Cost Resource Manual Version 2.2
October 2015

The purpose of this cost resource manual is to increase the consistency in the costs and prices used in economic analyses provided to PHARMAC as part of pharmaceutical funding applications. It provides information on the key costs that PHARMAC regularly uses in cost-utility analyses (CUAs) and budget impact analyses (BIAs), so that applicants may, if they wish, use the same cost data in their own economic analyses for PHARMAC. The manual was first published in 2012.

The following key costs are regularly used in PHARMAC assessments and are covered in this manual:

1. pharmaceutical costs (page 2)
2. primary care costs (page 4)
3. hospital costs (page 5)
4. diagnostic imaging and laboratory tests (page 7)
5. community care costs (page 8).

This manual does not include detailed cost data specific to individual assessments. Rather, this manual lists key costs that are used in many of the assessments prepared by and for PHARMAC.

The methods PHARMAC uses when conducting cost-utility analyses are outlined in the Prescription for Pharmacoeconomic Analysis (PFPA), which can be downloaded from http://www.pharmac.health.nz/Economic-Analysis. The PFPA includes detailed recommendations on how to identify and include costs in health economic analyses

Collecting cost information over time

PHARMAC staff have conducted searches and contacted a number of organisations to ensure that we are using the most relevant and accurate cost estimates. The source of the costs and the date we received the cost information is recorded in PHARMAC's cost database. When more than one cost estimate is available, for example, when costs differ between regions, an average cost estimate is often used. Further, some of the cost information included is approximate, as accurate cost information is unavailable.

As prescribed in the PFPA, all costs used in assessments are exclusive of Goods and Services Tax (GST).

We note that cost information and estimates are constantly changing; therefore, the costs listed in this document are subject to change at any time. We aim to update these costs when new information becomes available.

If you need other cost data to complete an assessment, please contact:

- the Ministry of Health (MOH) (email: data-enquiries@moh.govt.nz),
- District Health Boards (DHBs), or
- the relevant Therapeutic Group Manager at PHARMAC.

Pharmaceutical Costs

The cost of the pharmaceutical that is the subject of the application

The pharmaceutical cost included in a CUA should be the subsidy of the pharmaceutical as listed in the New Zealand Pharmaceutical Schedule.

The rebated value of the pharmaceutical should be used if a rebate is proposed or, in the case of currently listed pharmaceuticals, if the rebate value is known.

The cost of co-administered and comparator treatments

The pharmaceutical costs of co-administered and comparator treatments included in CUAs should be taken from the Pharmaceutical Schedule: http://www.pharmac.health.nz/pharmaceutical-schedule/

We note that a co-administered or comparator pharmaceutical may have a confidential rebate attached that an applicant for funding may not be aware of. PHARMAC staff will use the agreed subsidy of the co-administered or comparator pharmaceutical in the PHARMAC CUA if there is a confidential rebate.

Pharmaceutical dose

The dose of the pharmaceutical used in CUAs should be the dose used in the key clinical trials providing this reflects clinical practice in New Zealand. In cases where the dose in the clinical trials does not reflect current clinical practice, the dose should be based on that used in clinical practice providing there is some evidence of efficacy at the proposed dose. In cases where there is no evidence available, CUAs should consider different scenarios where the dose (but not the effectiveness) is varied.

The dose of the pharmaceutical may depend on the weight or surface area of the patient. Data on the average bodyweight of the New Zealand population (by age and gender) is available from the New Zealand Health surveys: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/health-new-zealanders-data-and-stats

If the bodyweight of the patient population to be treated differs significantly from the average population, further research should be undertaken to determine the bodyweight of the population to be treated.

Pharmacy handling and service fee

Pharmacy handling and service fees should be included in CUAs where the pharmaceutical is dispensed at a community pharmacy, or hospital pharmacy for outpatient use. Details of these fees are available at: http://www.centraltas.co.nz/

Administration of pharmaceutical

Any additional cost associated with administering a pharmaceutical should be included in the analysis. The most common administration cost is for pharmaceuticals administered by infusion.

The cost of an intravenous (IV) infusion varies depending on the treatment setting. For inpatient events, the cost of an infusion is included in the WIES casemix funding. The cost of an outpatient IV infusion has several elements that need to be costed separately for a CUA, including nursing time, physician time, and the ‘bed cost’ (including overheads). Other outpatient infusion costs that may also be significant include diagnostic tests required prior to infusion, pre-medication, materials required to deliver the infusion, and pharmacist time to prepare infusion. The key costs and prices are in Table 1.

Table 1: Cost of Outpatient Infusions

Service	Cost ($)	Per	Source	Date estimated	Notes
Bed Costs					
Outpatient clinic bed	$65	hour	DHBs	2015	Includes overheads. When estimating the cost of an infusion, allow time for monitoring following the infusion.
Human Resource Costs					
Nurse	$45	hour	NZ Nurses Organisation MECA	2015	Estimate based on salary plus overheads (overheads estimated to be 50% of salary cost).
Physician	$33	infusion	Association of Salaried Medical Specialists DHB MECA	2015	Estimate based on 15 minutes of physician time and includes overheads. Estimated hourly rate of $130.
Hospital pharmacist	$50	hour	PSA MECA	2015	Estimate based on salary plus overheads (overheads estimated to be 50% of salary cost).

Primary Care Costs

Primary care costs include the cost of general practitioner (GP) and practice nurse visits. These costs should be based on the average cost to the patient plus any government subsidy (if applicable).

Table 2: Primary Care Costs

Service	Cost ($)	Per	Source	Date estimated	Notes
General Practitioner (GP) Costs					
GP practice visit	$75	consult	MOH and various GP practices	2015	Estimated average cost. Includes both patient co-payment and government contribution.
GP home visit	$150	consult	Various GP practices across NZ	2015	Approximately two standard GP visits. Takes into account time for GP to reach patient.
Nurse Costs					
Practice nurse visit	$30	consult	Various PHO websites	2015	Includes overheads, and based on a 10-15 minute consultation at a doctor's surgery. GST exclusive.
Other Primary Care Costs					
Repeat prescription fee	$15	prescription	Various GP practices	2015	Average cost (GST exclusive)
Immunisation subsidy	$22.93	immunisation	MedTech	2015	Subsidy for administration of a vaccine

Hospital Costs

Hospital Inpatient Costs

The majority of hospital inpatient costs should be sourced from the Ministry of Health (MOH) inpatient data set. Diagnosis Related Group (DRG) definitions, prices and cost-weights are published on the MOH website at: http://www.health.govt.nz/nz-health-statistics/data-references/weighted-inlier-equivalent-separations.

DRGs are a patient classification scheme that provides a clinically meaningful way of relating the number and types of patients treated in a hospital to the resources required by the hospital. DRG costs capture, to a certain extent, resources used by a particular group of patients and severity of conditions. DRGs apply only to admitted inpatient care (including certain same day admissions), but not to emergency or short stay events where the patient is not admitted to hospital.

All MOH DRGs other than oncology diagnoses and procedures include inpatient pharmaceutical costs.

Average DRG costs are calculated from a “unit price” that varies from year to year, the average length of stay (LOS), and the inlier cost weight. In cases where more than one DRG code needs to be used, the cost per admission should be weighted by the number of discharges under each DRG code. The MOH is also able to supply data on the volume of discharges associated with each DRG for the financial year.

The unit price is published by the Ministry of Health at the link above. The 2015/16 unit price is $4751.58.

For further advice on calculating DRG costs, please contact the Ministry of Health at data-enquiries@moh.govt.nz.

Several additional hospital cost estimates are presented in the table below.

Table 3: Additional Hospital Inpatient Costs

Service	Cost ($)	Per	Source	Date estimated	Notes
Hospital Costs					
Hospital medical ward	$1,000	day	Various hospitals	2015	Does not include cost of procedures.
Hospital day stay ward	$730	day	ADHB	2015	
High dependency unit (HDU)	$3,100	day	ADHB	2015	
Intensive care unit (ICU)	$5,000	day	Various	2015	

Service	Cost ($)	Per	Source	Date estimated	Notes
			Human Resources		
Specialist hourly rate	$130	hour	Association of Salaried Medical Specialists DHB MECA	2015	Estimate based on salary plus overheads (overheads estimated to be 50% of salary cost). Salary estimated based on MECA agreement.
Hospital nurse	$45	hour	NZ Nurses Organisation MECA	2015	Estimate based on salary plus overheads (overheads estimated to be 50% of salary cost). Salary estimated based on MECA agreement.

Hospital Outpatient Costs

Outpatient costs can be estimated using outpatient Purchase Units (PU). PU costs include all the activities associated with the outpatient event e.g. nurse and physician time, administration, overheads and capital. Further information is available from the Nationwide Service Framework Library website:
https://nsfl.health.govt.nz/purchase-units

Several outpatient costs are listed in Table 4.

Table 4: Additional Hospital Outpatient Costs

Service	Cost ($)	Per	Source	Date estimated	Notes
			Physician Costs		
Physician visit (initial)	$300	consult	Various sources	2015	Includes overheads. Costs grouped by all specialties. Costs may differ by specialty.
Physician visit (subsequent)	$175	consult	Various sources	2015	As above.
			Other Costs		
Emergency room	$350	visit	PU cost and DHB	2015	Cost varies depending on size of hospital, facilities and specialist availability.

Diagnostic Imaging and Investigative Tests

Diagnostic imaging includes magnetic resonance imaging (MRI) scans, computerised tomography (CT) scans, X-rays and several other scans.

The following website contains several links to radiology services across New Zealand: http://www.nzs.com/health/specialist-services/radiology/.

The following websites also provide price information:
http://pacificradiology.co.nz/services/prices/
http://broadwayradiology.co.nz/56.html

It is recommended that the cost of diagnostic imaging be averaged across radiology services available in several regions, including Auckland. The cost should exclude GST.

Laboratory Test Costs

For details on the cost of laboratory tests, please refer to the websites listed below:

http://www.labtests.co.nz/
http://www.labnet.health.nz/testmanager/index.php
http://www.waikatodhb.health.nz/test-reference-guide/
http://www.labplus.co.nz/about/pricelist

We recommend that an average cost per laboratory test should be used in the CUA, based on the cost of the test in several regions (including Auckland). The cost should be exclusive of GST.

Community Care Costs

The costs associated with healthcare in the community, including age-related residential care and hospice care are outlined in the table below.

Table 5: Community Care Costs

Service	Cost ($)	Per	Source	Date estimated	Notes
Residential and hospice care					
Rest home	$130	day	BODE[3] and various rest home providers	2015	National average costs.
Dementia care	$170	day	BODE[3]	2012 inflation-adjusted to 2015 prices	
Hospital care for health of older people	$200	day	BODE[3] and residential care providers	2015	
Hospice care	$650	day	Average across various hospice providers.	2009 inflation-adjusted to 2015 prices.	Includes overheads. Varies by indication.
Ambulance					
Ambulance (emergency)	$695	event	St John ambulance	2015	Charge for non-eligible visitors. GST exclusive price
Ambulance (non-emergency)	$175	event	St John ambulance		Charge for non-emergency ambulance transport not covered by government, for distances less than 35km. GST exclusive price

Costs of hospice care vary widely by indication, level and duration of service support. *The Price of Cancer (2011),* a Ministry of Health study, gives estimates of hospice and other costs by cancer type.
https://www.health.govt.nz/system/files/documents/publications/the-price-of-cancer-0811.pdf