BETTER ACCESS
AUSTRALIA

Submission to the House of Representatives Standing Committee on Health, Aged Care and Sport Inquiry into the approval processes for new drugs and novel medical technologies in Australia, with a particular focus on those for the treatment of rare diseases and conditions where there is high and unmet clinical need.

November 2020

9 November 2020

The Chair
Mr Trent Zimmerman MP
Standing Committee on Health, Aged Care and Sport
PO Box 6021
Parliament House
CANBERRA

Dear Mr Zimmerman,

Inquiry into the approval of processes for new drugs and novel medical technologies in Australia

Thank you for the opportunity to provide a response to the Inquiry – *Approval processes for new drugs and novel medical technologies in Australia***.**

Better Access Australia is a policy and advocacy organisation focusing on Australia's health, disability and social services systems (the social sector). We contribute to the public policy debate in Australia through research, publications, public discussion and advocacy.

Better Access Australia's submission focuses on the patients who are increasingly missing out on timely access to existing, new and novel treatments in stark comparison to access to health services in the hospital setting.

Timely access to medicines and technologies, existing, new or novel, is an increasingly important issue and Better Access Australia is pleased to be able to contribute to the discussion.

We would be pleased to participate further in this inquiry at any stage.

Yours sincerely

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EXECUTIVE SUMMARY

Better Access Australia was established out of a growing recognition that Australia's capacity to ensure a no wrong door approach to accessing health and social services in Australia was developing increasing gaps for the community and individuals to fall through.

Public debates between purchasers and providers are increasingly missing the patient and community voice in the design of access to our health and social service systems. Consultation with the community and the patients served and reliant on these systems is too often at the end of the process and therefore they wait. These systems serve the community and are funded by the community, they are not an institution of their own.

Better Access Australia seeks to raise policy questions and concerns as observers and users of the health and social services system. We want to ensure debate about access to these services in Australia considers all perspectives, not just the loudest or usual "go-to" representatives. We want public debate and patient and community-centric decision-making.

This inquiry is exploring the ***approval processes for new drugs and novel medical technologies in Australia, with a particular focus on the treatment of rare diseases and conditions where there is high and unmet clinical need***.

In exploring these areas we encourage the Committee to contemplate the realities of patient and consumer waiting times for access to medicines and new (and novel) technologies compared to the investment and effort successive governments have made to reduce the wait times for other health services in Australia. The disparity in investment and disparity in tolerance of these waiting times is of increasing concern and needs to be challenged.

Further, we challenge the Committee to recognise that delays in access to new technologies is not the exclusive remit of rare diseases, but is a growing burden for the broader community as programs such as the Pharmaceutical Benefits Scheme (PBS) see lengthy and unacceptable delays in access to new treatments for chronic conditions such as cardiovascular disease, migraine, eczema and psoriasis. New technologies in these chronic disease areas seem to be a greater challenge to the health system than the incremental access to common and rare cancers.

We must provide our health system with the capacity to change this.

In 2019, 50 per cent of patients waited 41 days for elective surgery, with 90 per cent admitted within 279 days.[1] Meanwhile Australians are waiting an average of 820 days for a medicine to be subsidised by the government after it has been registered for use in Australia by the Therapeutic Goods Administration (TGA).[2]

No one should be waiting 820 days for access to a medicine in Australia that has already been found to be safe and effective for use by the TGA.

[1] Elective surgery waiting times 2018-19, Supplementary data tables, Table 4.7, Australian Institute of Health and Welfare.

[2] Analysis of PBAC submissions and their related outcomes & timelines, MAESTrO Database, October 2020 (see Appendix 1).

This is not an average for rare diseases, it is an average for every medicine whether it treats a lysosomal storage disorder, be the latest test or treatment for cancer or a common and yet debilitating disease such as chronic migraine or cardiovascular disease.

When that 820 day average is based on a spread of 59 to 6513 days, we should be asking what we can do to support those that make these decisions to make them faster.[3]

Our access to medical technologies and treatments fairs no better if being assessed through the Pharmaceutical Benefits Advisory Committee (PBAC), the Medical Services Advisory Committee (MSAC), the Interjurisdictional Screening Committees or the subsidy of treatments by the National Blood Authority (NBA).

- Why is it acceptable for Australia to fall behind the rest of the world in regard to access to genetic testing? We were world leaders in organ transplants but we can't keep up with access to what is quickly becoming standard technology? Clinical trials are not the solution.
- Why do we consider it acceptable for small patient groups to wait three years for access to a process for newborn screening for fatal but treatable diseases only to be told no. Australia once led the world in this testing but hasn't added a new disease to these tests since 1981.[4]

The challenge is our processes are about the purchaser-provider arrangements between government and industry – they are not about patients.

And the gap between the priorities of patients and the system are growing as healthcare innovation moves in leaps and bounds in the areas of testing and treatment whether in new or novel therapies for chronic or rare diseases. Our 1990s assessment processes and pricing strategies are often failing to keep pace with 2020 technologies.

Yes, we must make the best use of resources, but why is it taking so long to come to a negotiated position? COVID-19 has shown us what is possible – so what can we learn from it? Negotiations should not be as long as the time taken to develop the technology in the first place.

Our subsidy systems are well behind our regulatory systems in the flexibility and agility government provides for these committees and the bureaucracy to innovate and adapt at the same rate as the technologies they evaluate.

We must give the system headroom to change and adapt and once again lead the world in access to technologies – funding clinical trials is not the answer to equitable access to treatments in Australia. It is great for science and innovation but does not solve patient access.

It is time for governments to lead again just as they did with the introduction of cost effectiveness assessment for medicines, the review of the TGA, the establishment of the Office of the Gene Technology Regulator, the early adoption of neonatal screening.

Submissions will be made by health provider companies, patients and academics to this Inquiry, citing recommendations to processes, and personal experiences of living with waiting for access. These will all be important considerations for the Committee.

[3] Analysis of PBAC submissions and their related outcomes & timelines, MAESTrO Database, October 2020 (see Appendix 1).
[4] Australian Pompe Association submission to this Inquiry

We ask the Committee to consider the following recommendations that reflect a mixture of redefining Australia's aspirations of health access, and practical measures to ensure Australia's health system in all its facets is focussed on the patients and health outcomes they are seeking.

RECOMMENDATIONS

The Government:

1. Expedite commencement of the National Medicines Policy review it committed to as part of the 2019 election and for which there is bipartisan support.
2. Recognise it is not acceptable for patients to wait on average 820 days for subsidised access to a medicine whether it be a rare, common or chronic disease.
3. Recognise that chronic disease management is of equal priority and process challenge given the innovation in treatments currently in the pipeline compared to 1970s-1990s molecules and whose funding can represent significant improvements in productivity and workplace participation – a cost factor not always given due weighting in the assessment of the costs of treatments.
4. Recognise the uncertainty in timeframes and lack of transparency of the MSAC approval processes is not acceptable, and that the increasing convergence of technologies and their application is only going to make the disparity between PBAC and MSAC processes more stark and increasingly unacceptable to the community.
5. Set new targets for waiting times for subsidy of new and novel treatments and technologies irrespective of their subsidy pathway, consistent with its investment in hospitals:
    a. That these targets should have a goal of being less than 100 days from TGA registration;
    b. That the opportunities to build upon current parallel processing by the TGA/PBAC and MSAC and other subsidy bodies should be expanded to support this;
    c. That collaborative meetings between regulators and subsidy assessors should become the standard approach for bringing new or novel technologies to Australia and for expansion of clinical treatment areas for chronic diseases; and
    d. Consider the access options provided by systems such as that in place for Germany which subsidises treatments almost immediately after registration and rely on robust real world and clinical evidence to review pricing thereafter, but that the lessons of incentives and disincentives for purchasers and providers be thoroughly explored and contextualised in the Australian system which has well established evaluation processes in place.
6. That subsidy processes be appropriately resourced if the focus on negotiations for pricing and total patient numbers are to continue to be the priority process of governments. Negotiations should not unnecessarily slow access particularly when they primarily relate to finalisation of pricing and patient numbers of a technology accepted as safe, efficacious and of health benefit.
7. Processes for expanding access to treatments when significantly cheaper (off-patent) need to be embedded into the subsidy system to ensure earlier interventions to reduce health deterioration are possible, noting the continued limited access to biological disease modifying anti-rheumatic drugs (bDMARDS), and challenges with access to off-patent medicines for paediatric and other indications.
8. Immediately review the current basis for the assessment of subsidies by different committees noting the convergence of technologies is confounding the arbitrary placement in the subsidy assessment process. The starting premise of the review should:

a. Be based on the viability of creating a single assessment system combining the skills and expertise of the various committees to be deployed as needed for the technology or treatment, providing best advice to government and faster access for consumers;

b. Include a comprehensive assessment and redesign of the consumer focus of these processes recognising the diversity of access and engagement provided by other systems locally and globally; and

c. Include options for introducing independent review and appeals processes accessible to the community and individual consumers not just the sponsors of medicines and technologies.

9. In light of recent events with the procurement of vaccines for the COVID-19 pandemic response, review the assessment and value proposition for vaccines in Australia noting the impact of preventative treatment on the health system and for consumers and the wiliness and capacity to pay governments have placed on this technology and our need for these technologies into the future.

10. Review the government's cost recovery processes for different health committees, considering where application to other subsidy systems could benefit timeliness of assessment and access as well as where they might currently create barriers including the most recent PBAC cost recovery guidelines which arbitrarily slow access to treatments as agreed with the industry. This review should:

    a. recognise that the costs of some of Australia's processes are becoming prohibitive for smaller companies and for technologies supporting rare or small patient populations, particularly with multiple rejections of applications by subsidy committees and therefore:

        i. extend the waiver of fees for orphan status drugs and technologies beyond the current six-month timeframe for application, noting the data and process demands of the subsidy system are significantly longer than the safety and efficacy registration processes in Australia;

        ii. consider expanding fees to other parts of the system to support more robust timeframes and transparency of processes in all subsidy assessment committees;

        iii. consider fee processes and payment plans commensurate with the size of the company. This will be particularly relevant if cost recovery is expanded to the assessment of medical technologies and clinical interventions.

11. Continue its investment in clinical trials for the value it brings to Australia's scientific sector and industry development and for some patients, but recognise that this is not a surrogate for providing universal and equality of access to all consumers who could benefit from a particular treatment or technology in Australia.

WHAT IS BETTER ACCESS AUSTRALIA?

Better Access Australia is a not-for-profit (NFP) policy and advocacy organisation focussing on Australia's health, disability and social services systems (the social sector).

Better Access Australia contributes to the public policy debate in Australia through research, publications, public discussion, and advocacy. It was established on the principle that the social sector works best when public, private and not-for-profit parties engage in good faith with the existing systems and processes, and that each party's contribution is recognised and valued.

Better Access Australia takes the view that the foundations of Australia's social sector are solid and deliver reasonable quality services to most Australians. However, there are significant challenges and opportunities facing the sector now and over the next 10 years, and Australia's governments, industry and not-for-profit sectors need quality policy advice that is focused on delivering better outcomes for those who rely on these systems for a better life.

A decade can be both a short and long time depending on your focus.

At Better Access Australia we believe it is important to start now with a dual focus on improving access within the current systems while also framing the systems of the future. We believe that through our strong and persuasive advocacy we can support the delivery of a better social sector in Australia.

High quality, evidence-based policy has never been more important. Existing challenges in the social sector have been brought to the fore. Systemic issues such as the divide between Commonwealth and state/territory funding and management responsibilities, integration between mainstream health and other care sectors and potential trade-offs between health outcomes and the economy are all critical and current debates.

However, these challenges also present us with an opportunity to test and confirm our deeply held goals as a society, explore innovative solutions, consider best practice and learn from lessons from around the globe to build a better social sector.

Better Access Australia is currently a 100% voluntary NFP. Our Board brings together directors with a cross-section of commercial and public sector skills and experience.

We acknowledge and thank Amgen Australia for their contribution in commissioning the analytics work of the PBAC submission processes from Maestro to assist in the preparation of this submission.

BETTER HEALTH, DISABILITY AND SOCIAL SERVICES

THE VALUE OF HEALTHCARE IN THE PRODUCTIVITY OF AUSTRALIA

Better Access Australia welcomes the ongoing analysis by the Productivity Commission of the potential for broader economic benefits from an effective healthcare system.[5]

Australia is currently grappling with the health impacts of COVID-19 on both the short-term and longer-term health of the Australian community. In particular the secondary impacts of reduced diagnosis, reduced access to healthcare professionals, increased incidence of chronic disease risk factors and increased risk of mental health concerns emanating from the government's approach to managing COVID-19, make the observations of the Productivity Commission timely and important.

The Commission's analysis shows that Australia's principle health challenge is managing chronic illness. The management of ill-health is enduring in Australia (over 11.4 years and growing) and well beyond most other countries we would like to benchmark ourselves against for the achievement of efficient and value for money health outcomes.[6]

The diseases recognised as our leading causes of death are changing over time in Australia, but with cancer still the leading mortality cause closely followed by cardiovascular disease.[7] This is not unexpected given that as we age, our health state deteriorates, and one of these two broader disease categories is the reality of disease management for older Australians.

What we should be proud of is the increasing average age of death from these diseases. With the continuing pipelines for cancer treatments and diagnostics, there is much available and becoming available in the treatment of cancer. Likewise, our prevention of and management of cardiovascular disease (including stroke) has profoundly extended the average life expectancy of those managing these conditions.[8]

Continued timely access to hospitals, primary care and the medicines and technologies are the necessary foundations for maintaining these results. Delays to access have profound impacts on the health of the individual, their quality of life, and their productivity in the community.

Therefore, we must be confident enough in our system to challenge our 1990s processes to ensure they are contemporary and agile just as we expect of our broader Australian workforce whatever the industry or occupation. We must always seek to do better.

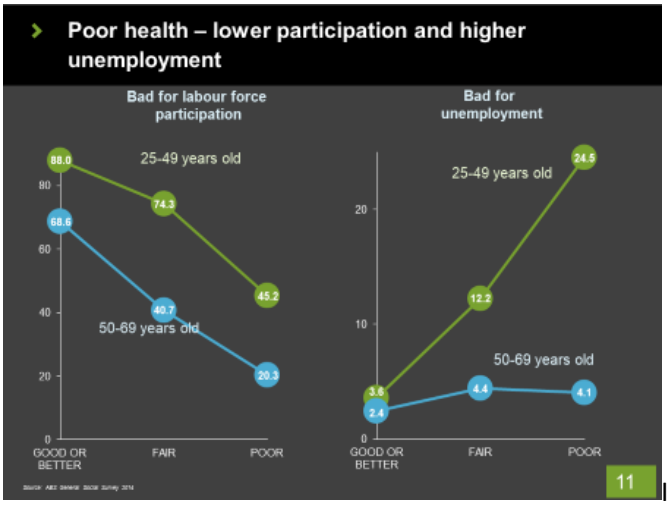
The National Medicines Policy review for which there is bipartisan support, provides that opportunity to look strategically and holistically at the federal health subsidy system. Not just for the successes we must continue to build upon, but the pipeline pressures we must be ready to address.

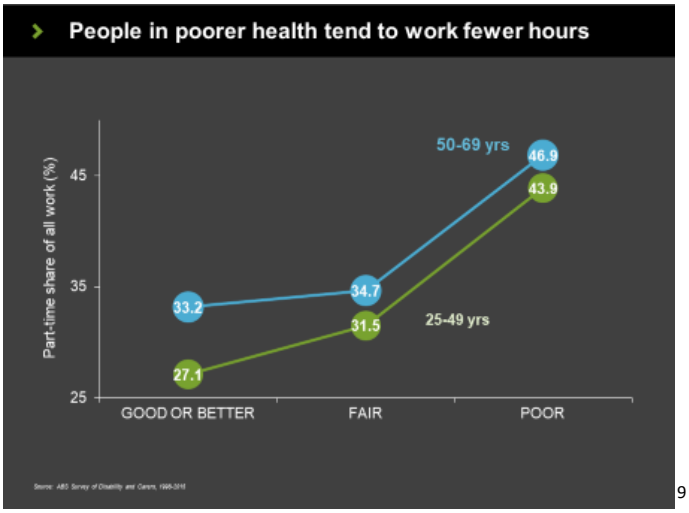
And those pressures are not just in novel technologies for rare and uncommon diseases, such as gene therapies for haemophilia, and CAR-T therapy for specific types of lymphoma. They are equally the challenges of new technologies and treatments that provide better management of the increasing incidences of obesity and mental health, the evolving challenges of cardiovascular

[5] Productivity Commission Chair Michael Brennan, Consumer Health Summit, Canberra 24 July 2019 -.
[6] Ibid, presentation slides 7 and 8.
[7] *Ibid*, presentation slide 9
[8] Australian Institute of Health and Welfare, Deaths in Australia, Canberra 7 August 2020

disease, and the breakthrough treatments for chronic migraine, eczema, arthritic conditions and other chronic diseases.

It is chronic disease that has a sustained impact on the productivity and workforce participation of potentially millions in the community as these graphs from the Productivity Commission readily demonstrate.





[9]

It is chronic disease management that can have a profound impact on productivity in Australia.

It is chronic disease management that is going to represent an increasing medicine and services cost to the Australian health budget, but for which its productivity potential needs to be better recognised.

> ***Investment in our health system is an investment in Australia's productivity which is why assessing the health outcomes alone of a new technology or treatment is no longer sufficient.***

[9] Productivity Commission Chair Michael Brennan, Consumer Health Summit, Canberra 24 July 2019 -.

CONSUMER-CENTRIC SYSTEMS NEED TO IMPROVE THEIR CONSUMER INVOLVEMENT IN DECISION MAKING

Unless a consumer or patient group or individual patient is professionally or government funded and recognised as a stakeholder by the system their opportunity to engage with, participate in and be genuinely served by the subsidy systems in Australia is often a poor experience.

Processes for consultation, engagement, information and transparency are not an easily navigated pathway for those not "in the know" and it is a matter of trying to find a way in for their voice to be heard. Submissions from several patient groups to this Inquiry have articulated that concern and frustration.

Establishment of two consumer representatives on major subsidy assessment committees, and a consumer access point within the Technology Assessment and Access Division represent positive steps in engagement. Likewise, a tracking capacity on the submissions portal for consumer watching of a submissions progress can also be seen as a positive step. But there is much progress to be made, if consumers beyond the "usual go-tos" are to see this as a consumer-centric subsidy system.

Patient groups with significant funding from industry or government navigate the system with relative ease, but what about the grass-roots patient groups or individual consumers trying to advocate for themselves or their family members.

- Is it acceptable to tell a patient how they must complete a form to have their voice heard?
- Is it acceptable that a system that asks for consumer feedback doesn't do them the courtesy of sending them an email letting them know there is an outcome and where to find it and offer to explain it?
- Is it acceptable that a section established to liaise with consumers does not reach out to them when a listing they are affected by is added to the agenda without warning to explain the reasons and how they can participate?
- Is it acceptable that after making a recommendation or direction of a subsidy application the system shuts the consumer out of the process until a Minister is ready to announce something?
- Is it reasonable that the system allows the provider to present to the assessing health technology assessment (HTA) bodies but not the consumers?
- Is it acceptable that the cost recovery processes which secure companies unlimited access to the department and the HTA bodies preclude time for the consumers?
- Is it acceptable that industry groups continue to negotiate almost exclusively with the government on the future of the systems with consumer engagement almost an afterthought at the end of the process instead of inviting them to co-design the system that serves them. A system that decrees a first time new treatment for eczema where this is high unmet clinical need is not a priority because of a 40-year old drug already listed on the PBS?
- Is it acceptable that some subsidy assessment committees federally or cross-jurisdictional committees neither have consumer representatives appointed, nor have formalised

methods for reaching out and gaining consumer feedback to input to their decision-making (eg Interjurisdictional Committee on (neonatal) Screening).[10]

Any future consideration of our federal subsidy systems must not only be considered with the consumer in mind, but they must be part of the co-design and part of the system.

- Would industry forsake a few pre-submission meetings to allow for access to the assessment bodies by consumers?
- Can we design a system that allows for broader consumer engagement beyond the traditional "go-to's" and makes it easier for new patient groups or individuals to navigate a system their life can literally depend upon?
- Can we design a system that reaches out instead of asking someone to find their way in? Can we make consumer representation and input standard and not just by professional consumers?
- Can we learn from our benchmark systems such as the United Kingdom's National Institute for Health and Care Excellence (NICE) for better ways to do this?[11]

[10] https://www.health.gov.au/committees-and-groups/standing-committee-on-screening-scos
[11] https://www.nice.org.uk/Get-Involved/our-committees

IT IS EASIER TO GET A HIP REPLACMENT IN THE PUBLIC HEALTH SYSTEM THAN A TREATMENT FOR ECZEMA

On 29 May 2020 the Australian Government announced further funding of $133.6B for the National Health Reform Agreements (NHRA) building on the existing $85B over five years already committed.[12] Federal and state governments acknowledge and invest in the need for timely and affordable access to acute care. This includes a significant investment to try and reduce waiting lists for surgical interventions, particularly elective surgery in the public hospital system which has long been the source of public criticism. [13]

In 2018-19, 50 per cent of patients were admitted for elective surgery within 41 days (up from 40 days the previous year and 35 days in 2014–15). At the 90th percentile, patients were admitted for elective surgery within 279 days (up from 268 days the previous year and 253 days in 2014-15).

The proportion of patients who waited longer than 365 days to be admitted was 2.1% in 2018–19, up from 1.8% in the previous year.[14] Wait time (mean) for elective surgery can vary depending on procedure, from 19 days for cardio-thoracic surgery, 77 days for orthopaedic surgery and 84 days for ear, nose and throat surgery.[15]

Elective Surgery Waiting Times, 2011-12 to 2018-19[16]

	2011–12	2012–13	2013–14	2014–15	2015–16[(a)]	2016-17	2017-18	2018-19
Days waited at 50th percentile	36	36	36	35	37	38	40	41
Days waited at 90th percentile	250	265	262	253	260	258	268	279
Percentage who waited more than 365 days	2.7	2.7	2.4	1.8	2	1.7	1.8	2.1

The data is reported by the individual jurisdictions and summarised by the Australian Institute of Health and Welfare (AIHW). Key Performance Indicators are increasing in transparency and usefulness, and the system as a whole is focussed on improving access to these health care services.

Yet most people continue to argue that waiting a median time of 41 days (50 days for Indigenous Australians) for necessary surgery is not acceptable and more funding is needed.[17] And governments respond.

The Australian Government cites with great pride the work of the TGA over the past few years to improve its timelines for regulatory assessment and approval of medicines and technologies for use in Australia. The work of the TGA in reforming these processes since its 2013 review and subsequent

[12] 2020–25 National Health Reform Agreement (NHRA); National Health Reform Funding
[13] The shortest waiting lists for elective surgery in public hospitals revealed, July 2013;
[14] Australian Institute of Health and Welfare, Elective Surgery 2018-19.
[15] Ibid, 2018-19 data.
[16] Ibid, Elective surgery 2018-19 tables.
[17] Double whammy leaves private and public patients short; Bulging queues make Australians wait even longer for a public hospital visit; Long elective surgery and ED wait times of no surprise to the Labor party; Elective surgery wait time surges; Surgery wait lists too long: Vic report; Public patients waiting twice as long for elective surgery, hospitals data reveals.

championing of collaboration consultation and harmonisation with its overseas counterparts to improve timeliness of access in Australia, should be applauded.

Its efforts to improve registration processes and timeliness for orphan drugs and breakthrough treatments are recognised by patients and industry alike.

The TGA reports on all this work with considerable and increasing transparency and inclusiveness of stakeholders.[18] But registration is not the end point patients are waiting for – subsidisation of the treatment or technology is.

Most new medicines and technologies are financially outside the reach of most Australians. They rely on the subsidy to determine their quality of life or duration of life. The subsidy system is every consumer's chance for good health, and Australia's chance for a more productive economy.

If the Australian Government has been willing to make improvements and investment in registration of new technologies based on a strategic review of the system, isn't it time for them to show the same support and commitment to our subsidy systems? It's time to revisit it the subsidy system at a strategic level. Bring forward the National Medicines Policy Review and give the subsidy system a chance to innovate.

820 Days of Waiting

So, what does waiting for subsidised access to treatments assessed by the federal government mean as opposed to a reliance on the state-based hospital system services?

The following analysis takes the PBAC's processes as an evaluation point noting the considerable transparency of their processes and timeframes which allow for a broad assessment of the treatments they consider.

The Maestro report at Appendix 1 analysed the subsidy submissions to the PBAC over the period 2010 to 2019.[19] In considering some 182 new cost effective applications in 2010-17 and 216 over the period 2010-19 it found the spread of time from TGA registration to subsidy was 820 days and 759 days respectively.

Category	2010-2017 (n = 182)	2010-2019 (n = 216)
Mean	820	759
Median	590	553
Minimum	59	52
First quartile	340	313
Third quartile	947	924
Maximum	6513	6513

Table X: Period from date of TGA registration to date of PBS/LSDP listing (ever CEA)[20]

[18] Regulator Performance Framework: Self-assessment Report, July 2018 to June 2019, TGA.
[19] Analysis of PBAC submissions and their related outcomes & timelines, MAESTrO Database, October 2020 (see Appendix 1).
[20] Ibid, Table 3.

This means every patient in Australia is waiting anaverage of 820 days for subsidised access to a new treatment already accepted to be safe and efficacious by the Government's regulatory body, the TGA.

We could take a more conservative view of the data and focus only on those medicines which sought to enter the Australian subsidy market as non-inferior or equivalent to existing PBS options yet these still take over 400 days to be listed following TGA registration.

We could further cut and slice the data to focus on the minimum dates of 59 days to subsidy, but equally we would then have to look at the other outlier of 6513 days too.

820 or even 400 days to access a medicine is a stark outlier when we demand a minimum standard of less than 41-50 days as a community for access to elective surgery. Why as a community do we have such differing standards? Is it because we can't see them?

This 820 day wait time is not exclusive to rare or uncommon diseases and we should not be choosing one patient group over another, asking them to compete against each other for "more needy" status, as the following examples illustrate.

Drug	Indication	ARTG Registration	PBAC rec'd	PBS listed
Dupixent®	Eczema	24/1/2018	March 2020	Not yet listed
Emgality®	Chronic Migraine	28/05/2019	July 2019	Not yet listed
Aimovig®	Chronic Migraine	02/07/2018	No	Not yet listed
Praluent®	atherosclerotic cardiovascular disease (ASCVD) associated with non-familial hypercholesterolaemia	17/05/2016	March 2020	Not yet listed
Repatha®	atherosclerotic cardiovascular disease (ASCVD) associated with non-familial hypercholesterolaemia	9/12/2015	November 2019	May 2020
Aijovy®	Chronic Migraine	20/09/2019	March 2020	Not yet listed
Darzalex®	Multiple Myeloma	17/07/2017	July 2020	Not yet listed

Why is waiting 820 days for access to a medicine acceptable? These disease areas alone conservatively represent over two million people potentially waiting almost three years for access to a treatment found to be safe and efficacious and of potential health benefit.[21]

Rare disease or chronic disease, people are waiting too long – we need a system led approach to reform, not a disease led approach to reform. All patients are equal in their need for access.

Our global health systems have developed a growing appreciation for the importance of prevention and good management of chronic disease in reducing the health risks of COVID-19. There are many things we don't know about this virus, but we do know that people with such co-morbidities, especially if they are poorly controlled, have disproportionately died or had to be treated in ICU. ***Once again – all patients have equal need of access to our health subsidy system***

As the Maestro report identifies, many of these treatments are going through multiple cycles of consideration. Many of these reconsiderations are about the number of patients to be funded rather than confidence in the likely impact of the treatment. The Committee must question the acceptability of access continually delayed by this area of concern. If a treatment is registered for

[21] Allergy Facts, Prevalence and Cost of Headache, The Heart Foundation

safe use in Australia and deemed to be effective and cost-effective in a patient with a specific disease indication it is effective and cost-effective in all those patients and the government should be funding access immediately.

It appears the processes for determining purchasing prices are coming at the expense of improving the health of Australians. Value for money for health treatments is important but it is slowing down the processes of access beyond what the Australian community should reasonably expect.

Industry, consumers and governments alike regularly disparage the Pharmac process and access arrangements in New Zealand. But is accepting these medicine access timeframes in Australia without challenge or reporting equally problematic? ***We must support the subsidy assessment system to tackle these unacceptable timeframes.***

Australia has long made use of Risk Share Arrangements (RSA) to ensure use outside of an 'approved indication' is not funded. The Committee should be asking why we are seeing increasing numbers of resubmissions to the PBAC on medicines nominally recommended for listing, but not proceeding with that listing. The relevance of this delay in treatments for chronic disease should be explored.

The Committee should seek to reassure itself that it is not becoming easier to subsidise treatments for rarer diseases with shorter life expectancies because of the total patient group size and duration of treatment limiting costs to the Government as opposed to the need for ongoing treatment for a larger population managing a chronic disease.

This is surely not the intention of our system and not the desired focus of the Government nor the subsidy bodies providing them advice. If our system is driving this unintended outcome it is time to give the systems freedom to evolve. Again, ***timely commencement of the review of Australia's National Medicines Policy might address this increasing perception of the system.***

The type of data presented in this Maestro report (Appendix 1) is not readily provided by the Government. This is unusual for a cost-recovered system.

To understand what the true impact on patient access are of all our subsidy systems we must establish transparent reporting and assessment of the time it takes to access a new medicine or technology in the federally assessed subsidy system. Where are the robust transparent KPIs? Where is the national policy approach to addressing this just as we have done for our hospitals? ***This Committee should be seeking improved reporting and transparent KPIs for consumers and for Parliament to better understand the work of these important federal subsidy systems.***

CAN THE SUBSIDY OF TREATMENTS AND TECHNOLOGIES BE APPROACHED IN A DIFFERENT WAY?

Australia's federal subsidy systems for medicines, technologies and devices are based on varying applications of HTA. In common they all have a post-hoc approach to the assessment seeking optimal certainty from the clinical trial data available. With the speed of regulatory acceptance of novel technologies and treatments the time between registration for market access and the subsidisation of the technology can be considerable.

The impact of this can be seen in both smaller patient populations with multiple treatments available (oncology) and equally in new therapies for the treatment of chronic diseases that are currently dominated by cheaper off-patent medicines. The gap between the current cost of the standard of care or comparator adds to this pressure of needing certainty in effect and therefore cost.

Australia's system does not have a strong track record in the use of real-world evidence to allow early subsidisation with robust post market entry assessment. Instead it relies on heavily discounting uncertainty to provide market subsidy, which in turn tends to lead to multiple rejections or reapplications to secure a negotiated position.

Whilst Australia has traditionally lead the application of HTA, and enjoyed commonality of approach with countries such as the UK and Canada, this provides comfort in the universal delay to access to treatments, but the challenge should be can we lead the way in universally improving timeframes to for treatment access?

Better Access Australia notes the work of the German system and its attempts to ensure almost immediate access to treatments once registered for safe and efficacious use by its regulator.

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A system based on acceptance of the registration as the basis for subsidy with the emphasis on quick and timely price negotiation, with annual post market review of the efficacy and impact and use of

[22] https://www.commonwealthfund.org/blog/2019/how-drug-prices-are-negotiated-germany

the treatment could considerably improve access to treatments (medicines and technologies) in Australia. This timely access is the standard expected by German consumers. ***Better Access Australia asks why Australian consumers should not be able to expect the same or at least "no more than 100 days to access from TGA registration" for all new medicines, treatments and technologies?***

In considering this system it is important to note that the German reimbursement process does not come at the cost of a rigorous value assessment. It is underpinned by one of the world's most prominent HTA agencies (Iqwig) committed to evaluating the clinical benefit of all new medicines and ensuring value for money for the health system. The negotiation of prices does not however stand in the way of access for patients.

Better Access Australia does accept that the German system has faced fiscal challenges with some companies overpricing and failure of the system to clawback excess from use beyond indication, or failure to achieve health outcomes in real world application versus clinical trials.[23]

However, Australia's experience in the utilisation of Risk Share Arrangements and improving data accessibility through electronic health records places us well to modify a system with suitable 'carrots and sticks' to get the balance of access, affordability and transparency right.

Early access, with annual reviews of evidence and patient numbers and suitable reductions and returns of excess funds annually is commonplace already in Australia through volume caps and special pricing arrangements under Deeds of Agreement.

Could Australia contemplate a system that commences with this premise?and lists sooner rather than later with suitable contracts, and robust post-listing HTA or pricing evaluations rather than the rigidity of our current system which is driving multiple months if not years of waiting to reach a certain pricing point to quantify the uncertainty before it is known and then in many cases still applying these same contracts for risk mitigation?

Better Access Australia does not suggest this type of change is simple, but neither was Australia's original move to cost-effectiveness assessments in the 1990s and look what we were able to achieve.

[23] https://www.oecd.org/health/health-systems/Pharmaceutical-Reimbursement-and-Pricing-in-Germany.pdf

System Access That's Not Being Measured – Making better Use of The Treatments We Already Have

It is important for the Committee to recognise that the Maestro report only captures medicines or indications for which a subsidy has been sought. It belies the significant unmet clinical need of those patients waiting for access to treatments, usually off-patent medicines for which no ready process or review is available to question the status quo without significant additional investment.

Small molecule medicines such as statins, antirheumatics, antidepressants, diabetes treatments and chemotherapy treatments have plummeted in price over the past ten years as drugs go off-patent and government pricing policies have adjusted the purchase prices. They are incredibly affordable for governments and now affordable for many privately funded patients with 1 in 3 scripts under the PBS fully paid for by the consumer not the Government.[24]

That affordability allows for relatively accessible prescribing of these treatments beyond their originally subsidised indications whether because patients can afford the treatment themselves, or because the system is no longer concerned about the quantum of patient access due to the cheaper prices.

But this is not the case for access to more expensive off-patent medicines such as some oncology treatments and biologicals. Off-patent biologicals are still out of reach of most people as a private script, and yet in establishing tight restrictions for their access in disease management the system is requiring people to experience significant deterioration in their health before providing access to these treatments.

Further, as off-patent medicines, the interest of companies to pursue expanded subsidy indications is limited or non-existent. We have seen ad-hoc requests to the PBAC by clinician groups and patients over the years which the PBAC has given due consideration to, and applied flexible and practical assessment to deliver a recommendation.

Our federal subsidy system needs to embed a regular review of the subsidised indications for off-patent medicine in comparison to their full TGA registration, recognising that affordability of treatments once off-patent and the potential to improve health outcomes for a large number of people managing chronic disease from such an affordable approach.

Further, there is an ongoing area of off-patent medicines for which there is no TGA registration or Government subsidy for an indication, but where clinical experience suggests health outcome benefits for patients. Whether rare diseases or common, addressing these barriers of access has been under consideration on individual drugs for some years, and as an ongoing process for access by the system itself. Better Access Australia welcomes any work and initiatives in this important area.

[24] PBS Expenditure and Prescriptions Report, 1 July 2018 to 30 June 2019, Table 2a.

NEW MEDICINES AND TECHNOLOGY SUBSIDIES – MORE THAN THE PBAC

These challenges in timeframes are not unique to the PBAC, whose timing and access points are standardised and clear and provide for detailed analysis of their recommendations and processes albeit not reporting statistically on them themselves.

Conversely, the processes of MSAC including referrals from other bodies such as the NBA represent considerable uncertainty and vaguery in process and timeframes for access and subsidy.

Other stakeholders have made submissions to this Committee about the MSAC submission churn and general challenges of securing recommendations for funding approval, particularly in the area of genetic testing, and we acknowledge those submissions, including from Specialised Therapeutics, Astra Zeneca and Roche in this regard.

MSAC's processes and remit have expanded considerably since its establishment almost 20 years ago. Overseeing both the review of submissions relating to clinical items for medical procedures to the increasing prevalence of co-dependent technologies (one-test one-drug), to the expanding remit of cellular and genetic therapies, based on the place of treatment rather than the type of treatment.

With no cost recovery, and varying standards of evidence to consider and evaluate, the understanding and expectation of those timeframes by industry, clinicians and consumers alike considerably lags behind the PBAC.

These concerns are compounded by referrals from the NBA, where its evaluation framework still refers to draft guidelines as of 2006, and yet who potentially represent the gateway to new and novel technologies in the area of genetic and cellular treatments for haemophilia and other blood diseases.[25]

This pails in comparison to other interjurisdictional bodies such as the Interjurisdictional Committee on Screening, where patient groups were asked to wait three years for "process guidelines" to be established and where the lack of transparency of the processes, evaluation standards and decision-making of the body leave a lot to be desired in a country that prides itself on being a world-leader in subsidy assessment processes. We acknowledge and support the concerns raised and action requested by the Australian Pompe Association in their submission to this Committee.

These different timeframes, standards and processes are inevitably colliding as technologies evolve and the interdependency of treatments and technologies grows, and blurs.

For example:

- The funding of the treatment icatibant in the community and hospital setting progressed down different assessment pathways and with different times to access and purchasing arrangements
- Gene-based therapies are considered by PBAC or MSAC. Different evaluation processes and approaches to decision-making are determined by their funding mechanism and treatment setting. One company currently has two gene therapies navigating evaluation and decision-making processes. Novartis' Luxturna® (voretigene neparvovec) for inherited retinal

[25] National Blood Authority, Full Varied National Blood Agreement, Schedule 4

dystrophy is being considered by MSAC while its Zolgensma® (onasemnogene abeparvovec) for spinal muscular atrophy is being considered by PBAC. They are going through different processes - one free and one cost recovered - and will be evaluated by separate committees simply because they are funded through different mechanisms.

- The prevalence of treatments for neonatal disorders is increasing but Australia's neonatal screening is behind global standards in many areas, and yet early diagnosis is essential for to achieve the maximum benefit from these treatments.
- The placement of the CAR-T assessment through MSAC instead of the PBAC was based on the funding pathway. CAR-T is funded through the National Health Reform Agreements, which is the mechanism through which the federal government funds the states and territories for public hospitals, meaning they will be considered by MSAC because PBAC can only provide advice on matters relating to the PBS and National Immunisation Program.

These arbitrary divides in Australia's subsidy assessment committees in the federal system need to be challenged.

COVID-19 AND THE VALUE OF VACCINES

Australia's multi-billion-dollar procurement of multiple potential COVID-19 vaccines represents a dramatic revaluation of vaccines in this country.

Traditionally the process for assessing and pricing vaccines in Australia has been based on a discounted methodology based on the diminishing value of the intervention over time.

This is why significant delays to access for vaccines has been increasingly commonplace in Australia, notably the broader population access to the meningococcal B vaccine as a case in point.

For COVID-19, Australia has by-passed its traditional assessment methods and committees for value-based interventions. What does this tell us about the inputs we should be considering with respect to the economic and productivity impact of a treatment or vaccine? What does it tell us about the traditional models of value-based assessment and the delays to access it imposes on the consumers and patients desperately waiting for access?

What does it tell us is possible if we have the political and health will to make something a priority?

TIME TO REVIEW THE SYSTEM AND GIVE IT A CHANCE TO DO MORE

Just as the *National Health Act 1953* was modified to include the assessment of treatments for the National Immunisation Program there is nothing precluding the redevelopment of a single advisory committee with areas of expertise to consider this increasingly interdependent suite of tests, technologies and treatments.

We can learn a lot from our colleagues in the UK with their open and transparent review of their own value-based systems. On 6 November 2020, NICE announced an evaluation of its methods of health technology. [26]

[26] https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/changes-to-health-technology-evaluation

Recognising the challenges of personalised therapies, digital technology and cell therapies as a starting point, the NICE has been embarking on a systematic and transparent review of its framework of operations with the objective of:

- Speed up patient access to new and promising health technologies
- Support better market access; and
- Simplify the health technology evaluation process.

This public process with regular engagement and consultation processes provides for a system-wide, strategic view of the future of the system.

Better Access Australia asks the Government and this Committee to contemplate the same opportunity for Australia to take a step back and design the system we need for equality of access for all patients.

Set aside the arbitrary funding pathways to design a system of access that allows the experts to be agile in their advice and assessment of pipelines of benefit to the Australian community. Learn from the experiences of our different bodies and those overseas and design the system we need, not tweak with the system we have.

Modification of guidelines is useful, but entrenching. The sooner we have the courage to embark on the National Medicines Policy review and elevate our systems to be cognisant of the realities of health care delivery in Australia, the sooner we get back to being world leaders again.

Health care drives productivity. It drives workforce participation. It drives a sense of self and a sense of confidence and opportunity. COVID-19 has shown us this has never been a more important contemplation in our society – let's give the system the chance to aspire and exceed this need – let's give everyone irrespective of the disease they are confronting or managing the same equality of access to our subsidised health system.

Both consumers and the systems supporting them are asking for the opportunity to reform – let's give them that opportunity.

APPENDIX 1

PBAC submissions and their related outcomes & timelines, MAESTrO Database, October 2020

Report prepared for Amgen Australia

MAESTrO DATABASE

Analysis of PBAC submissions and their related outcomes & timelines

Report prepared for Amgen

October 2020

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MAESTrO DATABASE

Executive Summary

Amgen is seeking to have a greater understanding of market access metrics for new medicines in Australia. This report presents the results for two performance metrics: the time period from the date of TGA registration to the date of PBS listing and the number of submissions required to obtain a PBAC recommendation. The metrics cover all submission for medicines across all therapeutic areas and diseases/conditions considered by the PBAC since 2010.

An analytical model was developed to account for submissions for multiple medicines and submissions with multiple requests for the same medicine. The analysis was based on medicine/patient population pairings. A conservative approach was adopted in the formulation and definitions and the inclusion/exclusion criteria. All medicine/patient population pairings that met the entry criteria were classified as either 'ever CEA' (i.e. the pairing was at some point in time associated with a cost effectiveness analysis) or 'initial CMA' (i.e. the initial submission was associated with a cost minimisation analysis).

The analyses reveal some interesting findings. Many medicine/patient population pairings considered by the PBAC since 2010 are not yet listed on the PBS (or LSDP); mainly because they have not (yet) been recommended by the PBAC. This is more commonplace for medicine/patient population pairings first considered by the PBAC in 2018 & 2019.

The results from the time to event analyses for 2010-2017 indicate that for an ever CEA medicine/patient population pairing the average time from the date of TGA registration to the date of PBS (or LSDP) listing is over 800 days. The corresponding average period for an initial CMA medicine/patient population pairing is approximately half this (428 days). The inclusion of data from 2018 & 2019 reduced the mean value for the ever CEA category by 2 months but had no effect on the mean value for the initial CMA category.

Variable	Ever CEA (n = 182)	Initial CMA (n = 227)
Mean	820	428
Median	590	277
Minimum	59	74
First quartile	340	191
Third quartile	947	487
Maximum	6513	3640

The results for the second study metric are consistent with those of the first. On average, it took 2.2 submissions for an ever CEA medicine/patient population pairing to obtain a PBAC recommendation; the corresponding value for the initial CMA medicine/patient population pairings was 1.2.

Introduction

Amgen is seeking to have a greater understanding of market access metrics for new medicines in Australia.

The company is seeking to determine some simple performance metrics for certain submissions to the Pharmaceutical Benefits Advisory Committee seeking public subsidy. The submissions of interest are associated with a claim of (acceptable) cost effectiveness as well as those without such a claim.

The performance metrics of interest are the time period from the date of TGA registration to the date of PBS listing and the number of submissions required to obtain a PBAC recommendation.

The metrics will cover all submissions for medicines across all therapeutic areas and diseases/conditions considered by the PBAC since 2010.

Methods

Study sample

Insofar as the overarching objective of the project was to review the Pharmaceutical Benefits Scheme (PBS) as a whole, every reasonable effort was made to include every submission (and their related outcome/s) considered by the PBAC during the study period.

The focus was all submission requests for new medicines, new indications and new combination products considered by the PBAC since 2010 for listing on the Pharmaceutical Benefits Scheme or the Life Saving Drugs Program (LSDP) and their related outcomes and PBS/LSDP listing status. Submission requests were included in the study sample if:

- The initial submission request was considered by the PBAC at or after March 2010 meeting
- They resulted in a PBS or a LSDP listing. Submissions were included if they were listed on the LSDP during the study period despite being rejected by the PBAC (presumably for listing on the PBS).

Submission requests for the following categories were excluded:

- New formulation
- New biosimilar medicine
- New generic medicine
- PBAC review (including review of therapeutic relativity)
- PBAC post-market review

Insofar as the focus was on the PBS & LSDP, submissions for a vaccine seeking a listing on the National Immunisation Program (NIP) were excluded.

To ensure the greatest possible sample, a broad definition of a 'new medicine' was used. A new liposomal, pegylated or lipegylated form of a PBS (or LSDP) listed medicine was considered to be a new medicine and was thus eligible for inclusion in the study sample.

Insofar as it has a unique generic name, incobotulinumtoxinA (Xeomin) was considered to be a new medicine rather than a new formulation of onabotulinumtoxinA (Botox).

A new salt or ester of a PBS (or LSDP) medicine was considered to be a 'new formulation' and thus was not considered for inclusion in the study sample. The only exceptions were those medicines declared by the PBAC as a 'different medicine' for the purposes of Section 85(2) of the National Health Act, 1953.

Likewise, a broad definition of a 'new combination product' was used. Submission requests for a new combination product were included in the study sample even if the all of the components of the combination were already listed on the PBS (or LSDP). New combination products covered multiple medicines in the same presentation (co-formulated) as multiple medicines in different presentations (co-packaged).

Submission requests from all stakeholders were considered for inclusion in the study sample. While most submissions to the PBAC are prepared/lodged by sponsors, from time to time the Committee has considered submissions from third parties such as the Medical Oncology Group of Australia, Rare Cancers Australia and the Australasian Paediatric Endocrine Group.

Withdrawn submission requests were included **if** the PBAC considered the same submission request at a later (or earlier date).

It is important to make a distinction between a 'submission' and a 'submission request.'

Many submissions include multiple requests from the same applicant/sponsor for the same medicine (or another related medicine) for more than one patient population. The discrete patient populations may be for the same disease or for another related disease. The evidence to support the use of the (same) medicine in different patient populations may come from different clinical trials. Examples of submissions that include multiple requests are:

- A submission for filgrastim and pegfilgrastim for certain patients with neutropenia (two medicines, same disease)
- A submission for sofosbuvir for patients with genotype 1 chronic hepatitis C virus infection and patients with genotype 4 chronic hepatitis C virus infection (same medicine, same disease, different patient populations)
- A submission for bendamustine hydrochloride for certain patients with chronic lymphocytic leukaemia and certain patients with non-Hodgkin's lymphoma (same medicine, different disease, different patient populations).

Insofar as some submissions are for multiple medicines, the analyses will be based on discrete medicine/patient populations pairings.

It is important to note that the target patient population for a given medicine may change over time with one or more resubmissions. This is not an uncommon occurrence for a new first in class medicine where there may not be any (local) published clinical guideline on its use at the time of its initial consideration by the PBAC. A different and/or an additional target patient population might be proposed in a resubmission. While some medicine/patient populations pairings may never be recommended by the PBAC (and subsequently listed on the PBS, one or more related patient populations for the same medicine may result in a PBAC recommendation and a PBS listing. The analysis will make a distinction between medicines that have never been recommended by the PBAC (and thus not listed on the PBS) and those that have been recommended by the PBAC (and listed on the PBS) for at least one or more patient population.

Not all medicine/patient population pairings result in a PBAC recommendation after just one submission. The analysis will based on the 'submission series' for each discrete medicine/patient population pairing considered by the PBAC on two or more occasions.

Some medicine/patient population pairings have been considered by the PBAC after their recommendation; in some instances another submission was made seeking a revision of the recommendation, in other situations, a submission was lodged advising the PBAC of a minor issue. While some of these later submissions resulted in another recommendation, others were rejected. In all cases, the recommendation that drove the PBS (or LSDP) listing was used:

- The (most recent) recommendation was used if one or more submission requests were made and were rejected
- The initial recommendation was used if a later recommendation was essentially the same as the initial recommendation
- The later recommendation was used if it was materially different to an earlier recommendation
- The initial recommendation was used if a later recommendation did not have a material bearing on the listing of the medicine on the PBS (or LSDP)

To be included in the final study sample, the following minimum information was required:

- Date of TGA registration
- At least one PBAC outcome
- The medicine/patient population pairing was associated with a cost effectiveness analysis (CEA) and/or a cost minimisation analysis (CMA)
- Date of PBS/LSDP listing

In relation to the type of economic evaluation, the focus was on the type proposed by the applicant/sponsor rather than that accepted or proposed by the PBAC. The type of economic evaluation proposed by the applicant/sponsor might not have been accepted by the PBAC.

Submission requests were classified as either:

- Ever CEA - at least one submission in the submission series (if applicable) included a cost effectiveness analysis (CEA)
- Initial CMA - the initial submission in the submission series included a cost minimisation analysis (CMA)

A submission request/series for a given medicine/patient population pairing can only be in one of the two above mentioned categories.

- A cost analysis (CA) was deemed to be a CMA
- A cost consequences analysis (CCA) was be deemed to be a CMA
- A submission request that included a CEA and a CMA for a given patient population will deemed to be a CEA
- Submission requests with no associated economic evaluation were excluded
- Submission requests that did not require an economic evaluation were excluded
- Submission requests where the type of economic evaluation is unknown were excluded

Some submission requests were therefore excluded from the final study sample because one or more of the essential data points was not available:

- Some submission requests do not have a PBAC outcome (i.e. the submission request was withdrawn before initial consideration by the PBAC). Submissions requests withdrawn after initial consideration by the PBAC were included.
- The submission request does not have an associated PBAC Public Summary Document. A PBAC PSD was required to determine the type of economic evaluation associated with the submission request. PBAC PSDs are not available for withdrawn submissions.
- The submission request has been recommended by the PBAC but had not resulted in a listing on the PBS or the LSDP as at 1 September 2020. While there are examples of submission requests from most calendar years in the study period, there are more stand to be more examples from the latter years of the study period. This issue is discussed in further detail below.

Study period

The target study period was 10 years (2010-2019). This corresponds to all medicine/patient population pairings was first considered by the PBAC at or after the March 2020 meeting and subsequently listed on the PBS or LSDP at some time between 1 March 2010 and 1 October 2020:

- A small number of medicines have been listed on the LSDP without any evidence in the public domain to indicate they have been recommended by the PBAC
- Some PBAC recommended medicines in the proposed study sample may have since been delisted

The results for the last 2 years of the target study period (2018 & 2019), as they relate to a 'time to event' outcome (i.e. time to PBS listing) need to be interpreted with considerable caution insofar as a higher proportion of medicines first considered by the PBAC in these two years are yet to be recommended by the PBAC and/or listed on the PBS (or LSDP) (see below).

Data sources

The following data sources were used:

- The TGA website was used to determine the date of TGA approval for the submission request. The date of TGA registration is published in an Australian Prescription Medicine Decision Summary and/or in the Australian Public Assessment Reports (AusPAR). The 'Date of decision' rather than the 'Date of entry onto ARTG' was used. The 'date of entry onto the ARTG' was used if the 'date of decision' was not available.
- The 'PBAC outcomes' section of the PBS website was used to determine the outcome for a given submission request
- The PBAC PSD for the submission request was used to determine the type of economic evaluation proposed by the applicant/sponsor. Different submission requests within a given submission may have been associated with different types of economic evaluation. The type of economic evaluation in a resubmission might have been different to the type in the initial submission. The type of economic evaluation for a given submission request was classified as either 'ever CEA' or as 'initial CMA.' The

classification of submission requests on the basis of the type of economic evaluation is discussed further below.

- Serial issues of the Schedule of Pharmaceutical Benefits (downloaded from the PBS website) were examined to determine the date of the initial PBS listing of a submission request recommended by the PBAC. PBS listings generally occur on the first day of the month. Submission requests were included in the final study sample even if they were subsequently delisted.
- The Life Saving Drugs Program page on the Department of Health website was examined to determine the date of initial LSDP listing. Minster of Health press releases were also examined to determine/confirm LSDP listing dates.
- For submissions with multiple requests, the submitted economic evaluation for one patient population might be different to that for the other patient population/s.

Analytical model framework

An analytic model framework was developed in order to ensure that all major aspects of the PBAC submission and PBS (LSDP) listing processes have been captured as best as possible.

The model structure allows for:

- Submissions with multiple requests
- Submission change over time (new or revised target patient populations and/or new or revised economic evaluations
- Submission requests to remain unresolved where other associated requests are not and result in PBAC recommendations and/or PBS (LSDP) listings.
- Consideration of submission requests after PBAC recommendation

Nonetheless, the model does have a few minor shortcomings:

- It does not capture submissions for medicines that have withdrawn and have not yet been considered by the PBAC. It is likely that the withdrawals were driven by regulatory issues.
- It excludes all submission activity for medicines rejected after being recommended by the PBAC.

The model seeks to explain PBAC submission and PBS listing activity in more detail than the 'PBS Activity Indicators' developed and published by the Department of Health some years ago.

Study metrics

Metric 1 = Period from the date of TGA approval to the date of PBS listing

- Report for all medicine/patient population pairings, all 'ever CEA' medicine/patient population pairings and all 'initial CMA' medicine/patient population pairings
- Report mean, quartile, median, mode, minimum and maximum values. The data are unlikely to be normally distributed.

Also note:

- The medicines in the final study sample recommended by the PBAC but not listed on the PBS as at 1 September 2020 (all, ever CEA, initial CMA).

- The medicines in the final study sample yet to be recommended by the PBAC as at 1 September 2020 (all, ever CEA, CMA)

Metric 2 = Number of submission requests required to obtain a PBAC recommendation for each medicine/patient population pairing

- Report for all medicine/patient population pairings, all 'ever CEA' medicine/patient population pairings and all 'initial CMA' medicine/patient population pairings
- Report mean, quartile, mode, minimum and maximum values

Insofar as study metric 2 does not require TGA registration dates and PBS listing dates, the sample for study metric 2 is different to that for study metric 1.

Results

Summary results for the sample for study metric 1 (ever CEA) are presented in Table 1.

Table 1 – Summary results for study metric 1 (ever CEA) (2010-2019)

Year	Discrete medicine/patient population pairings (n)	Recommendations (n, %)	PBS/LSDP listings (n)	Not listed (n)	Not listed because never recommended (n)	Medicine/patient population pairing with at least one other related medicine/patient population pairing listed (n)
2010	20	12 (60%)	11	9 (45%)	6 (30%)	0
2011	36	30 (85%)	30	6 (17%)	6 (17%)	0
2012	20	15 (75%)	15	5 (25%)	5 (25%)	0
2013	26	20 (77%)	20	6 (23%)	6 (23%)	0
2014	51	32 (63%)	34*	17 (33%)	17 (33%)	14
2015	58	32 (55%)	27	31 (53%)	25 (45%)	16
2016	36	24 (67%)	22	14 (39%)	11 (30%)	1
2017	41	26 (63%)	22	19 (46%)	16 (40%)	5
2018	35	23 (67%)	21**	14 (40%)	12 (34%)	1
2019	38	20 (45%)	15	23 (61%)	23 (61%)	0

*Includes 2 LSDP listings (medicines not explicitly recommended by the PBAC)

**Includes one LSDP listing (medicine not explicitly recommended by the PBAC)

The results in Table 1 indicate many discrete medicine/patient population pairings have not been recommended. The annual recommendation rate varies from 45% (2019) to 85% (2011). One would expect to see higher annual recommendation rates in the early years as a result of successful resubmissions. The low annual rate for 2019 is not unexpected with few resubmissions considered by the PBAC before the end of 2019.

The results in Table 1 also indicate that most of the medicine/patient population pairings recommended by the PBAC have been listed on the PBS (LSDP). The lower rate for 2019 is again not expected as it is unreasonable to expect all of those recommended by the PBAC in November 2019 to be listed on the PBS as at 1 September 2020.

There are two reasons why a given medicine/patient population pairing might not resulted in a PBS (LSDP) listing:

- The pairing has not (yet) been recommended by the PBAC
- The recommended pairing has not (yet) resulted in a PBS (LSDP) listing

The annual proportion of pairings that have not been listed on the PBS (LSDP) because they have not been recommended by the PBAC appears to be at least 20% of all pairings. The annual values range from 17% (2011) to 55% (2019). One would expect to see higher annual rates in the latter years of the study period.

As discussed in the 'Methods' section, some of the unlisted pairings have one or more related pairings that have been recommended by the PBS and subsequently listed on the PBS (LSDP). The high number of **unresolved pairings** from 2014 and 2015 relate to a few medicines for patients with hepatitis C virus infection or hypercholesterolaemia. The initial submissions for these medicines were associated with multiple submission requests; while some pairings remain unresolved (i.e. not recommended), others are not. The number of **unresolved medicines** from 2014 and 2015 is much lower.

Summary results for the sample for study metric 1 (initial CMA) are presented in Table 2.

Table 2 – Summary results for study metric 1 (initial CMA) (2010-2019)

Year	Discrete medicine/patient population pairings (n)	Recommendations (n, %)	PBS/LSDP listings (n)	Not listed (n)	Not listed because never recommended (n)	Medicine/patient population pairing with at least one other related medicine/patient population pairing listed (n)
2010	31	30 (97%)	30	1 (3%)	1 (3%)	0
2011	28	22 (79%)	24	6 (21%)	6 (21%)	1
2012	23	15 (65%)	16*	7 (30%)	7 (30%)	0
2013	36	33 (92%)	29	7 (19%)	3 (8%)	1
2014	47	38 (81%)	38	9 (19%)	9 (19%)	0
2015	43	32 (86%)	37	7 (16%)	6 (14%)	4
2016	51	44 (86%)	44	7 (14%)	7 (14%)	3
2017	30	26 (87%)	20*	10 (33%)	3 (10%)	1
2018	34	28 (82%)	25	9 (26%)	6 (18%)	2
2019	25	20 (80%)	17	8 (32%)	4 (16%)	0

*Includes one LSDP listing

The results in Table 2 indicate higher proportions of pairings recommended and smaller proportions not listed and not listed because they have not been recommended when compared with the results in Table 1.

Summary results for the time to event analysis for study metric 1 (ever CEA) are presented below in Table 3.

Table 3 - Period from date of TGA registration to date of PBS/LSDP listing (ever CEA)

Category	2010-2017 (n = 182)	2010-2019 (n = 216)
Mean	820	759
Median	590	553
Minimum	59	52
First quartile	340	313
Third quartile	947	924
Maximum	6513	6513

For the prime data set (2010-2017), the results indicate, that on average, a medicine/patient population pairing with an associated claim of (acceptable) cost effectiveness that has been recommended by the PBAC. was listed on the PBS (or LSDP) some 27 months after TGA approval. The data are not normally distributed with the median value being some 200 days less. The results indicate 25% of the pairings were listed within one year and 75% under 3 years. While one pairing was listed within 2 months of TGA approval, another was listed 215 months after TGA approval.

The inclusion of the data from 2018 & 2019 reduced the mean value by 2 months to approximately 25 months. The median value was also reduced by a comparable time period. Insofar as 60% of the pairings first considered by the PBAC in 2019 have not (yet) been listed on the PBS (Table 1), and it is reasonable that in time a reasonable proportion of them will end up being listed on the PBS (or LSDP), the (adjusted) mean period of 760 days would best be described as a 'minimum value.'

Summary results for the time to event analysis for study metric 1 (initial CMA) are presented below in Table 4.

Table 4 - Period from date of TGA registration to date of PBS/LSDP listing (initial CMA)

Category	2010-2017 (n = 227)	2010-2019 (n = 266)
Mean	428	435
Median	277	273
Minimum	74	74
First quartile	191	200
Third quartile	487	488
Maximum	3640	3640

For the prime data set (2010-2017), the results indicate, that on average, a medicine/patient population pairing without an associated claim of (acceptable) cost effectiveness that has been recommended by the PBAC, was listed on the PBS (or LSDP) some 14 months after TGA approval. The mean value for 'initial CMA' pairings is much lower than the corresponding value for 'ever CEA' pairings.

The data are not normally distributed with the median value being some 150 days less. The results indicate 25% of the pairings were listed within 6-7 months and 75% under 16 years. While one pairing was listed approximately 2 months of TGA approval, another was listed 120 months after TGA approval.

Unlike the results for the 'ever CEA' pairings, the addition of the data for 2018 & 2019 had no material change on all parameters.

The medicine/patient population pairings never recommended by the PBAC are outlined in Tables A (ever CEA) and B (initial CMA).

Summary results for the time to event analysis for study metric 2 (ever CEA and initial CMA) are presented below in Table 5.

Table 5 – Number of submissions required to obtain a PBS recommendation (2010-2019)

Category	Ever CEA (n = 235)	Initial CMA (n = 278)
Mean	2.2	1.2
Median	2	1
Mode	2	1
Minimum	1	1
First quartile	1	1
Third quartile	3	1
Maximum	6	4

The results indicate that, on average, it was more difficult to obtain a PBAC recommendation for a medicine/patient population pairing with an associated claim of (acceptable) cost effectiveness (ever CEA) than it was to obtain a PBAC recommendation for a medicine/patient population without an associated claim of (acceptable) cost effectiveness with the mean, median, modal and maximum values all being higher for the 'ever CEA' category than for the 'initial CMA' category.

Discussion

The results from the abovementioned analyses reveal some interesting findings for medicines across therapeutic areas and diseases/conditions.

The results indicate that, on average, a medicine/patient population pairing with an associated claim of (acceptable) cost effectiveness is listed on the PBS (or LSDP) more than two years after its approval by the TGA.

As probably expected, a medicine/patient population pairing without an associated claim of (superior) cost effectiveness is, on average, listed much sooner on the PBS (or LSDP) after TGA registration.

There is no established benchmark on what might constitute an acceptable (mean) value for the period from the date of TGA approval to the date of PBS (LSDP) listing. The dissemination and publication of the results of this analysis may be the catalyst for the commencement (or the resumption) of such discussions.

An extended period from the date of TGA registration to the date of PBS listing could indicate:

- Multiple PBAC submissions over many years, including submissions after PBAC recommendation
- An extended period from the date of PBAC recommendation to the date of PBS listing
- An extended period from the date of TGA registration to the date of initial consideration by the PBAC

Further research is required to determine which of these categories explain why some medicine/patient population pairings took many years to be funded following their TGA registration. The three categories are not mutually exclusive.

The study period for the analysis was the past 10 years (2010-2019). The inclusion of data from 2018 & 2019 for the time to event analysis (study metric 1) introduced a bias insofar as a higher proportion of submissions first considered by the PBAC in the latter two years are yet to recommended by the PBAC and/or listed on the PBS (or LSDP). The inclusion of these data reduced the mean for the 'ever CEA' category by two months but had no meaningful impact on the mean for the 'initial CMA' category.

A medicine/patient population pairing with an associated claim of (acceptable) cost effectiveness ('ever CEA') is a proxy for a medicine/patient population pairing with an associated claim of clinical superiority and a price premium. It has been assumed that all medicine/patient population pairings with an associated claim of clinical superiority are all associated with a cost effectiveness analysis and not a cost minimisation analysis.

Likewise, it has been assumed that all medicine/patient population pairings without a claim of clinical superiority (i.e. clinical non-inferiority) are not associated with a cost effectiveness but rather a cost minimisation analysis (i.e. initial CMA).

The results apply to medicine/patient population pairings across all therapeutic areas and diseases/conditions. Further research is required to determine if higher (or lower) summary values might apply to a given specific therapeutic area such as cancer or a given disease/condition such as ulcerative colitis.

Furthermore, the results are broadly generalisable given the default option was to include rather than exclude medicine/patient population pairings. The analysis required the definition of a number of concepts such as 'new medicine' and 'new combination product.' A conservative, inclusive approach was adopted when developing all definitions. It is unclear if the summary results would be materially different if different definitions were adopted.

Table A – Ever CEA medicine/patient population pairings not (yet) recommended by the PBAC (2010-2019)

Medicine/patient population pairing	Disease/condition	Year of first consideration by the PBAC	Number of submission attempts
Bortezomib/First-line, unsuitable for high dose chemotherapy, combination (chemotherapy)	Multiple myeloma	2010	1
Aliskiren fumarate/Treatment	Hypertension	2010	1
Agomelatine/Treatment	Depression	2010	3
Dronedarone hydrochloride/Later-line	Atrial fibrillation	2010	1
Liraglutide/Later-line, combination (metformin hydrochloride)	Type 2 diabetes mellitus	2010	6
Liraglutide/Later-line, combination (sulphonylurea)	Type 2 diabetes mellitus	2010	6
Liraglutide/Later-line, combination (metformin hydrochloride and a sulphonylurea)	Type 2 diabetes mellitus	2010	6
Bevacizumab/Advanced/metastatic, first-line, combination (carboplatin and paclitaxel)	Non-small cell lung cancer	2011	1
Colistimethate sodium/Cystic fibrosis	Bacterial infection	2011	2
Lacosamide/Partial-onset, later-line, combination	Epilepsy	2011	1
Prucalopride succinate/Moderate/severe, later-line	Constipation	2011	3
Quetiapine succinate/Later-line, combination	Depression	2011	3
Vinflunine ditartate/Transitional cell carcinoma, advanced/metastatic, later-line	Urinary tract cancer	2011	3
Linezolid/Multi-resistant	Bacterial infection	2012	2
Methylphenidate hydrochloride/Treatment	Attention deficit hyperactivity disorder	2012	1
Fampridine/Walking disability	Multiple sclerosis	2012	2
Ingenol mebutate/Face/scalp	Actinic keratosis	2012	3
Maraviroc/CCR-5 tropism, treatment naïve, combination	HIV infection	2012	1

Adalimumab/Moderate/severe, chronic, later-line	Psoriasis	2013	1
Insulin degludec/Treatment	Diabetes mellitus	2013	1
Insulin degludec/Treatment	Type 2 diabetes mellitus	2013	1
Aflibercept/Advanced/metastatic, later-line, combination	Colorectal cancer	2013	1
Eltrombopag olamine/Hepatitis C virus infection	Thrombocytopaenia	2013	1
Nabiximols/Multiple sclerosis	Muscle spasticity	2013	1
Febuxostat/Allopurinol insufficient	Gout	2014	2
Abiraterone acetate/Metastatic, castration-resistant, later-line	Prostate cancer	2014	1
Regorafenib monohydrate/Advanced/metastatic, later-line	Colorectal cancer	2014	1
Sofosbuvir/MULTIPLE[#]	Hepatitis C	2014	1
Sorafenib tosylate/Advanced/metastatic, differentiated, later-line	Thyroid cancer	2014	4
Elosulfase alfa/Morquio A syndrome[###]	Mucopolysaccharidosis type IVA	2014	2
Nitisinone/Hereditary, type 1[###]	Tyrosinaemia	2014	2
Apremilast/Severe, active, later-line	Psoriatic arthritis	2015	2
Apremilast/Moderate/severe, later-line[#]	Psoriasis	2015	5
Asunaprevir/Genotype 1b, combination (daclatasvir dihydrochloride)	Hepatitis C	2015	1
Evolocumab/MULTIPLE[#]	Hypercholesterolaemia	2015	1
Regorafenib monohydrate/Advanced/metastatic, later-line	Gastro-intestinal stromal tumour	2015	1
Idelalisib/CD20 positive, later-line, combination (rituximab)	Chronic lymphocytic leukaemia	2015	4
Idelalisib/B-cell, follicular, advanced, relapsed/refractory, later-line, monotherapy	Non-Hodgkin's lymphoma	2015	4
Idelalisib/Small lymphocytic lymphoma, CD20 positive, later-line, combination (rituximab)	Non-Hodgkin's lymphoma	2015	3

Propranolol hydrochloride/Infants**	Hemangioma	2015	3
Simeprevir sodium/Genotype 1, cirrhosis, compensated, combination (sofosbuvir)	Hepatitis C	2015	2
Afatinib dimaleate/Advanced/metastatic, EGFR exon 19 mutation positive, later-line	Non-small cell lung cancer	2015	1
Afatinib dimaleate/Advanced/metastatic, EGFR exon 19 mutation positive, first-line	Non-small cell lung cancer	2015	1
Carglumic acid/Acidaemia, isovaleric	Hyperammonaemia	2015	1
Carglumic acid/Acidaemia, propionic	Hyperammonaemia	2015	1
Carglumic acid/Acidaemia, methylmalonic	Hyperammonaemia	2015	1
Enzalutamide/Advanced/metastatic, castration-resistant, first-line	Prostate cancer	2015	3
Nalmefene hydrochloride dihydrate/Treatment	Alcohol dependence	2015	1
Etanercept/Active, later-line	Axial spondyloarthritis	2016	2
Nintedanib esylate/Advanced/metastatic, later-line, combination (docetaxel)	Non-small cell lung cancer	2016	2
Selexipag/Later-line, combination (endothelin receptor antagonist)	Pulmonary arterial hypertension	2016	1
Selexipag/Later-line, combination (phosphodiesterase-5 inhibitor)	Pulmonary arterial hypertension	2016	1
Selexipag/Later-line, combination (endothelin receptor antagonist and a phosphodiesterase-5 inhibitor)#	Pulmonary arterial hypertension	2016	2
Grass pollen allergen extract (sweet vernal, orchard, perennial rye, Timothy, Kentucky blue grass)/Grass pollen allergy	Allergic rhinitis	2016	1
House dust mite allergen extract/House dust mite allergy	Allergic rhinitis	2016	1
Lenalidomide/Mantle cell, later-line	Non-Hodgkin's lymphoma	2016	1
Denosumab/Later-line**	Hypercalcaemia of malignancy	2016	2
Carfilzomib/Later-line, combination (lenalidomide and dexamethasone)*	Multiple myeloma	2016	1

Irinotecan hydrochloride trihydrate (liposomal)/Advanced/metastatic, later-line, combination	Pancreatic cancer	2016	2
Ombitasvir with paritaprevir and ritonavir/Genotype 4, combination (ribavirin)	Hepatitis C	2016	1
Pembrolizumab/Advanced/metastatic, PD-L1 positive, later-line	Non-small cell lung cancer	2016	1
Romidepsin/T-cell, peripheral, later-line	Non-Hodgkin's lymphoma	2016	3
Adalimumab/Non-infectious, later-line	Uveitis	2017	1
Ranolazine/Stable, later-line, combinaton	Angina pectoris	2017	1
Venetoclax/17p deletion, later-line*	Chronic lymphocytic leukaemia	2017	2
Venetoclax/TP53 mutation positive, later-line*	Chronic lymphocytic leukaemia	2017	1
Asfotase alfa/Paediatric-onset###	Hypophosphatasia	2017	2
Glatiramer acetate/High risk	Clinically isolated syndrome	2017	1
Guanfacine hydrochloride/Children/adolescents (6-17 years), later-line, monotherapy*	Attention deficit hyperactivity disorder	2017	1
Liraglutide/Later-line, combination (insulin)	Type 2 diabetes mellitus	2017	1
Alirocumab/Heterozygous familial hypercholesterolaemia, cardiovascular disease, later-line, combination	Hypercholesterolaemia	2017	2
Alirocumab/Cardiovascular disease, high risk, later-line, combination#	Hypercholesterolaemia	2017	3
Bezlotoxumab/C. difficile infection, prevention	Bacterial infection	2017	3
Daratumumab/Later-line, combination (bortezomib and dexamethasone)#	Multiple myeloma	2017	3
Daratumumab/Later-line, combination (lenalidomide and dexamethasone)	Multiple myeloma	2017	1
Erenumab/Prevention, later-line	Migraine	2017	4
Ibrutinib/First-line*	Chronic lymphocytic leukaemia	2017	1

Ibrutinib/Small lymphocytic lymphoma, first-line*	Non-Hodgkin's lymphoma	2017	1
Lenvatinib mesylate/Advanced/metastatic, later-line, combination (everolimus)	Renal cell carcinoma	2017	2
Ocrelizumab/Primary progressive##	Multiple sclerosis	2017	1
Ramucirumab/Advanced/metastatic, later-line, combination (paclitaxel)**	Gastric cancer	2018	2
Regorafenib monohydrate/Unresectable, later-line	Liver cancer	2018	3
Cerliponase alfa/Type 2	Neuronal ceroid lipofuscinosis	2018	1
Denosumab/Multiple myeloma	Bone metastases	2018	3
Dupilumab/Severe, later-line	Atopic dermatitis	2018	3
Letermovir/Cytomegalovirus infection, prevention	Viral infection	2018	2
Pertuzumab/Early, HER2 positive, adjuvant, combination	Breast cancer	2018	2
Apalutamide/Early, castration-resistant	Prostate cancer	2018	2
Clostridium botulinum toxin type A/Lower limbs, combination	Muscle spasticity	2018	1
Obeticholic acid/Primary, later-line, combination	Biliary cirrhosis	2018	2
Obeticholic acid/Primary, later-line, monotherapy	Biliary cirrhosis	2018	2
Romosozumab/Severe, later-line, secondary prevention#	Osteoporosis	2018	2
Romosozumab/Men, secondary prevention, later-line	Osteoporosis	2018	2
Crisaborole/Severe, later-line	Atopic dermatitis	2018	1
Cabozantinib maleate/Advanced, first-line##	Renal cell carcinoma	2019	1
Neratinib maleate/Early, HER2 positive, extended adjuvant	Breast cancer	2019	2
Pembrolizumab/Advanced/metastatic, microsatellite instability-high, later-line, monotherapy	Colorectal cancer	2019	1

Pembrolizumab/Advanced/metastatic, mismatch repair deficient, later-line, monotherapy	Colorectal cancer	2019	1
Rivaroxaban/Prevention, combination (aspirin)#	Coronary artery disease	2019	1
Rivaroxaban/Prevention, combination (aspirin)#	Peripheral vascular disease	2019	1
Cabozantinib maleate/Advanced, later-line##	Liver cancer	2019	1
Nusinersen sodium/Presymptomatic#	Spinal muscular atrophy	2019	2
Lumacaftor with ivacaftor/Children (2-5 years), F508del mutation positive	Paediatrics	2019	1
Osimertinib mesylate/Advanced/metastatic, EGFR mutation positive, first-line#	Non-small cell lung cancer	2019	1
Plitidepsin/Relapsed/refractory, later-line, combination (dexamethasone)	Multiple myeloma	2019	1
Plitidepsin/Last-line, combination (dexamethasone)	Multiple myeloma	2019	1
Olaparib/Advanced/metastatic, BRCA mutation positive, first-line, maintenance#	Ovarian cancer	2019	1
Patiromer sorbitex calcium/Renal disease, end stage, prevention	Hyperkalaemia	2019	1
Polatuzumuab vedotin/B-cell, large, diffuse, relapsed/refractory, later-line, combination	Non-Hodgkin's lymphoma	2019	1
Ruxolitinib phosphate/Later-line	Polycythemia vera	2019	1
Siponimod hemifumarate/Secondary progressive#	Multiple sclerosis	2019	1
Talazoparib tosylate/Advanced/metastatic, BRCA mutation positive, later-line	Breast cancer	2019	1
Belimumab/Active, later-line	Systemic lupus erythematosus	2019	1

* Another related pairing has been recommended by the PBAC (2010-2019)

** Recommended but not PBS listed as at 1 October 2020

Recommended by the PBAC in 2020

Rejected or deferred by the PBAC in 2020

Listed on the LSDP

Table B – Initial CMA medicine/patient population pairings not (yet) recommended by the PBAC (2010-2019)

Medicine/patient population pairing	Disease/condition	Year of first consideration by the PBAC	Number of submission attempts
Darunavir ethanolate/Treatment naïve, combination	HIV infection	2010	1
Mannitol/Later-line, monotherapy	Cystic fibrosis	2011	2
Sertindole/Later-line	Schizophrenia	2011	1
Abatacept/Severe, active, later-line	Juvenile idiopathic arthritis	2011	1
Naproxen with esomeprazole magnesium trihydrate/NSAID-induced, high risk	Rheumatoid arthritis	2011	3
Naproxen with esomeprazole magnesium trihydrate/NSAID-induced, high risk	Osteoarthritis	2011	3
Naproxen with esomeprazole magnesium trihydrate/NSAID-induced, high risk	Ankylosing spondylitis	2011	3
Pitavastatin calcium/Treatment	Hypercholesterolaemia	2012	2
Taliglucerase alfa/Type 1[###]	Gaucher disease	2012	2
Linagliptin/Later-line, combination (metformin hydrochloride and a sulphonylurea)	Type 2 diabetes mellitus	2012	1
Saxagliptin hydrochloride/Later-line, combination (insulin)	Type 2 diabetes mellitus	2012	1
Boceprevir and ribavirin and peginterferon alfa-2b/Treatment naïve	Hepatitis C	2012	1
Boceprevir and ribavirin and peginterferon alfa-2b/Treatment experienced	Hepatitis C	2012	1
Milnacipran hydrochloride/Later-line	Fibromyalgia	2012	1
Cobicistat/Combination	HIV infection	2013	1
Elvitegravir/Treatment experienced, combination	HIV infection	2013	1

Panitumumab/Advanced/metastatic, K-RAS wild type, first-line, combination (FOLFOX)	Colorectal cancer	2013	1
Afatinib dimaleate/Advanced/metastatic, EGFR mutation positive, later-line#	Non-small cell lung cancer	2013	1
Lixisenatide/Later-line, combination (metformin hydrochloride and insulin)	Type 2 diabetes mellitus	2014	1
Lixisenatide/Later-line, combination (sulphonylurea and insulin)	Type 2 diabetes mellitus	2014	1
Lixisenatide/Later-line, combination (metformin hydrochloride)	Type 2 diabetes mellitus	2014	1
Lixisenatide/Later-line, combination (metformin hydrochloride and a sulphonylurea)	Type 2 diabetes mellitus	2014	1
Olodaterol hydrochloride/treatment	Chronic obstructive pulmonary disease	2014	1
Vortioxetine hydrobromide/Later-line	Depression	2014	1
Ponatinib hydrochloride/Philadelphia chromosome positive, treatment resistant/intolerant (tyrosine kinase inhibitors)*	Acute lymphoblastic leukaemia	2014	2
Collagenase clostridium histolyticum/Treatment	Dupuytren's contracture	2014	2
Canakinumab/Children/adolescents, systemic, later-line	Juvenile idiopathic arthritis	2015	1
Lignocaine/Neuralgia, post-herpetic	Neuropathic pain	2015	1
Eliglustat tartrate/Type 1	Gaucher disease	2015	1
Sitagliptin phosphate monohydrate/Later-line, combination (insulin)	Type 2 diabetes mellitus	2015	1
Sitagliptin phosphate monohydrate/Later-line, combination (metformin hydrochloride and insulin)	Type 2 diabetes mellitus	2015	1
Sitagliptin phosphate monohydrate with metformin hydrochloride/Later-line,	Type 2 diabetes mellitus	2015	2

combination (insulin) (immediate release tablets)			
Sitagliptin phosphate monohydrate with metformin hydrochloride/Later-line, combination (insulin) (extended release tablets)	Type 2 diabetes mellitus	2015	2
Cobimetinib hemifumarate/Unresectable, BRAF V600 mutation positive, later-line, combination (vemurafenib)[#]	Malignant melanoma	2016	1
Gonadotropin (human, menopausal)/Anovulatory infertility	Female infertility	2016	2
Progesterone/Assisted reproduction, combination	Female infertility	2016	1
Vemurafenib/Unresectable, BRAF V600 mutation positive, later-line, combination (cobimetinib hemifumarate)[*]	Malignant melanoma	2016	1
Grazoprevir with elbasvir/Genotype 3, treatment naïve, combination (sofosbuvir)[*]	Hepatitis C	2016	1
Talimogene laherparepvec/Advanced/metastatic	Malignant melanoma	2016	1
Ulipristal acetate/Intermittent treatment	Uterine fibroids	2016	2
Migalastat hydrochloride/Treatment[###]	Fabry disease	2017	3
Tenofovir alafenamide fumarate/Treatment naïve	Hepatitis B	2017	1
Tenofovir alafenamide fumarate/Treatment experienced	Hepatitis B	2017	1
Ustekinumab/Fistulating, later-line[*]	Crohn's disease	2017	1
Budesonide/Mild/moderate, active	Ulcerative colitis	2017	1
Radium Ra 223 dichloride/Metastatic, castration-resistant	Prostate cancer	2017	1
Canakinumab/Moderate/severe	Cryopyrin-associated periodic syndrome	2017	1

Dexamethasone/Branch vein occlusion, first-line*	Macular oedema	2018	1
Dexamethasone/Central vein occlusion, first-line*	Macular oedema	2018	1
Abatacept/Severe, active, later-line	Psoriatic arthritis	2018	1
Insulin glargine with lixisenatide/Later-line, combination (metformin hydrochloride)	Type 2 diabetes mellitus	2018	1
Tramadol hydrochloride with paracetamol/Later-line	Pain	2018	1
Pembrolizumab/Squamous cell, advanced/metastatic, later-line	Head and neck cancer	2018	1
Lacosamide/Children/adolescents (4-15 years), partial-onset, combination	Epilepsy	2018	1
Rivaroxaban/Deep vein thrombosis, secondary prevention	Venous thromboembolism	2018	1
Sarilumab/Severe, active, later-line	Rheumatoid arthritis	2018	1
Certolizumab pegol/Severe, chronic, later-line**	Psoriasis	2019	2
Tofacitinib citrate/Moderate/severe, later-line	Ulcerative colitis	2019	1
Durvalumab/Advanced/metastatic, later-line	Bladder cancer	2019	1
Galcanezumab/Prevention, later-line	Migraine	2019	1
Lanadelumab/Hereditary, prevention, later-line##	Angioedema	2019	1
Pomalidomide/Later-line, combination (bortezomib and dexamethasone)	Multiple myeloma	2019	2
Brolucizumab/Wet##	Age-related macular degeneration	2019	1
Dulaglutide/Later-line, combination (metformin hydrochloride and insulin)	Type 2 diabetes mellitus	2019	1

* Another related pairing has been recommended by the PBAC (2010-2019)

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