

PHARMAC

Evaluation of PHARMAC's
commercial approach to fund
medicines for rare disorders

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Executive summary

The purpose of this evaluation was to determine if the rare disorders RFP pilot process achieved the intended objectives as set out in the five criteria below, to the extent possible. These criteria for evaluation were established by PHARMAC when the RFP was first developed and consulted on in 2014.

Based on the work undertaken, we are satisfied that PHARMAC has achieved the intended objectives as set out in the criteria.



1 Funded access to effective pharmaceutical treatments has been improved

Decisions have been made to list ten new medicines. However, not all of them have yet gained Medsafe approval. Access for the approved indications under the named patient process is however available. The use of the ten medicines is at a lower overall rate than PHARMAC's forecasts. We note the problematic nature of determining an accurate forecast for items such as these, which are by their nature rare. There is usually a significant lag between funding of any medicine and full usage in the eligible patient population.



2 Health outcomes for those patients who receive treatments funded via the RFP have probably been improved

We note the caveat of our limited scope to assess the actual patient outcomes, as we were not party to the physicians' records of actual health outcomes. To date PHARMAC has conducted considerable consultation with patient advocacy groups and affected families who are reporting positive outcomes through the availability of new treatments. With wider use the positive outcomes should continue to improve in coming years.



3 Financial risk has been managed, and expenditure has not exceeded the value of the funding provision

Expenditure has been less than the budget funding allocation¹; this is primarily due to the uptake being lower than predicted. Given the wide error bounds in incident frequency for many of the disorders, PHARMAC has taken a prudent approach to provide access within maximum funding allocation. Had the uptake been as predicted, it is very unlikely PHARMAC would have exceeded the maximum value of the funding provision. The process to evaluate the RFP bids produced a clear-cut result in that the next medicine after the cutoff would have greatly exceeded the funding provision.



4 PHARMAC has received better commercial proposals for eligible treatments than those that have been received in the past

We conclude that they have. There were 28 bids received in response to the RFP, several of them from suppliers who had not previously engaged with PHARMAC. Of the RFP bids for medicines that had been submitted before – that is under existing pathways – PHARMAC obtained considerably better commercial terms than previously offered.

¹ The RFP stated "[PHARMAC] are budgeting up to \$5 million per annum (on-going) for medicines funded as a result of this RFP"



5 PHARMAC's ability to negotiate good prices for the rest of the Pharmaceutical Schedule has been maintained, for the purposes of securing the best health outcomes for New Zealanders

The impact on the overall Pharmaceutical Schedule budget has been low. The average QALYs per million for medicines funded through the rare disorders pilot was lower than the average QALYs that could have been gained through the Schedule. For the same money that was allocated for the rare disorders fund, 11 medicines could have been funded through the Schedule funding pathway (at that point in time). The decision to commit to running the pilot, with a limited budget, created an opportunity cost. Limiting the available funding contained this cost.

There are some important effects resulting from the RFP. Firstly, PHARMAC has been true to its word, in following through on the intentions announced at the beginnings of the pilot. This will have the effect of an established foundation of trust in future dealings with suppliers that PHARMAC does what it says. Secondly, the conduct of the pilot has been consistent with PHARMAC's other approaches to markets and dealing with suppliers, reinforcing that sourcing events are not arbitrarily conducted with uncertain outcomes for potential suppliers.



Conclusion

There is evidence of considerable rigour in the process and extensive consultation with patients, ethicists, governance forums and suppliers. PHARMAC presented substantial arguments from knowledgeable and credible sources to support its thinking in considering the various ethical viewpoints.

The process did come at some cost: it took longer than hoped, the internal effort was not inconsiderable and to date the uptake of the ten medicines has been lower than forecast.

From the commencement of the idea, to this point, PHARMAC has maintained a focus on what they could actually do, with the levers at their disposal and within their statutory bounds, to determine if they could achieve a result that balanced budgetary constraint with achieving meaningful health outcomes for patients with rare disorders.

They have been successful in funding a series of new medicines, some of which have been enthusiastically received by patients, at commercial terms considerably better than achieved before.

Introduction

Terms of reference

We have been asked to produce a report investigating the new approach PHARMAC piloted in 2014 to introduce competition into the area of medicines for rare disorders.

The aim of the RFP pilot was to improve funded access to effective treatments for rare disorders by incentivising pharmaceutical suppliers to make competitive pricing offers. More background information can be found on the PHARMAC website:

<https://www.pharmac.govt.nz/medicines/how-medicines-are-funded/medicines-for-rare-disorders/>.

Between September 2015 and December 2016, 10 products were approved for funding and eventual listing on the Pharmaceutical Schedule through this competitive process.

The purpose of this evaluation was to determine, to the extent possible, if the rare disorders RFP process achieved the intended objectives as set out in the criteria below. These criteria for evaluation were established when the RFP was first developed and consulted on in 2014. They are:

- a. Access to effective pharmaceutical treatments is improved;
- b. Health outcomes for those patients who receive funded treatments via the RFP are improved;
- c. Financial risk is managed, and expenditure does not exceed the value of the funding provision;
- d. PHARMAC receives better commercial proposals for eligible treatments than those that have been received in the past; and
- e. PHARMAC's ability to negotiate good prices for the rest of the Pharmaceutical Schedule is maintained, for the purposes of securing the best health outcomes for New Zealanders.

To meet this request, we have received and considered prior documented work provided to us, and consulted with various stakeholders - PHARMAC, the Medicines for Rare Diseases (MRD) Subcommittee of Pharmacology and Therapeutics Advisory Committee (PTAC) and Medsafe - involved in the process to form our views. We have also been provided with feedback gathered from external stakeholders by PHARMAC.

Caveats

1. One criterion for evaluation is that "Health outcomes for those patients who receive funded treatments via the proposal are improved". As we did not have clinical data available from treating physicians this could not be achieved under this review methodology and has been completed only to the extent information provided by PHARMAC allows.

2. We were asked to produce "an objective report of publishable quality..". This means one suitable for release by PHARMAC via their website and common communication channels, and not to a level where it is suitable for a peer reviewed medical journal.

A note on method

To conduct this review we have combined the expertise of:

- a consultant with a specialist clinical background and experience of PTAC advisory subcommittee work
- a senior procurement consultant
- the health economic experience of the New Zealand Institute of Economic Research (NZIER).

We have been provided with an extensive document set, giving considerable detail on the RFP from its earliest conception to the current day. Consultation with affected parties, post decision, to fund the ten medicines was also provided to us by PHARMAC.

We have had open access to relevant stakeholders from PHARMAC, Chair of the MRD Subcommittee and Medsafe. We thank them for their candour which has helped and informed our review.



Findings & observations: health system lens

We examined the documentation used for the assessment of the medicines offered in the RFP. We also spoke to the committees involved in making the assessments.

Role of the PTAC Rare Disorders Subcommittee

The clinical evaluation of the proposals received from suppliers was undertaken by a PTAC subcommittee. The Medicines for Rare Disorders (MRD) Subcommittee of PTAC was a time limited Subcommittee set up specifically to advise on the proposed RFP and pre-requisites as well as on bids submitted to the RFP. Subcommittee Members were chosen on the basis that they were experienced PTAC members and well versed in PHARMAC processes and decision making criteria.

Prior to the RFP being finalised, the methodology for clinical assessment was discussed with the Chair to confirm the definition of a rare disorder (1:50,000) and to discuss the prerequisites and the clinical information that would be requested from suppliers.

The subcommittee met on two occasions. The first substantive meeting took place on 14th November 2014 and a shorter teleconference occurred on 31st March 2015 to consider one further application which had initially been deemed non-conforming.

Subcommittee process

PHARMAC sought advice from the Subcommittee on the bids received, including advice on:

- Whether bids meet the RFP's prerequisites.
- The quality of the clinical evidence (particularly regarding health need and treatment efficacy) submitted or otherwise available for any bids for medicines that had not already been assessed by PTAC.
- Advice on any bids for medicines that had already been assessed by PTAC, to account for new evidence and / or pricing changes.

- Clinical acceptability and measurability of possible or bidder proposed eligibility criteria and on-going eligibility for funding.

All conforming applications were considered and discussed and as requested by PHARMAC, ranked in order of priority based on nine decision criteria including the clinical efficacy data provided by the applicant and the member's knowledge of the disorder. The committee understood that the medicines being reviewed had lower levels of evidence compared with that typical for Pharmaceutical listings.

Subcommittee members ranked the applications individually (blind) then the group prepared a consensus ranking for PHARMAC.

Medicines for Rare Diseases Subcommittee (meetings held 5/11/14 and 31/3/15)

The Subcommittee benefitted from a very experienced Chair who has been a general physician and pharmacologist as well as a long standing former Chair of PTAC.

The papers prepared by PHARMAC staff for consideration by the Committee were of a high quality and contained all relevant/available information about the efficacy of the medicine in the target patient group. The minutes were checked by all members before being signed off by the Chair. The minutes conclude with the consensus ranking. The PTAC subcommittee minutes are of a very high standard and follow a logical sequence enabling consistent conclusions to be drawn.

The decision to request a ranking of bids that met the pre-requisites was sensible. The ranking reflected an overall assessment using the then current 9 decision criteria.

Discussion with the Chair of the Subcommittee

The Chair considers that the Rare Disorders Pilot was a useful and considered response to the gap in funded access as PTAC had often raised this issue with PHARMAC staff in previous years. The Chair was pleased with the response from suppliers and there were no obvious gaps in terms of the bids, and the standard for bids was adequate in the circumstances. The Subcommittee did not consult with other clinical advisors².

² The Terms of Reference allowed the Committee to do so should Members have determined it wanted such advice

The Chair did express some disappointment and surprise that some medicines were still waiting for Medsafe approval.

PHARMAC Internal Evaluation Committee (meeting held 15/12/14)

An Evaluation Committee comprising PHARMAC staff was established to evaluate each RFP proposal to assess whether bids were eligible to be considered and then select preferred proposal(s).

This Committee met soon after the main meeting of the Subcommittee and was chaired by a senior PHARMAC manager supported by other staff including financial analysts, health economists and Medical Directors.

This committee considered all nine decision criteria³ to inform their (final) ranking of the proposals, however specific criteria were minuted with regard to which criteria were the most relevant in determining the position on the priority list. The Evaluation Committee ranked the applications using the nine decision criteria making some changes in the ranking at the tail.

Detailed case study – icatibant (Firazyr) for hereditary angioedema

A detailed case study was undertaken for one of the 10 medicines, icatibant. In the case study the supplier commercial proposal and all subsequent documentation was reviewed in detail to observe the process from start to finish and to understand the decision-making steps.

The study revealed that the proposal was succinct and followed the prescribed template and in doing so easily met the 8 pre-requisites for a conforming bid into the RFP.

The paper prepared by PHARMAC staff for the PTAC Rare Disorders Subcommittee was clear and unambiguous. The subcommittee minutes were clear and unequivocal. There was adequate evidence of efficacy in the target population.

Consumer and patient advocacy feedback on the proposal to fund the medicine was very positive, including patient groups from Australia who had experience with the medicine.

We consider:

- (i) The RFP improved access to icatibant moving from the individual application via Named Patient Pharmaceutical Assessment (NPPA) to a full listing from 1/1/16 under Special Authority from a specialist (initial application) then renewal by any medical practitioner.
- (ii) The internal decision making processes were clear and there was support from staff that this was a conforming application with good evidence of clinical efficacy.
- (iii)

The whole process took 16 months from receipt of the commercial proposal to listing on the Pharmaceutical Schedule.

- (iv) Utilisation rates have been lower than forecast by PHARMAC and there may be several reasons for this:
 - a. Awareness/access to specialists
 - b. Contraindicated in pregnancy and breastfeeding
 - c. Frequency of attacks varies considerably by individuals

Remaining brief case-studies (9 medicines)

Case studies of the other nine listed medicines were undertaken.

Review of the documentation and proposal for listing for each the processes are clear and the paperwork is of a high standard.

Initial decisions to list medicines on the Pharmaceutical Schedule were made by the Board, following consideration of recommendation briefing papers prepared by PHARMAC staff, but later the Board delegated decisions to the Chief Executive for approval using his delegated authority. This seems appropriate, with the Board having presumably become confident in the way in which the RFP was being handled by management. The act of delegating authority is consistent with the Board's Governance Manual.

Note that mid-way through the process (1 July 2016) PHARMAC's decision-making processes changed from the 9 decision criteria to the Factors for Consideration (<https://www.pharmac.govt.nz/medicines/how-medicines-are-funded/factors-for-consideration/>).

Medsafe involvement with the Rare Disorders Pilot

Medsafe is a business unit of the Ministry of Health which approves the use of human therapeutic agents in New Zealand⁴. The approvals process is clear for new medicine applications and generally takes up to 200 days with a fee of \$88,000. For details of Medsafe application processes and requirements see: <http://www.medsafe.govt.nz/Consumers/Safety-of-Medicines/Medsafe-Evaluation-Process.asp>

Medsafe processes are clear and well documented. Senior staff have the capacity and delegated authority to fast track applications and waive fees depending on the circumstances.

PHARMAC wrote to Medsafe in May 2015 advising of the products which it intended to progress negotiations for and noting that some suppliers may seek a priority assessment for their registration applications (which PHARMAC would support).

PHARMAC's interaction with Medsafe during the RFP pilot design phase was managed by the former Team Leader of the Prescription Medicines Unit. Our document review revealed evidence of good levels of interaction with

³ The nine decision criteria were replaced by the Factors for Consideration in July 2016. The Committee also took into account advice from the MRD Subcommittee

⁴ Sometimes referred to as 'licensing or registration' of a medicine.

PHARMAC staff during development and consultation phases.

The Ministry of Health was engaged and consulted throughout the Rare Disorders Pilot process in its entirety. With the benefit of hindsight, Medsafe (as part of the Ministry of Health) considers that it would have helped to have been directly engaged earlier in pilot design.

Medsafe are satisfied with the initiative, considering it to be a creative approach to longstanding questions about access.

There have been no major operational issues subsequent to the PHARMAC approval of the 10 medicines, except that the workload was significant as Medsafe has limited capacity in-house to deal with new priority applications⁵, some of which were of a lesser quality than expected.

At the time of this report, 3 of the 10 medicines PHARMAC has decided to fund are not yet registered by Medsafe and are therefore not yet listed in the Pharmaceutical Schedule, but are available via the NPPA process (see table). This is frustrating for patients and their families.

	Date listed by PHARMAC ⁵	Date Medsafe application for registration received	Interim approval mechanism (if any)	Date registered/ Expected date (if in process)	Comments if any
Cystadane (betaine)	Once approved by Medsafe	December 2016	S29 ⁷	(Expected) June 2017	Abbreviated application
Myozyme (alglucosidase alfa)	1 December 2016	September 2007		April 2009	
Elaprased (idursulfase)	1 December 2016	September 2010	s23 ⁸ approval 2008 - 2010	Nov 2010	
Aldurazyme (laronidase)	Once approved by Medsafe	June 2016	Previously s23 but this has lapsed	(Expected) June 2017	Awaiting information from the supplier (Feb 2017)
Cholebiol (cholic acid)	Once approved by Medsafe	March 2017		TBA	Fee waiver and priority assessment requested and under consideration.
Pheburane (sodium phenylbutyrate)	1 July 2016	June 2015		Oct 2015	Priority assessment
Sirturo (bedaquiline)	Once the distribution mechanism is resolved.	May 2015		Aug 2016	Abbreviated application
Sylvant (siltuximab)	1 June 2016	Aug 2014		Sept 2015	Priority assessment
Naglazyme (galsulfase)	1 May 2016	April 2015		March 2016	Priority assessment
Firazyf (icatibant)	1 Jan 2016	June 2015		Nov 2015	Abbreviated application

⁵ PHARMAC provided Medsafe with a list of products, stating an abbreviated process would be sufficient but if priority assessment was possible then this would help accelerate the process.

⁶ once approved by Medsafe would be funded via NPPA

⁷ Section 29 of the Medicines Act permits the sale or supply to medical practitioners of medicines that have not been approved, and requires the "person" who sells or supplies the medicine to notify the Director-General of Health of that sale or supply in writing naming the medical practitioner and

the patient, describing the medicine and the date and place of sale or supply, and the number of packs supplied.

<http://www.medsafe.govt.nz/profs/RIss/unapp.asp>

⁸ Pursuant to section 23 of the Medicines Act 1981, and regulation 22 of the Misuse of Drugs Regulations 1977, a medicine may be given consent to distribution, supply or use provided certain conditions are met. Conditions may relate to who can prescribe the medicine, or for what indication.

<http://www.medsafe.govt.nz/profs/RIss/restrict.asp>

Conclusion: from a clinical point of view

The RFP has been successful in making highly priced medicines for rare conditions more widely available. Ten medicines were approved and this is expected to have health benefits for many patients.

Patient support groups responded positively to all the proposed listings despite their misgivings about some of the implied rankings or special authority criteria, and their concerns about what they considered to be an inadequate budget. Although some of the medicines had previously been made available under the NPPA process, a listing on the Schedule is a much more straightforward approach to increasing access.

Findings & observations: procurement lens

We examined the procurement process to ascertain a linkage to strategy, evidence of appropriate consultation, how clear requirements of suppliers were and how well the evaluation of the medicines was carried out.

There is a strong logic linkage to strategy throughout the procurement process

There is considerable evidence of long term thinking, planning and discussion with Board, captured in a series of papers and studies. In key papers taken to the Board there is linkage to PHARMAC's objectives and Statement of Intent (SOI), in respect of rare disorders.

PHARMAC gathered a wide range of views from experts that informed their approach to the procurement, and their evaluation of proposals. There is a studied history of examination of the issues and ethics from important studies and prior reviews from 2006, and in particular the 2010 McCormack study⁹.

There was a considered examination of how medicines for rare disorders are managed in other jurisdictions. Experts presented recommendations on both ethical positions and how rare disorder medicines might be funded.

There was evidence of considerable debate within PHARMAC and with the Board, on how PHARMAC might test their hypothesis of creating competition by the use of a pool of funds.

The connection of the logic is apparent in examining the progression of the development of the documents from early thinking, through the Board advisement, to the key decisions, to the eventual RFPs released.

Solid procurement planning

There was extensive consultation with stakeholders and adequate time was allowed for responders to provide their views. PHARMAC convened a variety of forums and communications to correspond with people who have rare

disorders, interest groups representing particular disorders, suppliers, and regulators.

The process was considered and quite transparent with the consultations publicly notified, and also the outcomes being similarly provided, notably via the PHARMAC website, as the procurement proceeded. Several of the documents played back the submissions and PHARMAC responses in plain language.

PHARMAC gave considerable thought to the methodology of evaluation. Linkage back to the strategy and the effort put into considering the different ethical approaches is evident. As a result, there is a clear set of pre-qualification criteria along with considerable explanation of what it would take to qualify stated in the procurement documents. These pre-qualification criteria were consulted on with suppliers and other stakeholders, and were adjusted during the process of receiving feedback from suppliers and others.

Experts commissioned by PHARMAC advised against the hazard that would be created if a separate evaluation methodology were to be chosen. As a result of the thinking and consultation, a method for evaluating the medicines for rare disorders pilot was selected that was aligned with the general PHARMAC method. We note during the period of the process for rare disorders, PHARMAC reviewed their Operating Policies and Procedures as part of their ongoing continuous improvement. This rolling review began with the examination of decision criteria, which during the course of the evaluation led to the new 'Factors for Consideration'.

The role of the PTAC Subcommittee and how commercial proposals to the RFP would be evaluated was clearly spelt out.

PHARMAC took considerable trouble to encourage new suppliers to join the process, including traveling to Australia (the closest location for many of the pharmaceutical companies that have no representation in NZ). This allowed staff to explain the objectives of the procurement, how PHARMAC worked, the details of the evaluation process, and provide reassurance that the effort to prepare and submit a commercial proposal could be rewarded with a decision to fund.

⁹ Review of Access to High-Cost, Highly-Specialised Medicines in New Zealand, McCormack, Quigley and Hansen, March 2010

Clarity of writing and documentation

There is a clear and admirably plain style throughout the documents we have reviewed. They present the arguments well and can be assimilated quickly, making it easy for the stakeholders to absorb information and make decisions. The RFP is well constructed, simple and clear. The presentation of the received proposals and the evaluations and decision documents are simply and clearly laid out.

Evidence of commercial gains

There were seven medicines in the rare disorders process where an application had previously been received¹⁰ that can be compared. Of these, five met the pre-requisites, and four were approved for funding. One was a new medicine that PHARMAC had never previously considered for funding via the Schedule application pathway. Of the three that had been considered prior, and not previously funded, a significant reduction in costs was achieved.

Extended commercial negotiations

While the RFP invited suppliers to submit cost/benefit information, few did. PHARMAC notes this is not unusual, and perhaps to be expected with the suppliers new to New Zealand and PHARMAC's rules of engagement. PHARMAC had to perform rapid Cost Utility Analyses.

The negotiations were extended. Part of the innovation in the process was to allow the submission of medicines that had not yet been approved by Medsafe. Once PHARMAC announced to the suppliers their proposal was accepted subject to the negotiation of commercial terms and listing of the compound, it took an extended period of time to complete some of the negotiations. This is to be expected given several of the suppliers were new to the New Zealand pharmaceutical market; the transactions in themselves are relatively low absolute value; and the need to manage complex negotiations with negotiation and legal teams spread across several continents.

Some patient groups complained of a lack of transparency. This could be a direct result of the time taken to negotiate and therefore the uncertainty about whether a treatment (that they hoped would be funded via the RFP pilot) would be funded or not.

Other patient groups, however, lauded the transparency of the process and remarked how they had felt included. This was a commercial process and therefore PHARMAC had to maintain confidentiality in order not to compromise a negotiating position. We note evidence that PHARMAC had gone to special lengths to consult with groups of stakeholders throughout the process including consulting on the draft RFP and conducting confidential briefings with interested parties as the negotiations proceeded.

Conclusion: from a procurement point of view

There is evidence of a clear linkage to a procurement strategy, extensive consultation, considered examination of ethics and judgement, clarity in requirements and how medicines will be evaluated. There is extensive publication of relevant information, and an admirable clarity of expression in the public facing documents. There is clear evidence of improved commercial terms in three cases of medicines not previously funded.

¹⁰ Via the Schedule application funding process

Findings & observations: economic lens

We reviewed the relative impact of each medicine on estimated benefit to patients and absorption of the budget (an indication of the reduction in options to include other medicines)

Initial selection decisions

PHARMAC applied the same 9 decision criteria to evaluate commercial proposals for the medicines for the rare disorders pilot as it does for standard applications for listing on to the Pharmaceutical Schedule. However, the medicines for rare disorders considered by PHARMAC posed a challenging decision making task as these medicines offered a diverse range of benefits across patients with comparatively high health needs in terms of premature mortality or poor quality of life, and with vast differences in costs. In completing its assessment of each proposal under the rare disorders pilot, PHARMAC needed to:

- identify evidence of the potential benefits of the medicine to patients as well as estimate the number of potential patients and duration using individual medicines in the context of health needs (losses in life years or quality of life).
- allocate a fixed budget to medicines using forecasts of patient uptake with wide ranges to ensure there was sufficient funding for the expected use of each medicine over time while also ensuring the medicines funded by the pilot delivered as much patient benefit (health outcomes) as possible.

Approach

Our normal approach to economic evaluation of the allocation of a fixed budget is to:

- compare the net present value of the cost and benefit of the allocation decision to the net present value of the estimated costs and benefits of either the next best alternative or the status quo.
- consider the option value of changing the timing of the expenditure if there is opportunity to learn from initial expenditure or future relative costs and benefits are expected to change in a predictable way.

Due to the wide variation in estimates of the cost and benefit of medicines funded by the RFP pilot we have focused on discussing the relativity of the costs and benefits of the medicines selected in the context of the

severe health need of people with rare disorders, rather than attempt to estimate the net present value of the allocation decision and the next best alternative.

PHARMAC staff asked the MRD subcommittee to rank the medicines using all nine decision criteria. PHARMAC staff ranking of the medicines was almost identical to the PTAC subcommittee ranking, where all nine decision criteria were also used. Also the potential budget impact of the lower ranked medicines (not progressed for funding) was high relative to budget.

Data on predictors of patient take-up was sparse and there was no indication that 'waiting' would improve the reliability of estimates of individual medicine cost. Also the reliability of cost estimates for several of the medicines could be much more effectively mitigated by negotiating risk sharing arrangements with suppliers than by developing more reliable estimates of patient take-up.

Benefit assessment

Estimates of the potential patient benefits of the medicines are inherently challenging due to the rareness of the conditions overseas let alone in New Zealand. Accordingly, the benefit assessment for each medicine used information on incidence and treatment outcomes from suppliers and other countries modified by the advice of patient advocate groups and New Zealand clinicians' and RCT's evidence where available, as an input into a simple ranking of each medicine by both the MRD Subcommittee and PHARMAC's internal evaluation committee. All of the medicines that were funded had a higher ranking than those that were not funded.

The assessment also included quality-adjusted life years (QALY) per \$1 million cost usually expressed as a range for medicines that were funded and the medicines that were considered but not funded.

Overall the assessment process for the benefits and the ranking of the efficacy of the medicines was transparent. Although the data for the estimated benefit is thin and the ranges of estimated costs and benefits can be wide, both the ranges of the estimate and the limited reliability of point estimates based on these ranges is clear in the documentation.

Allocation of the pilot budget

The selection of the medicines to be funded by the pilot was determined by PHARMAC's internal evaluation committee ranking of the medicine, using the nine decision criteria, and whether the cumulative first year budget impact of the medicines already selected allowed sufficient budget to cover the first year's impact of the next highest ranked medicine.

It is to be noted that existing expenditure on NPPA was not counted towards the funding pilot budget spend.

One report to the Board in February 2016 about the progress of the RFP pilot included a document that was less transparent about allocation decisions for the following reasons:

- lack of comment on the reliability of first year budget impact assessment as estimators of the likely cost in out-years – for example the zero first year budget impact listed for some medicines due to the fact that they would be funded through the NPPA pathway were an application be received for an individual patient.
- variation in the allowance for delays in take-up of the new medications due to the need to register with Medsafe.

Overall it is difficult to assess from the documentation what budget contingencies were explicitly considered in deciding which medicines to select for funding and which factors were managed on the basis of PHARMAC's long experience of managing a much larger portfolio of medicines for more common conditions.

Post selection expenditure

The post-selection take-up of the funded medicines has been considerably lower than expected for a combination of reasons:

- delays in registration of some medications by Medsafe which means they have not been listed on the Pharmaceutical Schedule
- lower than forecast use of some of the new medicines possibly due to subsequent identification of alternatives or narrowing of access criteria.

We understand that the RFP is now closed, so new medicines funded via the pilot will continue to be funded.

Conclusion: from a health economics point of view

The selection of the medicines for the pilot was based on a robust first-round assessment of relative efficacy of, and demand for, the medicines. Updated expenditure forecasts based on recent experience suggest the annual cost for the remainder of the funding pilot will be between 70 and 104 percent of the estimated first year budget impact and that overall the spend is likely to be less than the \$5m per annum maximum.

Comment on opportunity cost

As part of the review of the rare disorders pilot, PHARMAC has assessed the medicines that could have been funded if the maximum funding allocation for the rare disorders pilot had been applied to 'next best spend' through the Pharmaceutical Schedule. This budget for the rare disorders pilot would have potentially funded another 11 medicines that were being considered by PHARMAC via its Schedule funding application pathway and were ranked on PHARMAC's options for investment list. These 11 medicines, as a group, would have:

- offered average benefits (measured in QALYs per \$ million) significantly higher than the benefits offered by the rare disorders medicines
- addressed health needs (measured by QALY loss per treatment) that were lower than for rare disorders.

We understand from PHARMAC that the ranges of QALY based benefit measures for some of the individual medicines of the group of 11 medicines 'next best spend' through the Pharmaceutical Schedule overlapped with the benefit estimates for some of the individual medicines in the rare disorders group.

These observations illustrate the complexity of the trade-off decisions PHARMAC has to make in allocating funding at the margin and provides evidence that they are considered in the decision-making process.

Allocation of effort

The rare disorders pilot was complex in that it required PHARMAC to:

- test whether suppliers of medicines for rare disorders would respond to PHARMAC attempts to encourage competition in the same way as suppliers of medicines listed on the Pharmaceutical schedule
- set pre-requisites for rare disorders to be included in the pilot and develop an evidence base of the potential benefit and uptake of treatments.

PHARMAC initially identified and added the rare disorders medicines with higher health benefits and as the pilot progressed added medicines with lower benefits until it considered that funding any more medicines via the RFP would cause the maximum funding allocation to be exceeded.

