When providing payment advice to the Commonwealth Treasurer following the six-month or annual reconciliation, the Administrator will include a section that notes any matters or concerns raised by State Ministers in the 45-day consultation period in the formation of that advice.

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