Uptake of new medicines in New Zealand: evidence of a waiting list
Jacqueline M Barber; Kevin P Sheehy

Abstract
Aims The Pharmacology and Therapeutics Advisory Committee (PTAC) advises the Pharmaceutical Management Agency (PHARMAC) which medicines should be listed on the New Zealand Pharmaceutical Schedule. This research analyses the PTAC recommendations from 2006 to September 2014 and aims to identify the composition of a waiting list of medicines, including levels of PTAC priority for positive recommendations and measure mean waiting times for these medicines to receive public funding.

Method Funding recommendations in the minutes of the New Zealand Pharmacology and Therapeutics Advisory Committee (PTAC) from 2006 to September 2014 were analysed and compared with the New Zealand Pharmaceutical Schedule for the same period. A list is developed, comprised of agents that received a positive funding recommendation from PTAC, but are still unlisted in the schedule. Waiting periods were measured from the time of the first positive PTAC recommendation to September 2014.

Results There are 29 medicines (for 31 indications) awaiting listing on the pharmaceutical schedule after receiving positive PTAC recommendations. Delays to listing of these medicines range between 0.3 years and 8.2 years. Somewhat surprisingly, mean waiting times did not differ substantially between different listing priorities assigned by PTAC.

Conclusions There are a substantial number of medicines awaiting funding in New Zealand after receiving positive recommendations from PTAC. We recommend that in the interest of transparent reporting, PHARMAC regularly publish a list of pharmaceuticals awaiting listing on the Pharmaceutical Schedule; their PTAC priority status; and the length of time they have been waiting.

Worldwide, the Health Technology Assessment (HTA) Agencies responsible for pharmaceutical funding share the common goal of maximising health benefits funded, while limiting financial costs. In New Zealand, this role is fulfilled by the Pharmaceutical Management Agency (PHARMAC).

Established in 1993, PHARMAC was charged with the responsibility of finding new ways to manage pharmaceutical expenditure while obtaining the best health outcomes for New Zealand. As a Crown entity, PHARMAC is relatively independent of Ministerial control, and reports only according to its legislated mandate.

The primary expert clinical committee that advises PHARMAC which medicines to fund, and with what priority, is the Pharmacology and Therapeutics Advisory Committee (PTAC). PTAC makes recommendations based on its evaluation of an HTA report and other data that is submitted by applicants and reviewed by the PHARMAC staff.1 It makes investment recommendations according to predetermined decision criteria (Box 1). The cost-effectiveness of a new agent and its overall budgetary impact are included in the factors that PTAC take into consideration (see Box 1 below).2-4

The PHARMAC Board is the final decision-making body regarding funding decisions.5 Once a medicine has received a positive PTAC recommendation, the PHARMAC staff hold commercial negotiations with the applicant and if an agreeable provisional outcome is reached this is submitted to the Board for a final investment decision. Not all products that have been recommended for funding by PTAC, however, appear to progress through to a decision by the PHARMAC Board; and the Board’s minutes are not publicly available.
Box 1. PHARMAC decision criteria

- The health needs of all eligible people within New Zealand
- The particular health needs of Maori and Pacific peoples
- The availability and suitability of existing medicines, therapeutic medical devices and related products and related things
- The clinical benefits and risks of pharmaceuticals
- The cost-effectiveness of meeting health needs by funding pharmaceuticals rather than using other publicly funded health and disability support services
- The budgetary impact (in terms of the pharmaceutical budget and the Government’s overall health budget) of any changes to the Pharmaceutical Schedule
- The direct cost to health service users
- The Government’s priorities for health funding, as set out in any objectives notified by the Crown to PHARMAC, or in PHARMAC’s Funding Agreement, or elsewhere
- Any other criteria that PTAC considers relevant

Despite the expert status of PTAC, PHARMAC are not bound to accept its advice or follow its recommendations, and PHARMAC may attach a different listing priority to a pharmaceutical, or make a decision that differs from PTAC’s recommendations.²,⁵

PHARMAC requires applicants to provide HTA information (usually Cost Effectiveness Analyses) in their applications for funding; it also frequently performs in-house economic evaluations comparing the medicine in an application with funded alternatives (see Box 2).⁶ The results of both the applicant and the PHARMAC HTAs are provided to PTAC to inform their decisions. In many cases the PHARMAC HTA assessments are done in a rudimentary manner (see Box 2) in order to save time and resources.⁵ These so called “rapid” assessments are not independently reviewed.

Following a PTAC recommendation and PHARMAC in-house evaluation, an internal priority list of medicines is generated from which potential investment options are then chosen.⁷,⁸ PHARMAC do not publish this list, nor the process by which it is subsequently reprioritised for final funding decisions.

We contend that the PHARMAC list of medicines awaiting funding is effectively a waiting list for medicines in New Zealand. In the absence of PHARMAC publishing this list, it would be reasonable to assume that the waiting list would be comprised of those medicines that have been reviewed by PTAC and received a positive recommendation for funding based on HTA evaluation; but which have not yet been listed on the Pharmaceutical Schedule. We have based our assessment of the waiting list on reviewing PTAC recommendations from publicly available minutes⁹ and comparing these with the list of medicines funded by PHARMAC as published in its Pharmaceutical Schedule.¹⁰

We have not included PTAC recommendations for widened access (fund medicines with less restrictive special authority criteria, wider population coverage or new indications) to medicines that already have a listing on the schedule, so our waiting list will be an underestimate.
We recognise that no country in the world funds all medicines for all people, and accept that rationing is a necessary part of keeping public provision of healthcare sustainable. We believe though, that identifying the presence and composition of a medicines waiting list is an important contribution to meaningful discussion about budget setting priorities within health. It may also contribute to improved debate about the appropriate level of medicines waiting within a fixed budget and with rationing of other aspects of healthcare.11–13

Box 2. Levels of PHARMAC cost-utility analysis (as reported by Grocott in 2009)6

<table>
<thead>
<tr>
<th>Detailed</th>
<th>Indicative</th>
<th>Preliminary</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Includes a detailed and systematic identification and synthesis of</td>
<td>• Interim assessment using some opportunistic data but more detailed than</td>
<td>• Rapid assessment largely using opportunistic data; evidence critically</td>
</tr>
<tr>
<td>relative clinical effectiveness, prognosis, and health-related quality</td>
<td>a preliminary analysis</td>
<td>appraised using GATE Lite</td>
</tr>
<tr>
<td>of life cost data. Evidence critically appraised using full GATE</td>
<td>• Evidence critically appraised using GATE Lite</td>
<td>Statistically non-significant events and costs only included if they are</td>
</tr>
<tr>
<td>(Graphic Appraisal Tool for Epidemiology)</td>
<td>• Reviewed internally and by PTAC</td>
<td>likely to change the results of analysis</td>
</tr>
<tr>
<td>• Costs and saving to other Government organisations considered in the</td>
<td></td>
<td>• Reviewed internally</td>
</tr>
<tr>
<td>report in a qualitative manner</td>
<td></td>
<td>• Rapid</td>
</tr>
<tr>
<td>• Probabilistic sensitivity analysis undertaken</td>
<td></td>
<td>• Very rapid assessment using opportunistic data</td>
</tr>
<tr>
<td>• Reviewed internally (clinical assumptions reviewed by the PTAC and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>externally)</td>
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</table>

We aimed to identify the composition of a list of medicines that have been assessed by PTAC and received a positive recommendation for funding, but have yet to be funded by PHARMAC. We also aim to measure how long patients have been waiting for the medicines on such a list to receive public funding.

We also assess categories of priority as allocated by PTAC within the overall list and measure how long the groups of medicines in each priority category have been awaiting funding.

Methods

Minutes from quarterly PTAC meetings were assessed from February 2006 (the first year that these were reliably published online) till September 2014.9 A database was compiled of the therapeutic agents and the corresponding indications as recorded in the PTAC minutes.
The database included the following categories:

- PTAC meeting date for first positive recommendation
- PTAC meeting date for subsequent and latest meetings for products that were reviewed after a positive recommendation
- Therapeutic agent
- Intended indication
- PTAC first recommendation (decline, list, sub-committee referral etc)
- PTAC subsequent and latest recommendations for products that were reviewed by PTAC after any initial recommendation
- Priority Status (positive recommendations only)

Medicines that received a positive PTAC recommendation were cross-referenced with the current New Zealand Pharmaceutical Schedule (in September 2014) to establish their listing status. Those that had received a positive PTAC recommendation but no Schedule listing were recorded and sub-categorised by PTAC recommendation priority: “high”, “medium”, “low” or “if cost neutral”.

Individual waiting periods (years) were calculated from the date of their first positive PTAC recommendation to the date of our analysis (September 2014). Any subsequent PTAC recommendation was compared to the initial recommendation and the latest recommendation level was then used for the final categorisation into “high”, “medium”, “low” or “if cost neutral” groups. If a medicine received a different priority in a subsequent PTAC analysis then the date of new recommendation was used to calculate waiting time for that medicine.

Mean waiting periods were calculated for the four degrees of listing priority, and for all the unlisted medicines combined.

Where there is more than one positive recommendation for a medicine for different indications, the earliest positive recommendation is included in calculating mean waiting times.

Where a PTAC minute referred to a recommendation prior to 2006 we attempted to locate the earlier PTAC minute and if verified, included the earlier recommendation as the commencement date for waiting times calculation.

Vaccines were excluded from the analysis as these were not routinely assessed by PHARMAC or PTAC until recently. Applications and PTAC recommendations for widening of access to new indications of medicines that already had at least one funded indication; or to wider patient populations were not included in this research.

The PHARMAC application tracker was checked to identify any missed PTAC references, but where there was a discrepancy between information in the application tracker and the PTAC minutes, the PTAC minutes were relied upon as being accurate.

**Results**

Applications for over 210 individual therapeutic agents were considered in the quarterly meetings of PTAC from February 2006 through to September 2014. Of those, 29 medicines (14%) for 31 indications are awaiting a final PHARMAC decision on implementation of a positive PTAC recommendation. See Table 1.

The mean waiting period for all medicines with positive PTAC recommendations was 2.8 years, the longest being 8.2 years for the adrenalin autoinjector for anaphylaxis which received a medium priority. The second longest waiting period was 8.1 years for deferasirox for adults with transfusional chronic iron overload and children with chronic iron overload with a high priority.
The shortest waiting time is 0.3 years for three medicines: ceftaroline for salvage therapy in multiresistant infections; lixisenatide for type 2 diabetes and the combination HIV treatment elvitegravir, cobicistat, tenofovir disoproxil fumarate and emtricitabine. See Table 2.

There were six instances of PTAC reviews of the medicines on our list subsequent to their initial recommendation and in all but two cases the subsequent PTAC recommendation retained the same priority. In one case the priority was changed from low to “if cost neutral” (for Nab-Paclitaxel) and in the other it was changed from a combined “low to medium” priority, to a priority of medium (rosuvastatin).

### Table 1. Medicines that received a positive PTAC recommendation but have yet to be listed on the New Zealand Pharmaceutical Schedule

<table>
<thead>
<tr>
<th>Agent</th>
<th>Therapeutic indication in PTAC minutes</th>
<th>Month of recommendation</th>
<th>Priority</th>
<th>Waiting period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GREATER THAN 4 YEARS WAIT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenalin Autoinjector</td>
<td>Anaphylaxis</td>
<td>Nov 2005</td>
<td>Medium</td>
<td>8.2</td>
</tr>
<tr>
<td>Deferasirox (Exjade)</td>
<td>Adults with transfusional chronic iron overload and children with chronic iron overload</td>
<td>Aug 2006</td>
<td>High</td>
<td>8.1</td>
</tr>
<tr>
<td>Fulvestrant (Faslodex)</td>
<td>Third-line treatment for locally advanced or metastatic breast cancer</td>
<td>Nov 2006</td>
<td>Low</td>
<td>7.8</td>
</tr>
<tr>
<td>Oxybuxyn patches (Oxytrol)</td>
<td>Urinary incontinence</td>
<td>Jul 2008</td>
<td>Low</td>
<td>6.2</td>
</tr>
<tr>
<td>Rosuvastatin (Crestor)</td>
<td>Alternative third-line lipid modifying agent option to ezetimibe in high risk patients (following treatment failure with simvastatin and atorvastatin).</td>
<td>Feb 2009</td>
<td>Medium</td>
<td>5.6</td>
</tr>
<tr>
<td>Buprenorphine transdermal patch (Norspan)</td>
<td>Moderate-to-severe pain, restricting its use to patients who have not responded to other opioid analgesics.</td>
<td>May 2009</td>
<td>Low</td>
<td>5.3</td>
</tr>
<tr>
<td>Golimumab (Simpon)</td>
<td>Second-line TNF-inhibitor treatment of rheumatoid arthritis following adalimumab failure</td>
<td>May 2010</td>
<td>Low</td>
<td>4.3</td>
</tr>
<tr>
<td>Strontium ranelate (Protos)</td>
<td>Strontium ranelate be funded as a second-line treatment for osteoporosis subject to Special Authority criteria restricting its use to patients intolerant to all funded bisphosphonates</td>
<td>May 2010</td>
<td>Low</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>BETWEEN 3 AND 4 YEARS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miglustat (Zavesca)</td>
<td>Type 1 Gaucher disease via the Gaucher Panel, for patients who are refractory to imiglucerase or show toxicity to imiglucerase or who are unable to comply with imiglucerase regimen.</td>
<td>Nov 2010</td>
<td>Low</td>
<td>3.8</td>
</tr>
<tr>
<td>Rivastigmine patches (Exelon)</td>
<td>Alzheimer’s disease</td>
<td>Nov 2010</td>
<td>Low</td>
<td>3.8</td>
</tr>
<tr>
<td>Cevimeline</td>
<td>Dry mouth (including Sjogren’s syndrome): for patients with the dry mouth symptoms of diagnosed Sjogren’s syndrome where patients have trialled and are intolerant to pilocarpine.</td>
<td>Aug 2011</td>
<td>Low</td>
<td>3.1</td>
</tr>
<tr>
<td>Preşabalin (Lyrica)</td>
<td>Refractory peripheral neuropathic pain associated with post herpetic neuralgia or diabetic peripheral neuropathy.</td>
<td>Aug 2011</td>
<td>Low</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>BETWEEN 2 AND 3 YEARS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saxagliptin</td>
<td>Type 2 diabetes mellitus</td>
<td>Nov 2011</td>
<td>Low</td>
<td>2.8</td>
</tr>
<tr>
<td>Linagliptin</td>
<td>Type 2 diabetes</td>
<td>Aug 2012</td>
<td>Low</td>
<td>2.1</td>
</tr>
<tr>
<td>Liraglutide</td>
<td>Type 2 diabetes</td>
<td>Aug 2012</td>
<td>Low</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>BETWEEN 1 AND 2 YEARS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Everolimus | SEGAs (6 months) treatment prior to neurosurgery and for those not amenable to neurosurgical resection | Feb 2013 | High | 1.6
Renal multivitamin | Chronic kidney disease | Feb 2013 | Medium | 1.6
Abiraterone | Castrate-resistant metastatic prostate cancer | Aug 2013 | Low | 1.1

**LESS THAN 1 YEAR**

**Table 2. Waiting times by priority category**

<table>
<thead>
<tr>
<th>PTAC priority category</th>
<th>Number of medicines</th>
<th>Mean waiting time</th>
<th>Range of waiting times</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>3</td>
<td>3.3</td>
<td>0.3–8.1</td>
</tr>
<tr>
<td>Medium</td>
<td>6</td>
<td>2.9</td>
<td>0.6–8.2</td>
</tr>
<tr>
<td>Low</td>
<td>16</td>
<td>3.2</td>
<td>0.3–7.8</td>
</tr>
<tr>
<td>If cost neutral</td>
<td>4</td>
<td>0.6</td>
<td>0.3–0.8</td>
</tr>
</tbody>
</table>

Somewhat counter-intuitively, a higher priority recommendation (mean 3.3 years) does not seem to correlate to shorter waiting times, as those recommended with medium priority (mean 2.9 years) and low priority (mean 3.2 years) had been waiting for similar mean periods, although the low number of high priority medicines (3 in this category) makes the mean less reliable (range 0.3 to 8.1 years).

**Discussion**

Waiting lists for health treatments within a resource constrained environment are relatively common both locally and internationally, and are arguably a means of identifying bottlenecks in the system. We have developed evidence that a medicines waiting list does exist in New Zealand and tried to quantify it in terms of size and waiting times.

Our report is not specifically aimed at achieving listing of the therapeutic agents identified. Rather, our intention is to illuminate that there is in fact a New Zealand medicines waiting list and discuss the need for a transparent reporting of such a waiting list in the future.

PHARMAC is the only body within the New Zealand health sector that is legislated to work within the constraints of a fixed budget, set annually by the Minister of Health from within the overall Health Budget (“Vote Health”). Prior to PHARMAC’s inception, the rate of increase in New Zealand’s pharmaceutical expenditure had been deemed unsustainable at between 10 and 20% per year.
PHARMAC’s success in generating savings is frequently stated by many stakeholders; although the actual size of these savings; any trade-offs in terms of delayed access; or the health consequences of them have not been adequately measured in a peer reviewed manner. Where PHARMAC quotes estimates of long term savings in its Annual Reports there is no methodology provided and no external review of how this has been calculated.18

Our work aims to identify a measurable and reproducible waiting list specific to New Zealand. Any such waiting list would change frequently, and require regular updating to be meaningful to policy considerations.

We note that there are a number of the medicines on our list that PHARMAC is currently consulting on funding, but believe that even if all of these are funded in the near future the waiting times prior to them being funded are important to recognise as a measure of PHARMAC’s ability to perform its legislated mandate within the budget that is provided to it.

We recognise that medicines that receive a specific priority may have this priority changed over time, but without the PHARMAC priority list being made available publicly, it is not possible for such priorities to be monitored.

A benefit of our approach is that by relying on the expert clinical committee PTAC’s positive recommendations for listing, we have included only medicines that may be deemed to have a meaningful positive benefit from being funded. The PTAC process can be expected to have declined any medicines that it considered to not add therapeutic value to the health system.

For some of the diseases that the medicines on the waiting list treat, there may already be funded medicines that are considered similar in efficacy, but we believe that for a medicine to be recommended by PTAC as any priority other than “if cost neutral”, PTAC would have considered that there is additional benefit to be gained from providing access to the medicine.

A weakness of our methodology is that we have not included applications for additional indications or widened population group coverage and hence we underestimate of the size of the waiting list of potential investments that PHARMAC faces. The PHARMAC Annual Report 2013 (page 3)18 shows that for the majority of years between 2008 and 2013, the decisions to widen access have outnumbered those providing new listings, suggesting this area may be substantial if measured by the number of products or the number of patients affected.

PHARMAC is currently expanding its function to include hospital medicines, vaccines and medical devices, so it is timely to consider whether success in the area of financial constraint is acceptably balanced with availability of medicines to the public.

New Zealand’s reputation for tight fiscal constraint when subsidising prescription drugs is well-recognised and has been largely attributed to limited resources imposed by strict budget-caps.19 PHARMAC claims to have saved an estimated NZ$76.2 million on pharmaceutical expenditure in 201120 and NZ$30 million of this saving was redirected to other areas of expenditure in the health system. We believe that in the absence of meaningful comparison of investment opportunities, a decision to redirect funding has the potential to work counter to the principle of efficiency on which HTA and PHARMAC are both based. In effect, redirecting funding away from a highly efficient organisation may be wasteful.

Redirecting funding away from PHARMAC needs to be particularly carefully scrutinised in the light of evidence that access to newer pharmaceuticals in New Zealand compared to other developed countries is lower,12,21,22 and the rate of uptake of new agents is slower.21,23

PHARMAC put their legislated mandate into operation through applying the decision criteria, including a reliance on the cost effectiveness of new medicines and their projected impact on the
annual budget. Through these tools, PHARMAC manages new entrants to the pharmaceutical schedule in a way that is able to measure, predict and control the pharmaceutical budget.

The cost-effectiveness of a therapeutic agent is an important decision criterion in achieving the best health outcomes for the dollars being spent. One may argue that the cost-effectiveness of an agent should have little bearing on the delays observed between PTAC recommendations and PHARMAC listings as the PTAC recommendations have already taken into account the cost effectiveness as a decision criterion, and as such PHARMAC should implement a positive recommendation expeditiously. The question then is whether or not PHARMAC’s funding is adequate to enable it to perform its role optimally.

It appears that the effectiveness of the listing priorities that PTAC places on recommendations is limited, particularly as the priorities do not appear to predict the speed with which agents are listed. Little difference is observed between the mean waiting periods for the different priority listings. Much of this may be due to PHARMAC’s right to reprioritise PTAC’s recommendations.

In order to minimise costs, one can accept the decision to fund a medicine with a lower cost per QALY (quality-adjusted life year) over another similarly prioritised intervention. It is difficult to understand, however, why in some instances medicines with a lower PTAC priority have been funded ahead of those with a high priority.

A recent comparison of the rate of access to new prescription medications in New Zealand and Australia found that between 2000 and 2009, 136 new prescription medicines were listed in the Australian Schedule of Pharmaceutical Benefits, of which 59 (43%) were listed in the New Zealand Pharmaceutical Schedule. Listing in New Zealand also took an mean of 32.7 months longer, largely due to an extended wait period between regulatory approval and PHARMAC listing of 23.7 months. Those listed within Australia but not New Zealand covered a wide range of therapeutic indications, some of which had no alternative treatments available in New Zealand.

Recent improvements appear to have been have been made in New Zealand, and 2012/13 saw PHARMAC make 20 new investments, but most of these medicines had been registered in New Zealand for a long time with many of them having been registered in New Zealand prior to 1990.

Differences between pharmaceutical access in New Zealand and Australia in particular are largely due to the operational differences between PHARMAC and the Australian Pharmaceutical Benefits Scheme (PBS). Both entities have a value-for-money approach, however, while PHARMAC operates within strictly capped budgets, the Australian Government will expand PBS funding in order to accommodate new pharmaceuticals, which demonstrate clinical importance and cost-effectiveness among other qualities.

Specifically, while the Australian Government manages the price of each medicine on the PBS, the total cost of the PBS Scheme is uncapped and is able to increase as new drugs are added in response to clinical recommendations and the identification of new treatments that will deliver therapeutic benefits.

Such budget flexibility allows the Australian Pharmaceutical Benefits Advisory Committee (PBAC, analogous to PTAC in New Zealand) to judge treatments based on clinical and health economic merit and for recommendations to be implemented rapidly.

We note that patients in Australia also face the need to pay a larger co-payment. The affordability of such an approach from a patient’s perspective would need to be considered if this were to be seen as a way of speeding up access to medicines in New Zealand.

We have assessed the medicines that have not been listed at all on the pharmaceutical schedule, in addition to these, there are a number of medicines currently listed for indications or populations that...
may be narrower than warranted. Further research could look into the extent of these restrictions, possibly using a methodology similar to ours in considering PTAC recommendations and comparing these to schedule listings.

Concluding remarks

A pharmaceutical waiting list in New Zealand is evident, the extent of which we believe needs to be communicated to New Zealand clinicians and the public.

The study found that there are 29 medicines with positive recommendations from PTAC that are awaiting funding. Waiting times identified ranged from 0.3 to 8.2 years and there were only small differences in mean waiting times between the groups of medicines by PTAC priority.

We believe that a waiting list can be a useful tool in PHARMAC openly reporting on performance and providing input to government budget allocation decisions. For the sake of transparency it would be sensible for PHARMAC to publish a regularly updated list of pharmaceuticals awaiting listing on the Pharmaceutical Schedule, their PTAC priority status and the length of time they have been waiting (analogous to a DHB waiting list for various health interventions).

We consider that if New Zealand is truly to provide the best health outcomes that are reasonably achievable from pharmaceutical treatment, there should be a more open disclosure and debate about what investment options are available to PHARMAC.

Competing interests: The funding for this research was provided by Medicines New Zealand:

- Jacqueline M Barber was contracted to Medicines New Zealand, the trade association for the pharmaceutical industry in New Zealand for the purpose of conducting this research. She has no other relevant affiliations or financial involvement with any organisation or entity with a financial interest or conflict with the materials discussed in the manuscript apart from that disclosed.
- Kevin P Sheehy is a consultant in health innovation for Navigator, at the time of writing the manuscript, he was the General Manager of Medicines New Zealand. Medicines New Zealand is the association representing the originator pharmaceutical industry in New Zealand and is fully funded by these companies for policy and advocacy work.

Author information: Kevin Sheehy, Health Lead, Associate Partner; Navigator Management consultancy; Wellington; Jacqueline Barber (Currently) Postdoctoral Fellow, Molecular Ligand Target Research Team, Centre for Sustainable Research Science, RIKEN Institute, Saitama, Japan (at the time of this research Jacqueline was contracted part time as an intern for Medicines New Zealand)

Acknowledgement: The authors acknowledge the significant contribution made to this article by Christine Ross (formerly Communications Manager, Medicines New Zealand).

Correspondence: Kevin Sheehy, Medicines New Zealand, PO Box 10-447, Wellington 6143, New Zealand. Kevin.Sheehy@Navigator.kiwi.nz

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