Australian Government

Department of Agriculture, Fisheries and Forestry

Pet Food Safety in Australia: report to Agriculture Ministers

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Acknowledgement of Country
We acknowledge the continuous connection of First Nations Traditional Owners and Custodians to the lands, seas and waters of Australia. We recognise their care for and cultivation of Country. We pay respect to Elders past and present, and recognise their knowledge and contribution to the productivity, innovation and sustainability of Australia's agriculture, fisheries and forestry industries.

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1 Recommendations and key findings

In accordance with the 2022 Agriculture Ministers Meeting decision on pet food safety (AMM OOS 07), the Agriculture Senior Officials Committee Pet Food Working Group (**the working group**) have commissioned a cost benefit analysis (CBA) of policy options to manage pet food safety in Australia. This CBA was undertaken by an independent economic consultant, Marsden Jacob Associates and was informed by input from a broad range of government, industry and community stakeholders as well as previous reviews on pet food safety including the 2018 Senate Rural and Regional Affairs and Transport References Committee Inquiry on 'Regulatory approaches to ensure the safety of pet food' and the 2021 report of the Pet Food Review Working Group.

1.1 Key Findings

This report presents the outcomes of the CBA and the associated findings and recommendations of the working group informed by the CBA and previous reviews on pet food safety. The key findings of this report are summarised below.

- The management of pet food safety currently follows a self-regulation model. Pet food businesses are incentivised to produce safe and high-quality pet food products to avoid reputational and financial risks in a highly competitive operating environment.
- Most pet food sold in Australia complies with the voluntary Australian Standard for Manufacturing and Marketing of Pet Food (AS5812).
- While there have been pet food safety incidents in Australia, based on current data available pet illnesses and deaths from pet food affects an extremely small fraction of Australian pets. There is estimated to be 11.2 million cats and dogs in Australia with current data estimating approximately 37 pet deaths and 331 illnesses annually. However, data to estimate the number of affected pets is severely limited. It is also very difficult to link pet food as the definitive cause of illness or death.
- A CBA has been undertaken of five policy options to manage pet food safety in Australia, along with a base case (continue as is) option. The CBA found:
    - The cost of implementing policy options for managing pet food safety in Australia ranges from $5m to $33m over the 20-year analysis period.
    - The policy options mandating a pet food safety standard would need to reduce pet food related pet deaths and illnesses by at least 23% to achieve a net benefit, with some options needing a reduction of over 50%.
    - Establishing a major or serious event response framework without a mandatory standard would need to reduce pet food related pet deaths and illnesses by at least 9% to achieve a net benefit.
    - Establishing a government incident reporting, complaints handling and investigation function without a mandatory standard would need to reduce pet food related pet deaths and illnesses by at least 31% to achieve a net economic benefit.

- No analyses or studies could be found that could estimate a 'reasonable' efficacy range for the policy options considered in the Australian context. The only research of relevance estimated a 1.8% to 24% reduction in the risk of pet illness and death from specific reforms to pet food safety in the US, although it relied on expert opinion rather than data.
- There is little to no verifiable evidence on the impact of government action on reducing the number of pet food related pet deaths or illnesses, including international experiences. The evidence of the current AS5812 standard having reduced pet food safety incidents in the past is inconclusive. Many previous pet food safety incidents in Australia have occurred in relation to products that comply with AS5812 or an equivalent international standard.
- Pet food businesses who are not part of the Pet Food Industry Association of Australia (PFIAA) and do not undertake voluntary audits would be most financially impacted by the policy options 2, 3 and 4. These businesses include a significant number of small to medium pet food manufacturers and importers.
- Subject to any business support measures and funding mechanisms, the costs from the policy options are likely to the barriers to entry for new pet food businesses.
- It is unclear how the policy options would impact the price of pet food as this will depend on the implementation and funding mechanisms of the policy options. However, the price of pet food produced by PFIAA members (who produce 60-80% of pet food sold in Australia) would be unlikely to significantly increase.

1.2 Recommendations

Based on the report's key findings, the working group recommends that the cost benefit analysis of proposed policy options for pet food safety in Australia does not provide sufficient evidence to justify a regulatory approach to manage pet food safety in Australia at this time. Therefore, management of pet food safety should continue with current arrangements.

The working group discussed potential non-regulatory activities that could aim to improve monitoring, data collection and consumer awareness regarding pet food manufacturing and marketing standards (such as government funded data collection and public communications). However, these activities would require additional dedicated resourcing and funding because they may not be absorbed into or covered by existing programs or activities. Given the results of the CBA, the limited data on pet food safety incidents and the limited evidence that such activities would reduce the number or severity of pet food safety incidents, there is insufficient evidence to recommend government lead these activities at this time.

2 Introduction

Most Australian households own at least one pet cat or dog. In 2021, there were an estimated 11.2 million pet cats and dogs in Australia, with 47% of Australian households owning a dog and 30% owning a cat (Animal Medicines Australia, 2021). Purchasing pet food is an essential part of owning a pet and an integral element to ensuring pet health. On average, Australian pet owners spend approximately $1,800 on pet food for dogs and $1,500 on pet food for cats, which comprises the largest component of pet-related costs. Reflecting this, the wholesale value of the Australian pet food industry in 2021-22 was $3.0 billion and this is expected to grow year-on-year.

The manufacture and import of pet food in Australia operates under a self-regulatory model with a voluntary industry standard that sets out manufacturing and labelling processes to ensure pet food safety – the Australian Standard for the Manufacturing and Marketing of pet food (AS5812). Although AS5812 is voluntary, the peak industry body, the Pet Food Industry Association Australia (PFIAA), requires manufacturing members to comply with it.

Over the past few decades, there have been a number of significant pet food safety incidents in Australia causing illness and death in cats and dogs. For example, in 2018, there were reports that over 100 dogs fed the same brand of AS5812 compliant dog food had developed megaoesophagus, a serious and untreatable disease. A study by the University of Melbourne confirmed the disease was associated with the pet food brand although it could not determine the primary cause of the disease, which was likely to be multifactorial.

2018 Senate Inquiry and Pet Food Review Working Group report

In response to the 2018 megaoesophagus outbreak, Commonwealth, state and territory Agriculture ministers established a Pet Food Review Working Group (PFRWG) comprising of industry, community and government representatives to review the health and safety of the current pet food system in Australia. At the same time, the Senate Rural and Regional Affairs and Transport References Committee undertook a public inquiry on regulatory approaches to ensure the safety of pet food.

The Senate inquiry received 151 public submissions and considered two petitions tabled in Parliament (Petition No. 864, which was coordinated by Mrs Christine Fry and Mr Peter Fry and contained 81,021 signatures and Petition No. 865, which was collected by consumer group CHOICE and contained 14,500 signatures). Based on these submissions and its findings, the Senate inquiry made a range of recommendations centred around updating AS5812 and making it mandatory, improving labelling requirements and strengthening reporting, investigation and recall management. The Australian Government response to the Senate inquiry was released in 2021 which agreed to some but not all of the recommendations.

The PFRWG review drew on the Senate inquiry's findings and recommendations to identify a range of non-regulatory and regulatory options to manage pet food safety in Australia. However, it did not recommend a preferred option to manage pet food safety in Australia.

Cost benefit analysis and report to Agriculture ministers

Upon consideration of the final report of the PFRWG review, Agriculture ministers agreed that a cost benefit analysis of the policy options identified by the report was needed before a decision could be made on a way forward. This report incorporates this cost benefit analysis and presents the key findings from this analysis, with the aim of informing Agriculture ministers in deciding on an approach to manage pet food safety in Australia.

The Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF), in consultation with relevant state and territory agencies, engaged Marsden Jacob Associates (MJA) to independently undertake the cost benefit analysis of policy options to manage pet food safety in Australia. MJA worked closely with DAFF, states and territories, other relevant Commonwealth agencies, the Pet Food Industry Association, RSPCA and the Australian Veterinary Association to undertake the cost benefit analysis. The final report of the cost benefit analysis is provided at **Appendix B** and is summarised in Section 4.

Although many Australian households own many types of pets including cats, dogs, birds, fish and reptiles, the cost benefit analysis and this report is focused on pet cats and dogs and as such, a 'pet' in these documents refers to a pet cat or a dog. In addition, 'pet food' in these documents is intended to refer to manufactured ready-to-eat food products sold for cats and dogs and does not include constituent ingredients (e.g. raw meat) that are not sold as ready-to-eat.

3 Pet food safety in Australia

According to the IBIS report *Pet food production in Australia* from 2022, there are 140 domestic pet food production businesses operating in Australia, which together had revenue of $3.0bn in 2021-22. The majority of pet food produced by these businesses are sold in Australia through retailers, wholesalers and pet stores, with some products exported overseas. Three large companies, each with accreditation to AS5812, account for approximately two-thirds of domestic pet food production. In addition, there are approximately a further 131 cat and dog pet food importing businesses in Australia. Imported pet food sold in Australia accounts for approximately 17% of domestic demand and this is expected to increase into the future.

The pet food industry in Australia is highly competitive, with competition based primarily on price and quality. The level of competition in the industry is growing, with strong competition from imports (particularly low-priced private-labelled pet food sold in supermarkets) and from owners preparing pet food at home. Larger pet food manufacturers are often able to utilise economies of scale to increase their cost competitiveness. There are substantial barriers to entry for new businesses due to the high level of competition and the need to acquire industrial-grade food processing facilities and equipment that favours production at large scale. New businesses tend to focus on niche markets, which target consumers who are willing to pay a premium for pet food.

3.1 Current self-regulatory model

The management of pet food safety in Australia currently follows a self-regulation model to ensure pet food sold in Australia is safe for pets.

Under this model, manufacturers and importers of pet food are incentivised to produce safe pet food products to avoid reputational and financial risks in a highly competitive operating environment. Given pets are often treated as family members in many Australian households, consumers are highly sensitive to any actual or perceived issues with the quality and safety of pet food. Furthermore, consumers are generally able to change their pet food choices relatively easily, with a broad variety of pet food brands and products sold in Australia and most major retailers in Australia offering refunds to consumers if they are unhappy with a pet food purchase. As such, pet food businesses are sensitive to any threats to their reputation and invest in processes, systems and facilities to ensure their pet food products are safe.

In addition, the Australian consumer protection framework provides consumers of pet food products with further protections. Under the *Competition and Consumer Act 2010* (CCA), pet food products must meet certain consumer guarantees. For example, the CCA prohibits misleading and deceptive conduct and entitles consumers to a remedy (e.g. a refund, repair or replacement). The CCA also has a product safety framework to ensure consumer products, including pet food, are safe for humans. The Australian Competition and Consumer Commission (ACCC) administers the CCA and manages any incidents through their consumer complaints function.

For completeness, the Commonwealth, through DAFF, is also responsible for regulating the import and export of pet foods under the *Biosecurity Act 2015* and *Export Control Act 2020* respectively. However, these responsibilities are limited to the management of biosecurity risks associated with

imported products and providing certification for exporting products to meet importing country requirements. Where an importing country requires an Australian exporter to comply with AS5812, DAFF certifies compliance by overseeing a third-party accreditation system in partnership with the PFIAA.

3.1.1 Australian Standard for Manufacturing and Marketing of Pet Food (AS5812)

There is a voluntary *Australian Standard for the Manufacturing and Marketing of Pet Food* (AS5812), which was developed and has been subsequently updated through the Standards Australia review process (see below). The Standard was developed to enable Australian pet food to be exported to countries that require export certification and as such, is equivalent to pet food safety standards in many other countries. This standard sets out specific requirements for the production and supply of pet food, including the sourcing, receival and storage of ingredients, additives and preservatives, processing, heat treatment, labelling, and recall processes for pet food. The standard is intended to reduce the risk of pet food safety incidents and has been strengthened over time in response to pet food safety incidents, drawing on strong cooperation between key stakeholders including the PFIAA, RSPCA and AVA.

Most pet food sold in Australia is compliant with AS5812. This is because all of the PFIAA's members are accredited as compliant with AS5812, and although PFIAA members only make up 11% of all business selling products in Australia, they produce 60-80% of the pet food sold in Australia by volume.

Copies of AS5812 are available for download from Standards Australia's website for a fee. Any business can download and arrange to be accredited as compliant with the standard. Furthermore, any certification body accredited through the Joint Accreditation System of Australia & New Zealand can undertake a certification and accreditation process to be able to accredit businesses as being compliant with AS5812. However, given the voluntary nature of the Standard, we understand that PFIAA members are currently the only businesses that have been accredited and the PFIAA are currently the only entity arranging accreditation through a third party.

Standards Australia process for developing and reviewing the AS5812 standard

Standards Australia has worked closely with the PFIAA to develop and review the AS5812 standard. As Australia's standards body, Standards Australia adheres to Standardisation Guides that sets the framework for standards development, which is based on three internationally recognised principles: openness and transparency of process, consensus and balance of representation. Information on the specific process for standards development can be found here.

For the AS5812 standard, Standards Australia has convened a technical committee to oversee the development of the standard and any revisions. The committee has representation from a broad range of state, territory and federal government bodies (e.g. DAFF, APVMA, PrimeSafe Victoria, NSW Food Authority), as well as industry (e.g. PFIAA, National Retail Association Australia) and consumer groups (e.g. RSPCA, Consumers Federation of Australia, AVA).

The AS5812 standard is reviewed every five years to ensure it continues to be fit-for-purpose and addresses any emerging issues. These reviews have resulted in updates over time to address known

issues in the manufacturing and labelling of pet food in response to pet food safety incidents (for example, minimum thiamine levels in cat food in response to a 2017 pet food safety incident with at least 20 deaths). In this way, the AS5812 standard has enabled the adoption of improvements to manufacturing and labelling processes to address known pet food safety risks across multiple pet food manufacturers.

The standard recently completed a review and as part of the review process, a draft of AS5812 was open to the public for comment between 8 May 2023 to 10 July 2023. This allowed the public to put forward improvements for consideration.

3.1.2 Reporting mechanisms

As part of the self-regulatory model, there is a pet food safety incident reporting system in Australia, Pet Food Adverse Event System of Tracking (PetFAST). PetFAST was set up in 2011 to detect pet food safety incidents and direct responses by the Australian Veterinary Association (AVA). PetFAST is a voluntary system accessible to veterinarians to report pet illnesses and deaths suspected of being associated with pet food. Systematic recording of pet food safety incidents in a database (via PetFAST) was introduced in 2018.

In addition, some members of the public have used social media to create forums (e,g, Facebook) to share concerns or complaints about pet food safety incidents. Consumers can also directly report their pet food safety concerns to their retailer, manufacturer, importer or the PFIAA. The PFIAA assists consumers in contacting pet food businesses as well as providing funds to support testing of pet food products suspected of causing pet food safety incidents. These mechanisms enable businesses to respond to potential pet food safety issues to avoid reputational risks associated with a safety incident and manage potential financial impacts from products being returned.

3.2 Key challenges

3.2.1 Pet food safety incidents

While most pet food sold in Australia is safe and of high quality, over the past decade, there have been a number of pet food safety incidents. The PFRWG identified 17 incidents over this period, which were reported to the PFIAA and in the media. Major incidents include:

- In 2017, there were 300 suspected cases of thiamine deficiency in cats linked to a brand of imported cat food.
- In 2018, over 100 dogs fed the same brand of Australian manufactured dog food developed megaoesophagus, a serious and untreatable disease. This product complied with AS5812.

Since records of incidents were systematically kept by the PFIAA, there were approximately 37 reports of pet food safety incidents made to the PetFAST system on average each year. From these incidents, there were on average 3.7 pet deaths and 33.1 pet illnesses requiring veterinary care every year.

Given the nature of the current PetFAST system, there is likely to be significant underreporting of incidents into that system (see Section 2.2.2 below). Assuming the actual number of pet food deaths and illness recorded on PetFAST is underreported by 90%, it is estimated that there were 37 pet deaths and 331 pet illnesses requiring veterinary care resulting from pet food safety incidents in

Australia every year. For completeness, it is noted that there is insufficient information available to determine any trends in relation to pet food safety incidents in Australia over time.

Pet food safety incidents can and have had serious impacts on pet owners and their households. These impacts can be exacerbated if the dogs affected are a class of working dogs such as assistance, biosecurity, farm or police dogs. The Senate Inquiry heard evidence of significant emotional distress by affected pet owners when their pets were sick or died due to a suspected pet food safety incident. Other impacts on pet owners' day-to-day lives include additional time and financial costs spent preparing food, monitoring their pet's movements and visiting veterinarians. For example, one submitter to the Senate inquiry was taking his dog "daily to the vets to keep him hydrated, as he couldn't keep down food or water"[1] after being diagnosed with megaoesophagus.

3.2.2 Difficulties in determining the number and frequency of pet food safety incidents in Australia

As noted in Section 2.1.2, the current pet food safety incident reporting system in Australia, PetFAST, enables veterinarians to report incidents, using their expertise to assess whether reports need to be made. While pet food safety incidents reported to PetFAST are systematically recorded, it is likely that PetFAST does not capture all pet food safety incidents that occur. This is because:

- There is limited awareness of the system among veterinarians and pet owners, although the AVA and PFIAA have undertaken activities to promote and raise awareness of the system.
- While pet owners may ask their veterinarian to report an incident to PetFAST, there are barriers to doing so. The system relies on pet owners raising pet food safety concerns with veterinarians or veterinarians suspecting food as a cause in differential diagnosis and veterinarians choosing to report incidents on PetFAST.
    - Pet owners cannot access PetFAST themselves. If a pet owner wants to report a pet food safety incident to PetFAST, they would need to visit a veterinarian at their own cost and ask them to make a report on PetFAST. These cost and time requirements are particularly relevant for mild pet food safety incidents that may not require veterinary intervention.
    - There are barriers for veterinarians to make a report on PetFAST including limited awareness of the system and the process for logging a report on PetFAST. For example, some submissions to the 2018 Senate inquiry[2] described the process of logging a report on PetFAST as 'extremely onerous' and that the potential costs and

[1] See Submission 9 to the 2018 Senate Rural and Regional Affairs and Transport References Committee inquiry report on *Regulatory approaches to ensure the safety of pet food*.

[2] See page 71 of the 2018 Senate Rural and Regional Affairs and Transport References Committee inquiry report on *Regulatory approaches to ensure the safety of pet food*.

time associated with obtaining data required for the report was a barrier for some vets to lodge a report.

- While consumers can engage directly with pet food businesses or social media forums to report incidents and raise concerns, there is no mechanism to systematically collate these reports and interrogate their veracity.
- There is difficulty in identifying pet food safety incidents and determining causal links or associations between pet food and pet deaths/illnesses.
- Government does not currently have access or contribute to the PetFAST system.

As a result, it is difficult to estimate the actual number and frequency of pet food safety incidents in Australia and analyse trends in incidents using the current incident reporting systems. This presents challenges to assessing what, if any, government action should be taken in relation to pet food safety in Australia.

In addition to the challenges noted above, the PFIAA and the AVA have indicated that the current PetFAST system is not sustainable because it is currently operated by veterinarians on a voluntary basis since 2011, and as such, is at risk of terminating or reducing its operating capacity. While the cost of some investigations is subsidised by PFIAA, the time of the veterinarians managing the scheme is not covered.

3.2.3 Incentives for responding to pet food safety incidents rely on avoidance of reputational damage

Under the current self-regulatory system, the incentives for pet food manufacturing and importing businesses to take a best practice approach to respond to pet food safety incidents relies on the value businesses place on their reputation. Outside of these incentives and the consumer guarantee requirements imposed by the CCA, pet food manufacturers and importers do not have any mandatory requirements to respond to a report of pet food safety incident or a concern relating to pet food safety. In this regard, it is noted that:

- As noted above, the CCA requires consumer products, including pet food products, to meet certain consumer guarantees, including that they are to an acceptable quality and are fit for purpose for the consumer. The CCA usually entitles consumers to a replacement or refund for a product that breaches a consumer guarantee but does not require the manufacturer to recall products.
- The CCA also has a product safety framework to ensure consumer products, including pet food, are safe for humans and to mandate product recalls where breaches occur. However, this framework does not apply to *pet* safety from consumer products and therefore does not apply to pet food safety incidents.
- In many cases where a pet food safety incident is reported, there is significant uncertainty regarding the relationship between a pet food product and a pet death or illness, particularly in the immediate days and weeks following the report. This uncertainty may arise from difficulties in ascertaining the movements and activities of pets prior to their illness or death. There may be significant costs to pet food businesses with undertaking a voluntary recall of a product pre-

emptively, particularly if no causal link or association with the pet food product is established following investigations.

- Most major retailers of pet food in Australia offer refunds to consumers if they are unhappy with a pet food purchase as they value and seek to retain ongoing customers. However, some pet food businesses do not adopt the same approach, noting there is often significant uncertainty regarding the relationship between a pet food product and a pet death or illness.
- While AS5812 has protocols for conducting a recall and some investigation and reporting requirements, it does not contain requirements to recall products in particular circumstances. Furthermore, only pet food manufacturers and importers that are PFIAA members comply with AS5812.
- While there are avenues for pet owners who are impacted by pet food safety incidents to pursue litigation against pet food businesses, there are significant challenges with doing so. These challenges include the cost of litigation and difficulties in establishing causal links between a pet food product and a pet illness or death and between a manufacturing process and a suspected pet food safety incident.
- The PFIAA provides support, including funding, to pet food businesses to respond to reports of pet food safety incidents, including to conduct testing of pet food products. However, pet food businesses are not obliged to respond to reports of pet food safety incidents or engage with the PFIAA.

As a result, while many pet food businesses who have applied a best practice approach to responding to suspected pet food safety incidents, some businesses have not responded to pet food safety complaints or issues (e.g. by voluntarily recalling products) in a timely or comprehensive manner. However, it is difficult to determine, with the information currently available, whether this has resulted in additional pet deaths or illnesses.

3.2.4 Lack of market information

A number of consumers who submitted to the 2018 Senate Inquiry were unaware some pet food products do not meet a minimum standard because the industry is self-regulated with a voluntary standard for the manufacture and labelling of pet food. The 2018 Senate Inquiry on regulatory approaches to ensure the safety of pet food noted:

> *"The fact that the pet food industry operates under a self-regulated model came as a surprise to many submitters, who had assumed that the pet food industry is, and has always been, subject to stringent regulation"*

Very few (if any) certified manufacturers display compliance with AS5812 on their pet food packaging, and while the PFIAA's website contains a list of its members who comply with AS5812, information on which specific products comply with the standard is not easily accessible. As a result, it can be difficult for consumers to make judgements on which pet food products comply with AS5812 to actively purchase these products. which limits incentives for manufacturers or retailers to voluntarily adopt and comply with the standard.

Since the 2018 Senate Inquiry, the AVA, PFIAA and RSPCA have implemented a range of communication activities to increase education and awareness of AS5812 in the community,

including newsletters, website articles and social media. The PFIAA and RSPCA have webpage articles on AS5812 and information on pet food safety issues and have used social media and advertising to increase community engagement on these articles. In addition, the PFIAA have developed a product logo for AS5812 certification and have registered the logo with IP Australia. However, the PFIAA have indicated that there have been significant challenges with adopting the logo on pet food products including high costs of making label changes, limited packaging space and concerns regarding the appropriate use of the logo without mandating compliance with AS5812.

4 Is Government action needed?

A range of community and industry stakeholders, including the RSPCA, AVA and PFIAA, have advocated for government oversight and action to manage pet food safety in Australia. These stakeholders have indicated strong support for implementing nationwide regulation of pet food including through a mandated AS5812 standard, strengthened incident reporting and investigation systems, and legislative powers to jurisdictions to enable intervention on pet food safety incidents.

Indeed, government action could play a role in addressing some potential challenges in the current system to reduce pet illness and death from pet food. For example, having an avenue for jurisdictions to intervene and require companies to respond to pet food safety incidents, undertake recalls and investigations could limit the severity of pet food safety incidents. Similarly, mandating a manufacturing and labelling standard like AS5812 to ensure minimum requirements for pet food safety could reduce the likelihood of known pet food safety risks, providing an avenue for the industry-wide adoption of process improvements in response to new or emerging safety risks. Some examples of government action from other countries around the world are outlined at **Appendix A** for reference.

However, the question of whether government action is needed will require consideration of the scale of pet food safety incidents in Australia, the resourcing and time requirements needed for government action and the effectiveness of any government action in managing pet food safety.

4.1 Scale of pet food safety incidents

As noted in Section 2.2, it is difficult to estimate the actual number and frequency of pet food safety incidents in Australia using the current incident reporting systems. However, based on the data available and assuming the current PetFAST system underreported the actual number of pet food safety incidents (and associated deaths and illnesses) by 90%, it is estimated that there were 37 pet deaths and 331 pet illnesses requiring veterinary care resulting from pet food safety incidents in Australia every year.

4.2 Resourcing and time requirements

Any decision to undertake government action to manage pet food safety in Australia would require additional government resourcing and time to implement. For example, additional funding and time is needed to recruit staff to undertake new government functions and develop systems to support the delivery of these functions. Furthermore, if government action involves regulation, legislative changes would need to be introduced and passed through relevant state, territory and Commonwealth Parliaments. This would require significant time and resourcing, and be subject to the priorities and legislative agendas of relevant ministers and governments.

These requirements have been estimated in terms of economic costs as part of the cost benefit analysis of policy options for managing pet food safety in Australia (see Section 4 below and **Appendix B**). They will need to be weighed up against any benefits for pet food safety (i.e. reduction in the number of pet deaths and illnesses from pet food) that government action would achieve.

4.3 Effectiveness of government action

Based on the information currently available, it is unknown whether any government action would reduce the number of pet deaths and illnesses from pet food in Australia.

While some countries have implemented government oversight or regulation of pet food safety, there is little to no verifiable evidence on the impact of regulation or government oversight on reducing the number pet food safety incidents and associated pet deaths or illnesses. The only study of relevance is a 2017 regulatory impact analysis conducted by the U.S. Food & Drug Administration (FDA) as part of their reforms to the Food Safety Modernization Act (FSMA) Preventive Controls for Animal Food. These reforms included adding Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals. Their analysis estimated an average effectiveness rate that ranged from 1.8% to 24.0% reduction in the risk of illness and death to cats and dogs. However, the research only relied on expert opinion, which carries an inherently high level of uncertainty.

As such, assessing the effectiveness of any government action (such as regulation) in managing pet food safety in Australia will require applying a level of judgement in considering how the action could theoretically impact pet food safety and the likelihood of this, taking into account the evidence currently available.

For example, a mandatory pet food safety standard (e.g. mandating AS5812) could establish a mechanism for industry-wide improvements to address known pet food safety risks. This could reduce the number of pet illnesses and deaths by limiting reoccurring risks at a larger scale, rather than relying on ad hoc changes implemented voluntarily. A mandated pet food manufacturing and labelling safety standard could also ensure labelling on products, including ingredients and nutritional content, is accurate which would support consumers to make more informed choices.

However, the evidence of the current AS5812 standard having reduced pet food safety incidents in the past is inconclusive. Many previous pet food safety incidents have occurred in relation to products that comply with AS5812 (or an equivalent international standard). For example, 10 out of 13 confirmed or suspected incidents since 2018 were linked to products that were compliant with AS5812 or a similar international standard. As such, it is difficult to determine whether and if so, how many, pet food safety incidents would be avoided by mandating a pet food safety standard.

5 Cost benefit analysis

5.1 Analysis methodology

In accordance with the previous decision of the Agriculture Ministers Meeting, a quantitative cost benefit analysis (CBA) of policy options to manage pet food safety in Australia has been undertaken. This analysis has been undertaken for five policy options and a base case (i.e. 'do nothing') option, which were identified in consultation with states and territories (see Section 4.1.1). Due to limitations in the available data for key variables relevant to the CBA, the CBA includes a threshold analysis and a number of sensitivity analyses (see Sections 4.1.2 and 4.1.3).

The CBA did not consider funding models or mechanisms that practically measured funding distribution, rather it focussed on the total costs. For example, in practice, government costs could be cost recovered and industry costs could be passed on to consumers. This was not considered in the CBA. For the options involving regulation, the CBA did not determine specific regulators and legislative frameworks to implement the options. This is because there are complex and competing considerations in determining which regulators and legislative frameworks would be most appropriate and able to implement the options. For example, the ACCC have provided advice on the significant challenges to using the Australian Consumer Law framework to implement pet food safety regulations.

The full detail of the methodology adopted to undertake this analysis is provided in the CBA report on policy options to manage pet food safety in Australia (**Appendix B**).

5.1.1 Identification of policy options

Previous reviews in relation to pet food safety in Australia have identified a broad range of possible policy options to manage pet food safety in Australia. Based on these reviews and in consultation with all states and territories, five policy options and a 'base case' option have been identified for the purposes of the cost benefit analysis. These policy options are:

- Option 1: Maintaining the status quo (a self-regulatory model) – 'base case' option
- Option 2: Co-regulation with a major or serious event response framework
- Option 2A: Option 2 with no mandatory standard
- Option 3: Report and response-based national regulation including complaints handling
- Option 3A: Option 3 with no mandatory standard
- Option 4: Active national regulation

These options are intended to apply only to the manufacture of pet food for cats and dogs. Consideration of options to manage the safety of food for other pets (e.g. birds, fish or reptiles) are out of scope.

Option 1: Maintain the status quo (self-regulation) – 'base case' option

The first option considered to address the policy problems is for the current self-regulatory model (as described in section 2) to be maintained.

Under this option, there would continue to be a voluntary industry standard for the manufacture and marketing of pet food (AS5812), which is equivalent to the pet food safety standards of many other countries. The current incident reporting system, PetFAST, would continue to be operated by the AVA on a volunteer basis, with support by the PFIAA. Any responses to pet food safety incidents would continue to be handled by relevant manufacturers and importers, supported by the PFIAA where appropriate. In this regard, jurisdictions would not take any direct action to respond to such incidents involving manufactured pet food and allow industry to resolve matters with consumers on its own.

Option 2: Co-regulation with major or serious event response framework

In Option 2, jurisdictions would co-regulate pet food safety with the pet food industry by intervening in major or serious events. A major or serious event would occur where there is a problem with the manufacture or formulation or pet food that repeatedly causes ill health and/or death in pets, such as the 2017 thiamine deficiency in cat food incident and the 2018 megaoesophagus from dog food incident. This option would have some similarities to the European regulatory approach to managing the safety of pet food.

Major or serious event response framework

Legislation would be introduced to enable jurisdictions to intervene in specific limited circumstances such as major or serious events to help reduce the magnitude and severity of pet food safety incidents. Government intervention could occur where an industry response to a major pet food safety risk or incident is assessed to be inadequate and there is a strong need for government intervention to protect pet safety. Government intervention could include undertaking investigations, mandating a product recall (i.e. to remove potentially dangerous products off shelves), holding an imported product, or undertaking enforcement action for serious non-compliance (e.g. fines, prosecutions). State and territory governments would be primarily responsible for undertaking any government intervention, with national coordination support by the Commonwealth and in collaboration with industry (e.g. PFIAA). The Commonwealth would also have responsibility for imported products.

While this could help reduce the scale and severity of pet food safety incidents when they are identified, the capacity for effective government intervention would rely on the current PetFAST monitoring and reporting system, which has limitations (see Section 2.2.2). Additionally, a government response under this option would be limited to 'major or series events', which would be a subset of all pet food safety incidents.

Mandatory standard

Legislation would also be introduced to mandate compliance with the Australian industry standard for the manufacture and marketing of pet food (AS5812) for all pet food sold in Australia. Industry would self-manage compliance with the standard, supported by existing industry mechanisms (e.g. PFIAA) and public engagement (e.g. increased consumer awareness of AS5812) to ensure compliance and enforcement.

As noted in Section 3.3, it is difficult to determine what (if any) impact on pet food safety mandating a pet food safety standard would have.

Incident reporting and complaints handling

In addition, PetFAST would continue to be monitored and administered by the AVA with support from the PFIAA in accordance with current arrangements.

Option 2A – Option 2 with no mandatory standard

A potential variation to Option 2 is to not mandate compliance with the Australian industry standard for the manufacture and marketing of pet food (AS5812).

As with Option 2, jurisdictions would only intervene in specific limited circumstances to minimise the magnitude and severity of a pet food safety incident, such as undertaking an investigation or mandating a product recall where an industry response to a pet food safety incident has been inadequate (see above). This could help remove potentially dangerous pet food products off shelves quickly to reduce the scale and severity of any pet food safety incidents when they are identified.

PetFAST would also continue to be monitored and administered by the AVA with support from the PFIAA in accordance with current arrangements.

While this option does not mandate a safety standard, education campaigns about the new regulatory arrangements could help consumers make more informed choices and encourage more transparent and prominent advertisement of compliance and uptake of the voluntary AS5812 standard.

Option 3: Response and reports-based regulation with complaints handling function

In Option 3, jurisdictions would regulate pet food safety based on consumer complaints and reports through existing regulatory bodies. This option would be similar to New Zealand's regulatory approach to managing the safety of pet food that do not make a therapeutic claim.

Incident reporting and complaints handling

Under this option, jurisdictions would take on responsibility for handling consumer complaints and veterinary reports in relation to pet food safety. A database of complaints and reports would be developed and used to detect incidents and support investigations to limit the magnitude of incidents. This could involve jurisdictions funding and leveraging the current PetFAST system and associated activities by expanding its remit to accept consumer reports or the creation of a new

monitoring system. A public site for pet food product recalls would also be maintained to provide information for consumers. This could provide governments and industry with more information to support timely responses to incidents and help evaluate the need for and impacts of government action.

Note: If jurisdictions were to fund the current PetFAST system, they may choose to do so through existing appropriations or by recovering these costs from industry. Specific funding mechanisms have not been considered in this analysis but may be explored following a decision by Agriculture ministers to adopt one of the policy options proposed.

Government investigation and response

Government would work closely with industry to investigate reports of suspected pet food safety incidents. If industry responses are not initiated in a timely manner or are inadequate, jurisdictions may conduct independent investigations and mandate product recalls. Any government activities, however, would be subject to its regulatory priorities, policies and resourcing capacity.

Similar to Option 2, this could help remove potentially dangerous pet food products off shelves quickly to reduce the scale and severity of any pet food safety incidents when they are identified. However, as noted in Sections 2.2.3 and 3.3, it is difficult to determine with the information currently available whether (and if so, the extent to which) this would reduce pet deaths and illnesses from pet food in Australia.

Mandatory standard

In addition, legislation would be introduced to mandate compliance with the Australian industry standard (AS5812), or a similar standard for pet food manufacturing and labelling, for all pet food sold in Australia. Jurisdictions would have the ability to investigate reports of non-compliance and take enforcement action (e.g. fines), subject to its regulatory priorities, policies and resourcing. However, jurisdictions would not systematically or proactively review AS5812 audit reports of pet food products not subject to a complaint or report of non-compliance, nor establish a register and certification program for pet food manufacturers and importers.

As noted in Section 3.3, it is difficult to determine what (if any) impact on pet food safety mandating a pet food safety standard would have.

Option 3A – Option 3 with no mandatory standard

A potential variation to Option 3 is to not mandate compliance with a standard for the manufacture and marketing of pet food (such as AS5812).

As with Option 3, Government intervention would be focussed on identifying, investigating and addressing serious or major pet food safety incidents. This would be managed by jurisdictions and informed by consumer complaints and veterinary reports, as outlined above. However, as noted in Sections 2.2.3 and 3.3, it is difficult to determine with the information currently available whether (and if so, the extent to which) this would reduce pet deaths and illnesses from pet food in Australia.

While this option does not mandate a pet food safety standard, education campaigns could help consumers make more informed choices and encourage more prominent advertisement of compliance and uptake of the voluntary AS5812 standard.

Option 4: Active national regulation

Under Option 4, jurisdictions would regulate pet food safety in Australia through existing regulatory bodies by actively monitoring compliance with AS5812 or a similar pet food manufacturing and labelling standard. This option would be similar to the regulatory approach to pet food safety implemented in the United States.

Legislation would be introduced to mandate compliance with AS5812 or a similar standard for all pet food sold in Australia. A key difference from Option 3 is jurisdictions would actively monitor compliance with AS5812 (or a similar standard) including by systematically reviewing and assessing AS5812 audit reports and by implementing a register and certification program for pet food manufacturers and importers. Jurisdictions would have powers to take enforcement action (e.g. issuing fines), undertake investigations, require product recalls and apply import conditions for pet food safety. These powers may be exercised as part of active monitoring and enforcement of compliance with AS5812 (or a similar standard), or in response to reports of pet food safety risks and incidents.

The additional focus on active monitoring of compliance with a minimum standard compared with Option 3 would provide greater confidence that all pet food sold in Australia complies with a minimum safety standard. However, as noted in Section 3.3, it is difficult to determine what (if any) impact on pet food safety a mandatory pet food safety standard would have.

Similar to Option 3, jurisdictions would take on responsibility for handling consumer complaints and veterinary reports. This could involve government funding and leveraging the current PetFAST system with an expanded remit to accept consumer reports, or the creation of a new monitoring system..

5.1.2 Threshold analysis

A key challenge for this CBA has been a lack of available quantifiable evidence linking any of the measures contained in the proposed policy options with a reduction in the number of pet food related pet deaths and illnesses. While there is some available data on the costs of pet food safety incidents, no analyses or studies could be found that could estimate a 'reasonable' efficacy range (i.e. a 'reasonable' reduction in the number of pet food related pet deaths and illnesses) for the policy options considered in the Australian context. This limits the CBA's capacity to estimate how the proposed policy options are likely to reduce the risk of pet food safety incidents in Australia and therefore the benefits of the policy options.

Given this uncertainty, the CBA has been presented in the form of a threshold analysis. The analysis builds an estimate of the incremental costs of the policy options and determines the percentage of pet food safety incidents that would need to be avoided in order for the present value of the option's costs to equal its benefits (i.e. to achieve a benefit–cost ratio (BCR) of 1 and a NPV of 0). The costs are incremental to the status quo (i.e. costs that would be incurred on top of the costs under the current situation) such that an incremental cost of $0 means there is no difference or extra cost from the status quo (not necessarily that the policy option would incur no costs overall).

5.1.3 Sensitivity analyses

In undertaking the CBA, a range of estimates have been made in relation to key variables based on limited available data, drawing on the expertise and independent judgement of MJA. For example, the number of pet deaths and illnesses from pet food has been estimated based on data of previous PetFAST reports and advice from stakeholders regarding potential underreporting in the PetFAST system. These estimates represent a 'central base case' scenario for the CBA, the results of which are outlined in the CBA report (see **Appendix B**).

Given the limited data available, these estimates have inherent uncertainties. As such, sensitivity analyses have been undertaken as part of the CBA to assess the potential impact of these uncertainties to the overall CBA outcomes. The findings of these sensitivity analyses are detailed in the CBA report.

A key variable subject to sensitivity analysis is the costs to government to implement each option. For the 'central base case' scenario, this variable was estimated by taking an average of the government cost estimates for each option provided by all jurisdictions. However, it is likely that the actual government costs for each option will vary significantly between jurisdictions. This is because the costs will depend on a number of factors including the existing regulatory and legislative frameworks in jurisdictions and the priority given to introduce any required legislative changes. Reflecting this likely variation and associated uncertainty, this report presents the results of the CBA under both a 'central base case' scenario and as a range of outcomes for each option (with the lower bound representing a halving of estimated government costs and the upper bound represents a doubling of estimated government costs).

5.2 Results

The incremental costs of each option under the CBA are summarised in Table 1, noting they have been presented both under the central base case scenario and as cost ranges to account for the likely variability in government costs to implement the options (see Section 5.1.3).

Table 1 Net present value (NPV) incremental costs for each option as estimated at 2022, under a 'central base case' scenario and as cost ranges ($million, 7% discount rate).

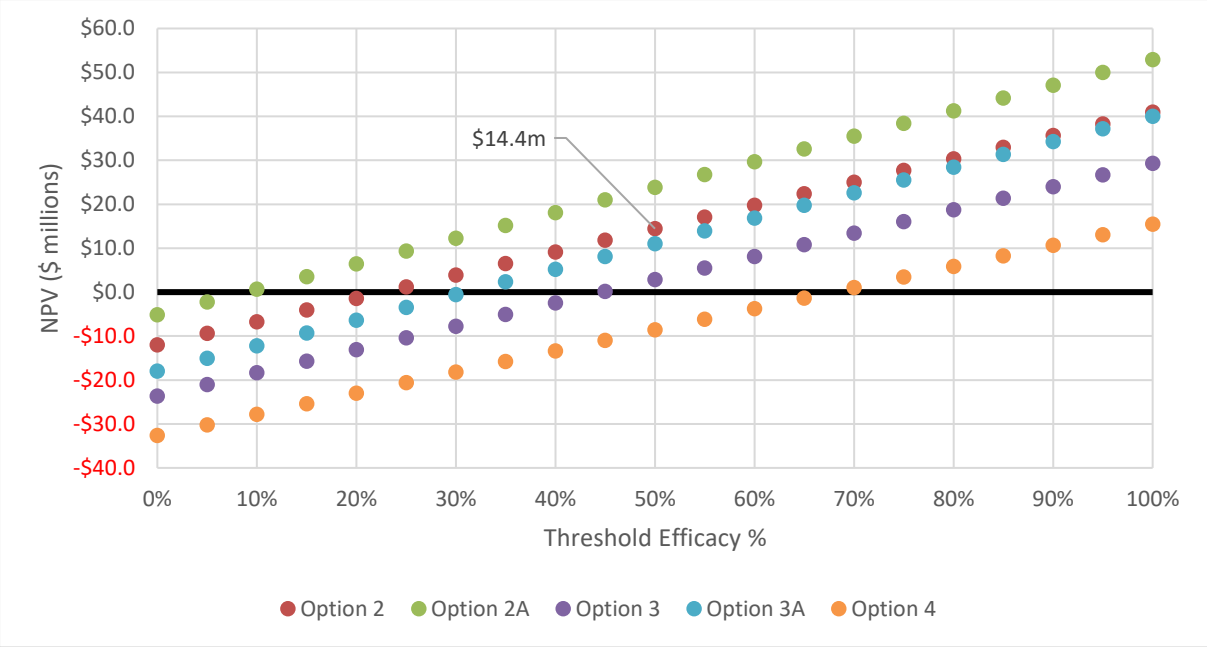
	Option 1	Option 2	Option 2A	Option 3	Option 3A	Option 4
Administration	$0	$4.8 ($2.4 – 9.6)	$4.9 ($2.5 – 9.9)	$11.8 ($5.9 – 23.5)	$12.6 ($6.3 – 25.3)	$20.2 ($10.1 – 40.4)
Education & public awareness	$0	$0.2 ($0.1 – 0.4)	$0.2 ($0.1 – 0.5)	$0.2 ($0.1 – 0.4)	$0.2 ($0.1 – 0.5)	$0.3 ($0.1 – 0.6)
Monitoring & complaints handling	$0	$0	$0	$4.7 ($2.4 – 9.4)	$5.1 ($2.5– 10.2)	$4.2 ($2.1 – 8.4)
Industry costs	$0	$7.0	$0	$7.0	$0	$8.0
Gross costs	$0	$12.0 ($9.5 – 17.0)	$5.2 ($2.6 – 10.4)	$23.7 ($15.4 – 40.3)	$18.0 ($8.9 – 36.0)	$32.7 ($20.3 – 57.5)

The results of the threshold analysis are summarised at Table 2 and Figure 1, which show how the extent to which each option would need to reduce pet deaths and illnesses from pet food by to achieve a net economic benefit under the CBA.

Table 2 Required reduction in pet deaths and illnesses from pet food (i.e. efficacy) to achieve a net economic benefit for each option, under a 'central base case' scenario and as a range.

	Option 1	Option 2	Option 2A	Option 3	Option 3A	Option 4
Required efficacy	N/A	23% (18 – 32%)	9% (4 – 18%)	45% (29-76%)	31% (16-62%)	68% (42-119%)

Figure 1 NPV of each option based on efficacy values between 0 and 100%, under a 'central base case' scenario. A positive NPV indicates a net benefit whereas a negative NPV indicates a net cost.



The detailed results of the CBA are outlined in the CBA report at **Appendix B**.

6 Findings

Based on the CBA of policy options to manage pet food safety in Australia, the following findings are made. These findings aim to inform Agriculture ministers in deciding on a forward approach to managing pet food safety in Australia.

- Under the current self-regulation model for pet food safety, pet food businesses are incentivised to produce safe pet food products to avoid reputational and financial risks in a highly competitive operating environment. The Australian consumer protection framework provides additional protections to consumers to ensure pet food products sold are fit-for-purpose and of acceptable quality.
- Most pet food sold in Australia complies with the voluntary Australian Standard for Manufacturing and Marketing of Pet Food (AS5812), which is equivalent to other international pet food safety standards.
- While there have been pet food safety incidents in Australia, the CBA estimated an extremely small fraction of the total Australian pet population is affected by pet illnesses and deaths associated with pet food safety (assuming pet food safety incidents are underreported by 90%, 331 illnesses and 37 deaths per year out of 11.2 million pets in Australia).
- A CBA was undertaken of five policy options to manage pet food safety in Australia, along with a base case (do nothing) option. These options were selected from a broad range of possible options identified in previous reviews, in close consultation with all states and territories. They include options to implement a major or serious event response framework, a mandatory standard, and an incident reporting and a complaint handling government function.
- The cost of implementing policy options for managing pet food safety in Australia ranged from $5m (for Option 2A) to $33m (for Option 4) over the 20-year analysis period.
    - Government administration and industry audit costs were the primary cost drivers.
    - There is likely to be significant variation between jurisdictions in their costs to administer any regulatory arrangements. A sensitivity analysis has been applied to determine the CBA outcomes if government costs were doubled or halved.
    - Due to limitations in the available data, key variables in the CBA were estimated drawing on the expertise and independent judgement of MJA. Changes to some key variables, such as the estimated number of pet food safety incidents in Australia and the avoided cost of pet illness, could significantly impact the CBA's outcomes.
- The economic benefits from the policy options cannot be quantified as the effectiveness of these options in reducing pet food related deaths and illnesses could not be determined. As such, a threshold analysis has been undertaken to estimate the proportion of pet deaths and illnesses need to be reduced by each policy option (i.e. the efficacy of a policy option) to deliver a net economic benefit.
- Based on the CBA's threshold analysis:

  - The policy options mandating a pet food safety standard would need to reduce pet food related pet deaths and illnesses by at least 23% to achieve a net benefit, with some options needing to a reduction of over 50%.
  - Given the costs of mandating a pet food safety standard, the policy options that did not mandate a standard required a lower efficacy to achieve a net economic benefit. For example:
    - Establishing a major or serious event response framework without a mandatory standard (Option 2A) would need to reduce pet food related pet deaths and illnesses by at least 9% to achieve a net economic benefit.
    - Establishing a government incident reporting, complaints handling and investigation function for pet food safety without a mandatory standard (Option 3A) would need to reduce pet food related pet deaths and illnesses by at least 31% to achieve a net economic benefit.
- No analyses or studies could be found that could estimate a 'reasonable' efficacy range for the policy options considered in the Australian context.
  - In 2017, the US FDA undertook research on the potential risk reductions due to the implementation of legislation relating to pet food safety to estimate its effectiveness. Its research showed an average effectiveness rate that ranged from 1.8% to 24% reduction in the risk of illness and death to cats and dogs, although it had an inherently high level of uncertainty (as it relied on expert opinion rather than data) and was undertaken in a different context (i.e. on changes to the US FSMA Preventive Controls for Animal Food),
- There is little to no verifiable evidence on the impact of regulation or government oversight on reducing the number of pet food related pet deaths or illnesses.
  - The evidence of the current AS5812 standard having reduced pet food safety incidents in the past is inconclusive. Many previous pet food safety incidents have occurred in relation to products that comply with AS5812 (or an equivalent international standard).
- Pet food businesses who are not part of the PFIAA and do not undertake voluntary audits would be most financially impacted by policy options 2, 3 and 4. These businesses include a significant number of small to medium pet food manufacturers and importers.
- Subject to any business support measures, the costs from the policy options that could be imposed on industry directly or via cost recovery mechanisms would increase the barriers to entry for new pet food businesses in a highly competitive industry. This could particularly impact small manufacturers, who may be unable to utilise economies of scale to ensure their cost competitiveness.
- It is unclear how the policy options would impact the price of pet food as this will depend on the implementation and funding mechanisms of the policy options (e.g. cost recovery). However, it is expected that the price of pet food sold in Australia produced by PFIAA members (who produce 60-80% of the pet food sold in Australia by volume) is unlikely to increase substantially as a result of the policy options, given they comply with AS5812.

Appendix A: How pet food is managed internationally

Pet food is managed in various ways internationally, with some form of government oversight in many high income nations and regions including the US, Europe, Japan and New Zealand. The standards used in these countries are similar, if not equivalent, to AS5812. Although these examples provide a precedent for how pet food safety could be managed, there is limited verifiable data available to adequately assess if the introduction of regulation in other countries has been effective in reducing the frequency or severity of pet food safety incidents. For example, in 2007 there were significant number of cat illnesses and deaths in the US and Europe due to melamine toxicity in cat food despite regulation. It is therefore difficult to draw on international examples to assess the proposed options in terms of their likely effectiveness in improving pet food safety in Australia.

The United States

In the United States, the Food and Drug Administration (USFDA) has responsibility for regulating pet food. Under the national *Food, Drug and Cosmetic Act*, all food for animals must be safe to eat, produced under sanitary conditions, contain no harmful substances, and be truthfully labelled. The USFDA has a reporting and data sharing system for pet food incidents to determine an appropriate response to reports. The USFDA has powers to investigate reports and consumer complaints, conduct inspections of businesses, enact recalls where appropriate and even suspend business registrations. For example, in 2022 the USFDA conducted 488 routine compliance inspections of domestic food manufacturing businesses, of which 3% required official forced action to a non-compliance, 20% required voluntary action, with the remaining requiring no action. The USFDA recognises the Association of American Feed Control Officials, (a joint local, state and federal government body), as the official information source for pet food labelling standards, ingredient definitions, official terminology, and standardised feed testing methodology.

Europe

Europe operates a co-regulated system for pet food safety, industry works with government and other stakeholders to develop requirements for the manufacturing of pet food. The European Commission oversees pet food safety and requires pet food businesses to register with the relevant authority in their country. A set of hygiene and quality control requirements regarding the manufacturing facility, equipment, personnel, record keeping, complaints handling, and recall of products must be met. Pet food companies in Europe are required to inform the relevant government authority of any adverse events, in which the relevant government authority has the power to enact a mandatory recall. The European Commission recognises and endorses the production standard developed by the European Pet Food Industry Federation (FEDIAF). FEDIAF has access and monitors the reporting system and can be involved in response discussions with the relevant country authority and the European Commission to develop mutually beneficial outcomes for consumers and industry. FEDIAF have voluntary guidelines for nutrition and nutritional information.

Japan

Japan regulates pet food through the *Law for Ensuring the Safety of Pet Food* which was enacted in 2008 following a series of melamine contamination incidents. Under this law, pet food manufacturers and importers must notify the Ministry of Agriculture, Forestry and Fisheries, and the Minister of the Environment, before initiating business operations. They must also adhere to

standards for production of pet food, prevention of harmful substances and product labelling. Relevant agencies have the power to conduct on-site inspections, product testing of pet food and issue fines or prison terms for non-compliances.

New Zealand

New Zealand regulates pet food through the *Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997* which classes pet food as an oral nutritional compound and must comply with requirements for manufacture, sale, import, export and use. The ACVM Act further classifies pet food products that also make a therapeutic claim (e.g. 'this product treats arthritis') and these products must be registered and are subject to active compliance and enforcement activities from the Ministry for Primary Industries (MPI). Non-therapeutic pet foods are exempt from registration and MPI works with industry to address pet food safety with limited active compliance and enforcement. Recalls can be enforced by MPI if a product is deemed to be not fit for purpose or the purpose is in doubt, such as through mislabelling.

Appendix B

economics
public policy
markets
strategy

MARSDEN JACOB ASSOCIATES

Cost benefit analysis on options for managing pet food safety

27 July 2023

A Marsden Jacob Report

Prepared for Australian Government Department of Agriculture, Fisheries and Forestry

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MARSDEN JACOB ASSOCIATES

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Acronyms

ACCC	Australian Competition and Consumer Commission
AMA	Animal Medicines Australia
APVMA	Australian Pesticides and Veterinary Medicines Authority
AVA	Australian Veterinary Association
BCR	Benefit Cost Ratio
CBA	Cost Benefit Analysis
DAFF	Commonwealth Department of Agriculture, Fisheries and Forestry
FSANZ	Food Standards Australia New Zealand
FTE	Full-time equivalent
NPV	Net Present Value
OIA	Commonwealth Office of Impact Analysis
PFIAA	Pet Food Industry Association of Australia
PV	Present Value

Executive summary

Background

Marsden Jacob has been engaged to undertake a preliminary analysis of policy options to manage pet food safety in Australia using cost benefit analysis (CBA).

Although many Australian households own many types of pets including cats, dogs, birds, fish and reptiles, this CBA is focused on pet cats and dogs only and as such, a 'pet' in this document refers to a pet cat or a dog. In addition, 'pet food' in this CBA is intended to refer to manufactured ready-to-eat food sold for pets and does not include the constituent ingredients of pet food (e.g. raw meat that is not retailed as ready-to-eat pet food).

The manufacture and import of pet food in Australia operates under a self-regulatory model with a voluntary industry standard that sets out manufacturing and labelling processes to ensure pet food safety – the Australian Standard for the Manufacturing and Marketing of pet food (AS5812; the Standard). The Standard addresses the management of raw material selection and handling, factory management, product formulation, process monitoring and control and labelling consistency of finished pet foods to ensure product quality and integrity.

Although the Standard is voluntary, the peak industry body, the Pet Food Industry Association Australia (PFIAA), requires its manufacturing members to comply with the Standard. The PFIAA has 29 manufacturer members accredited as compliant with AS5812, including the three largest domestic pet food manufacturers. PFIAA manufacturers produce approximately 60-80% of the pet food sold in Australia.

There are no mandatory requirements to report and investigate pet food safety incidents or recall products, although there is a voluntary incident reporting system operated in partnership between the PFIAA and the Australia Veterinary Association (AVA). The PFIAA contacts pet food manufacturers when a problem is identified and encourages them to investigate incidents in cooperation with the AVA.

The pet food sold in Australia includes products manufactured domestically and imported. The PFIAA estimate approximately 65% of the available product is domestically produced with the remaining imported. Australia's domestic pet food manufacturing industry generated about $3 billion in revenue during the 2022-23 financial year, with the three largest domestic manufacturers representing 58% of the domestic market share. Purchasing pet food is an essential part of pet ownership and an integral element to ensuring pet health. On average, Australian pet owners spend annually approximately $1,800 on pet food for dogs and $1,500 on pet food for cats, which comprises the largest component of pet-related costs.

In 2018, following reports of cases of an incurable disease (megaoesophagus) in dogs fed the same brand of pet food, the Commonwealth Minister for Agriculture at the time, supported by state and territory ministers, established a pet food working group to review pet food regulation in Australia.

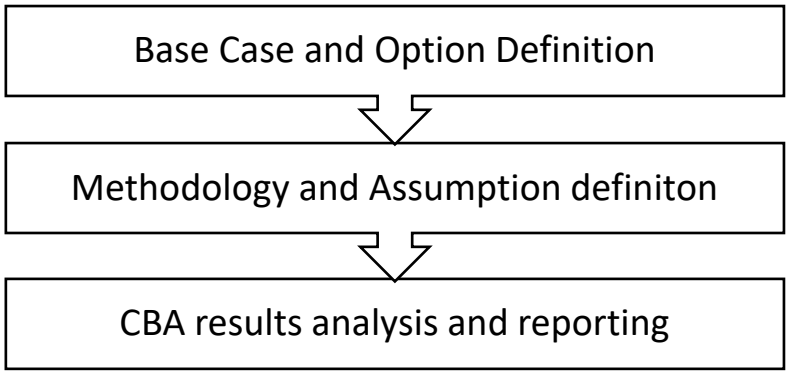
At the same time, a Senate inquiry on regulatory approaches to ensure pet food safety was announced.

This project seeks to undertake a CBA of a set of policy options to manage pet food safety in Australia to determine the economic costs and benefits associated with their implementation. The outcomes of the CBA will inform future government decision making.

Approach to this project

This project undertakes a preliminary analysis of policy options for managing pet food safety in Australia using a CBA. The CBA has been undertaken consistent with the Commonwealth Office of Impact Analysis (OIA) requirements and cost-benefit analysis guidance note.

The key steps of a CBA outlined in the following sections include:



Options definition

The options analysis identified five reform options to be reviewed in a detailed analysis.

The process of determining suitable options for analysis in the CBA involved:

1. Building a long list of potential policy options to manage pet food safety in Australia.
2. An options assessment workshop with jurisdictional stakeholders and detailed engagement with government agencies to refine the long list of options into a draft shortlist of policy options suitable for analysis.
3. Assessment of the workshop and stakeholder engagement outcomes such that a defined set of options is developed.

In summary, five policy options were shortlisted, along with a Base Case option. Table 7 provides an overview of the core components of each option analysed in the CBA.

Table 1: Overview of Options

Option	Core components
Option 1 – Base case	• No government investigation and recall mechanisms • Continuation of current PetFAST reporting system • Voluntary industry standard
Option 2 – Co-regulation with major or serious event response framework	• Response framework for significant incidents and risks • Continuation of current PetFAST reporting system • Mandating the industry standard (passive enforcement)
Option 2A – Co-regulation with major or serious event response framework, no mandated standard	• Response framework for significant incidents and risks • Continuation of current PetFAST reporting system • Voluntary industry standard
Option 3 – Report and response-based regulation including complaints handling	• Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system) • Mandating the industry standard (limited enforcement through report-based government investigation mechanism)
Option 3A – Report and response-based regulation including complaints handling, no mandated standard	• Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system) • Voluntary industry standard
Option 4 – Active national regulation	• Mandating the industry standard with active compliance and enforcement supported by a manufacturer and importer register and licencing program • Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system)

Overarching assumptions and methodology

The CBA aims to assess the incremental economic costs and benefits of five policy options (incremental to a Base Case Option) to manage pet food safety in Australia. The major features of the CBA include:

1. 20-year timeframe for analysis
2. Central real discount rate of 7%, with sensitivity analysis using real discount rates of 3% and 10%
3. Threshold analysis
4. All values are real, 2022 Australian dollars
5. Sensitivity analysis based on changes to key variables given the limited data available, including in relation to pet food safety incidents and government costs associated with policy options.
6. Distributional analysis to assess the impacts of costs, benefits and transfers on major stakeholder groups.

Benefits quantified in the CBA

For the CBA, the benefits are primarily associated with avoided costs to pet owners through potentially reducing the likelihood and magnitude of pet food safety incidents through regulation. It is noted a pet food safety incident could result in many different outcomes, including multiple vet visits, ongoing care, and additional veterinary expenses. However, due to the availability of data and time, we have kept the scope to two possible outcomes – pet illness (morbidity) or pet death (mortality).

As the extent to which each policy option would reduce the likelihood and magnitude of pet food safety incidents is uncertain, a threshold analysis will be undertaken (see Section 1.1.3).

The benefits quantified include:

- Avoided costs of pet morbidity
- Avoided cost of pet mortality
- Avoided time cost for the pet owner in caring for their unhealthy pet.

Costs quantified in the CBA

The costs in the CBA are primarily incurred by governments and the pet food manufacturing and importing industry. Government and industry costs have been developed through engagement with relevant Commonwealth, state and territory government agencies and the pet food and veterinary industries. These costs are based on the default labour rates associated with individuals performing a regulatory task, whether as part of their employment in a business or community organisation or as a private citizen in their leisure time, as per the OIA Regulatory Burden Measurement Framework Guidance Note.

Government costs for each option comprise three elements:

- The cost to governments of administering the regulatory arrangements ('administration' cost) comprises an establishment (or set-up) component and an ongoing component.
- The cost to governments of undertaking foundational education and awareness raising activities to ensure the regulated community and broader public understand the new arrangements ('education and awareness' cost)
- The cost to governments of delivering a reporting and complaints handling function, which is proposed for Options 3, 3A and 4 ('reporting and complaints handling' cost).

The costs are estimated based on yearly full-time equivalent (FTE) resourcing requirements. The costs are *in addition to* current teams that perform similar functions, not a reflection of the total number of FTE required (i.e. they will be implemented within an existing regulatory framework and/or regulator and will not involve the establishment of new regulatory entities).

Additionally, based on consultation with state and territory government stakeholders, there is likely to be significant variation between jurisdictions in their costs of administering any regulatory

arrangements because there are significant differences in existing legislative and regulatory frameworks within jurisdictions and potential variability in terms of how they could apply and the priority given to any required legislative amendments. There are also significant challenges with implementing the options through legislative amendments at the Commonwealth level, which presents additional uncertainties.

Consequently, government costs have been determined by taking a broad average of the costs that jurisdictions have estimated they would incur for each option, noting this may be significantly higher for some and significantly lower for others. Furthermore, minimum and maximum ranges of these costs have been estimated (i.e. a doubling of the costs and a halving of the costs) to determine the range of CBA outcomes in the event the government costs incurred are significantly higher or lower.

Results overview

The results are based on a 20-year analysis period and a 7% central discount rate. The results focus on the incremental present value of each Option compared to the base case – i.e. how effective each policy option is relative to the costs and benefits of continuing with no change to the current arrangements.

A threshold analysis has been applied due to difficulties in estimating the efficacy of policy options (in terms of the proportion of pet food safety incidents that would be avoided) as a result of complexities and limitations in the available data. Similar difficulties were experienced by the U.S. Food & Drug Administration (FDA) as part of their Food Safety Modernization Act (FSMA) Preventive Controls for Animal Food[1]. The regulations include adding Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals.

The preliminary regulatory impact analysis conducted between 2013 and 2017 could only tentatively conclude that new legislation provisions might result in fewer instances of contaminated animal food because of poor data. As part of the 2017 final regulatory impact analysis[2], the FDA undertook further research on the potential risk reductions due to the implementation of the legislation to estimate its effectiveness. The results showed an average effectiveness rate that ranged from 1.8 percent to 24.0 percent reduction in the risk of illness and death to cats and dogs. However, the research only relied on expert opinion rather than data, which carries an inherently high level of uncertainty.

As such, no analyses or studies could be drawn on to estimate a 'reasonable' efficacy range for the specific policy options considered in the Australian context. Instead, the results indicating how effective each policy option would be (at a minimum) for the quantified economic benefits to be at least equal to the economic costs, i.e., a benefit cost ratio (BCR) of 1 and NPV of 0.

The results of the threshold analysis are shown in Figure 1. The findings indicate:

- Option 2 would result in a net cost unless it could reduce the impact of pet food safety incidents by at

[1] https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-preventive-controls-animal-food
[2] https://www.fda.gov/about-fda/economic-impact-analyses-fda-regulations/summary-fsma-final-rulemaking-current-good-manufacturing-practice-hazard-analysis-and-risk-based

least 23% (e.g., by reducing the number of pet deaths and illnesses from pet food by 23%). If the option were to reduce the impact of pet food safety incidents by more than 23%, it would result in a net benefit.

- Option 2A would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 9%.
- Option 3 would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 45%.
- Option 3A would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 31%.
- Option 4 would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 68%.

Option 2A requires the lowest efficacy rate to achieve a BCR of 1 and NPV of 0. Option 4 has the highest incremental cost and requires a commensurately high efficacy rate to make the option net beneficial.

Figure 1: Threshold analysis results overview

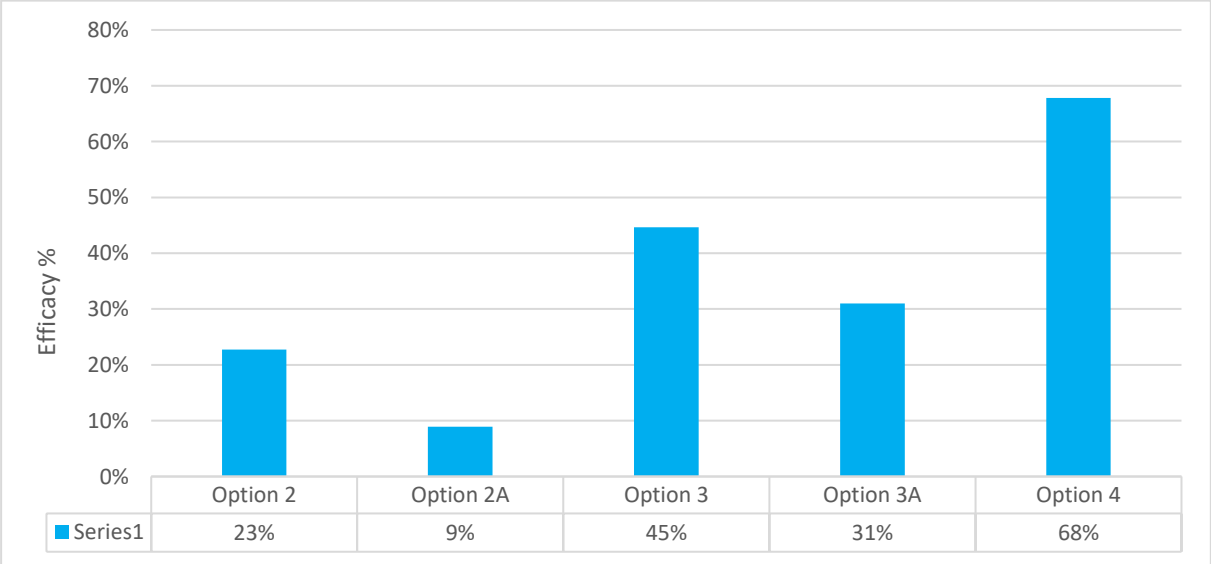


Figure 2 shows the incremental costs associated with each Option. Government administration and industry audit costs are the primary cost drivers for each option. Administration costs increase in line with the regulatory complexities of each option due to resource requirements. As such, Option 4 has the highest incremental administration cost of about $20 million, and Option 2 and 2A have the lowest at about $5 million.

The industry costs for Options 2, 3 and 4 are driven by incremental audit costs imposed on Industry. Due to no change from the base case, Option 2A and 3A have zero incremental costs associated.

Figure 2: Incremental costs associated with each Option.

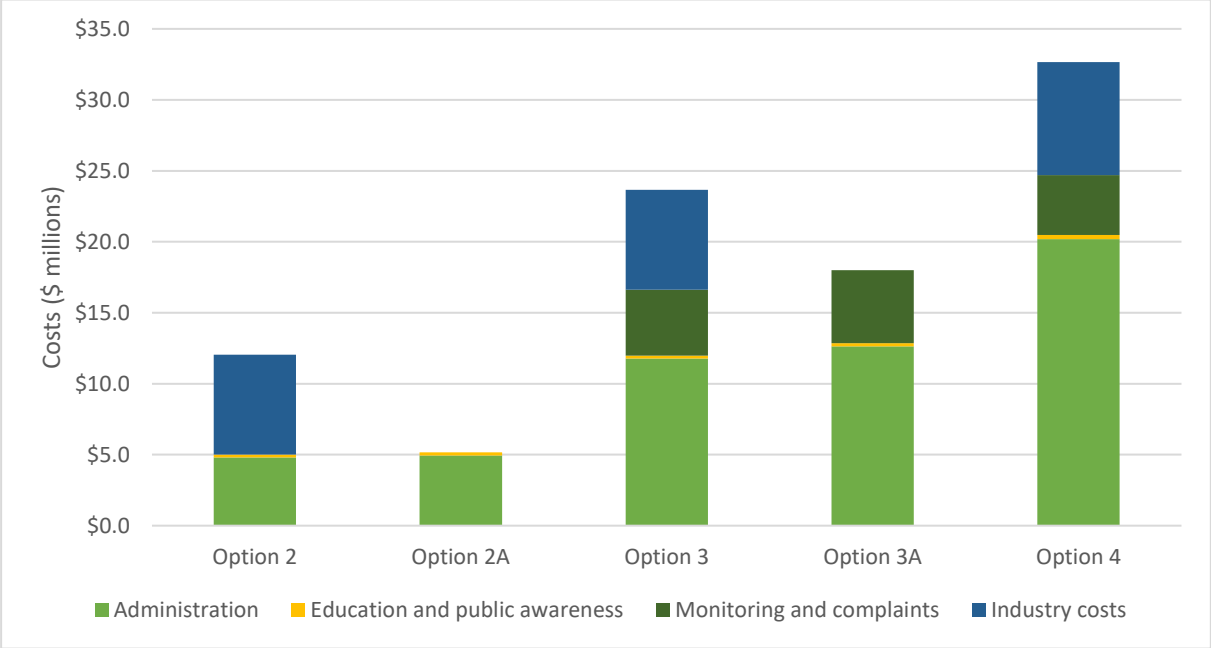
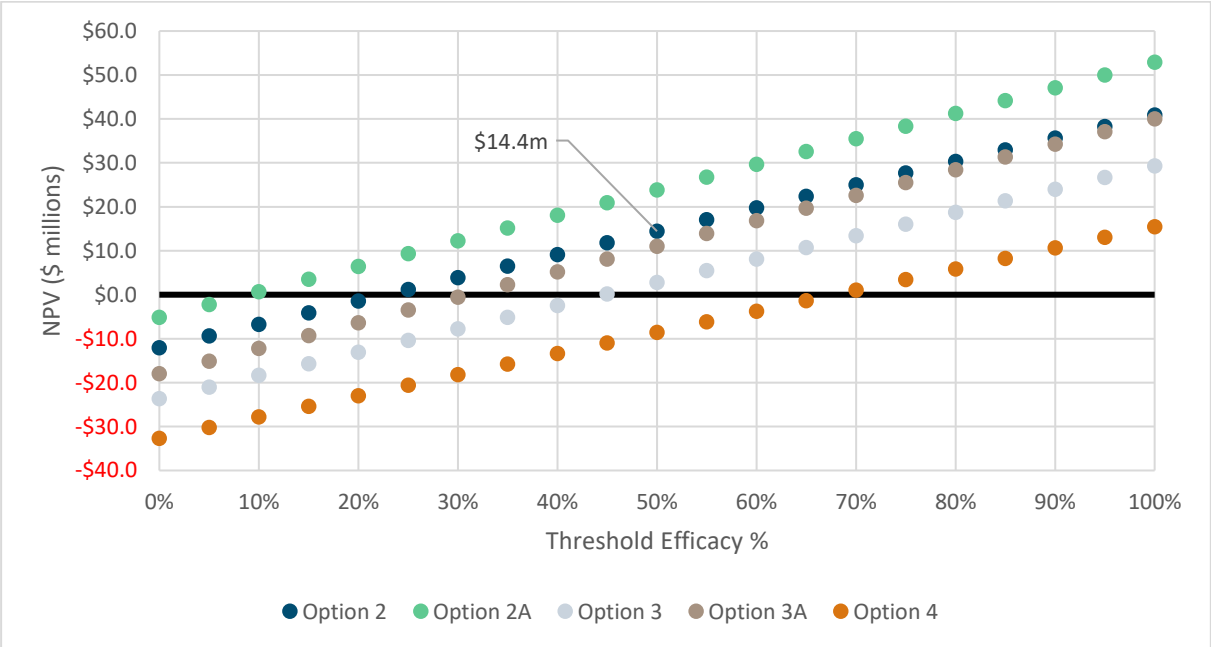


Figure 3 below shows the NPVs for each policy option based on efficacy values ranging from 0% to 100% at increments of 5%. The solid black line represents a threshold NPV of $0 (equivalent to a BCR of 1). Points below the line have a negative NPV and indicate a net cost. Points above the line have a positive NPV and indicate a net benefit from the policy option. By way of example, the analysis shows if Option 2 could reduce the impact of pet food safety incidents by 50%, it would result in a net benefit of about $14.4 million.

Figure 3: NPV of Option based on efficacy between 0 and 100%, assuming central base case



The sensitivity analysis results are shown below in Table 2, showing the efficacy compared to the base case due to changing key assumptions used in the CBA.

Table 2: Sensitivity Analysis Results Compared to Central Base Case

Sensitivity Results	Option 2	Option 2A	Option 3	Option 3A	Option 4
Central Base Case	**23%**	**9%**	**45%**	**31%**	**68%**
3% discount rate	21%	7%	43%	29%	64%
10% discount rate	24%	10%	46%	33%	71%
100% increase in pet mortality	21%	8%	40%	28%	61%
100% increase in pet morbidity	13%	5%	26%	18%	39%
50% increase in pet food incidents	15%	6%	30%	21%	45%
50% decrease in pet food incidents	45%	18%	89%	62%	136%
100% increase in Industry costs	32%	9%	54%	31%	80%
50% decrease in Industry costs	18%	9%	40%	31%	62%
100% increase in Government costs	32%	18%	76%	62%	119%
50% decrease in Government costs	18%	4%	29%	16%	42%

Conclusion

Based on the economic analysis, the following conclusions are made:

1. Government administration and industry audit costs are the primary cost drivers for each option. Administration costs increase in line with the regulatory complexities of each option due to resource requirements. Industry audit costs are only incurred for options mandating a pet food safety standard, as compliance with the standard would require annual independent audits to be undertaken.
2. Except for the Base Case option, Option 2A has the lowest costs, followed by Option 2 and then Option 3A. Implementing Option 4 has the highest cost. Reflecting the relative costs of the policy options, excluding the Base Case option, Option 2A requires the smallest reduction to the cost of pet food safety incidents in order to achieve a net economic benefit, while Option 4 requires the largest reduction.
3. The sensitivity analyses revealed the following findings:
    a. The estimated number of pet food safety incidents in Australia has a significant impact on the CBA's outcomes. The CBA conservatively assumes that the number of pet food safety incidents that would result in illness requiring treatment and/or death is underreported in PetFAST by a factor of 90%. If the actual under-reporting of pet food safety incidents is lower than this, that could significantly increase the required efficacy levels for the policy options (except the Base Case option).
    b. Increasing the avoided cost of pet morbidity reduces the efficacy values required to achieve an NPV of $0 by 43%. These results illustrate that whilst we have made a conservative assumption in basing the avoided cost of pet morbidity on the average pet insurance claim for gastroenteritis (a

substantial proportion of pet food safety incidents would be minor and not require substantial costs, similar to food safety incidents in humans), a large-scale outbreak of a severe disease from pet food such as megaesophagus could have a material impact on the cost to society.

c. There is likely to be significant variation between jurisdictions in their costs of administering any regulatory arrangements. To account for this, we have taken a broad average of jurisdictions' estimated costs for each option. As these could be significantly higher or lower for individual jurisdictions, the sensitivity analysis specifically analysed changes (100% increase and 50% decrease) to government costs to reflect potential jurisdictional differences. Options 2A and 3A were most impacted due to government costs being a majority of their overall costs.

4. Overall, the total incremental Industry costs associated with each option are estimated to be between $0 (Option 2A and 3A) and $8.0 million (Option 4), assuming 271 pet food manufacturing and importing businesses.

   a. The actual impact on specific pet food businesses will be a function of several factors, including the implementation approach of each option, such as the type of regulation (prescriptive versus outcomes-based) or the structure of any funding agreements to aid implementation, such as business grants. The volumes of pet food produced or imported by the relevant business is also a key factor, and whether the product currently complies with AS5812 (for the options that mandate the standard).

   b. There is insufficient information to be able to quantify the impact of the policy options on the price of specific pet food sold in Australia. However, in general:

      i. It is likely that producers and importers who are not part of the PFIAA and do not undertake voluntary audits will be affected by any costs imposed on the industry from the policy options. These businesses include a significant number of small to medium pet food manufacturers and importers.

      ii. We expect that the price of pet food sold in Australia by PFIAA members is unlikely to increase substantially as a result of the policy options, given they comply with AS5812. We understand these businesses produce 60-80% of the pet food sold in Australia by volume, although they comprise 11% of all pet food manufacturers and importers.

5. There is insufficient evidence to estimate the efficacy of the policy options in terms of their impact on reducing the cost of pet food safety incidents. As such, there is a risk that introducing regulation may not reduce the impact of pet food safety incidents in line with the cost of administering regulation.

6. Further information on pet food safety incidents, including information on the prevalence of different outcomes from pet food safety incidents (e.g. disease classification) and the number of affected pets, would materially improve the specificity and confidence of these results and better inform future policy development in relation to pet food safety in Australia. This information is not available and would require significant time and resources to collect.

1. Introduction

This report presents a preliminary analysis of policy options for managing pet food safety in Australia. This section provides context to pet food safety in Australia and introduces the format of this report.

1.1 Background

While many Australian households own many types of pets including cats, dogs, birds, fish and reptiles, this CBA is focused on pet cats and dogs only and as such, a 'pet' in this document refers to only a pet cat or a dog. In addition, 'pet food' in this CBA is intended to refer to manufactured ready to eat food products sold for pets and does not include the constituent ingredients of pet food (e.g., raw meat that is not retailed as ready-to-eat pet food).

In 2018, there were reports that over 100 dogs fed the same brand of AS5812 compliant dog food had developed megaoesophagus, a serious and untreatable disease. A study by the University of Melbourne confirmed the link between the illnesses and the pet food brand, there was no definitive cause of illness. In response to the reports, the Commonwealth Minister for Agriculture, supported by state and territory ministers, established a pet food working group to review pet food regulation in Australia. At the same time, a Senate inquiry on regulatory approaches to ensure pet food safety was announced. The report of the pet food working group, along with an ABARES economic assessment of options for pet food regulation identified a range of non-regulatory and regulatory options to manage pet food safety but did not specify a preferred option.

This project seeks to undertake a CBA of a set of policy options to manage pet food safety in Australia to determine the economic costs and benefits associated with their implementation, drawing on the findings from previous reports such as the pet food working group report. The outcomes of the CBA will inform future government decision making.

1.2 Pet Food Safety in Australia

The domestic pet food industry in Australia is estimated to be worth over $3 billion per year. Expenditure on dog food accounts for approximately 57% of all pet food spend, valued at $2.3 billion per year – followed by cat food, accounting for 32% and valued at $1.3 billion per year [3].

Pet food safety in Australia is managed through a self-regulation model with a voluntary industry standard. The voluntary industry standard, the *Australian Standard for the Manufacturing and Marketing of Pet Food* AS5812 (the Standard), was developed by the PFIAA through Standards Australia. The Standard sets out pet food production and supply requirements to address the management of raw material selection and handling, factory management, product formulation, process monitoring and control and labelling consistency of finished pet foods to ensure product

[3] https://www.ibisworld.com/au/industry/pet-food-production/5476/

quality and integrity. The standard is equivalent or similar to a number of pet food safety standards in other developed countries. Although the Standard is voluntary, the peak industry body, the Pet Food Industry Association Australia (PFIAA), requires manufacturing members to comply.

The manufacture and sale of pet food is also regulated as a consumer good under the consumer protection framework, which includes the *Competition and Consumer Act 2010* (CCA) and state and territory fair trading legislation. Under this framework, consumers are protected from false or misleading information published by pet food producers and are entitled to a remedy (e.g., a refund, repair or replacement). The CCA also has protections for the safety of humans, including for pet food sold in Australia.

In addition, the Commonwealth, through the Department of Agriculture, Forestry and Fisheries (DAFF), is responsible for regulating imported pet foods in accordance with the *Biosecurity Act 2015*. These responsibilities are limited to the management of biosecurity risks associated with imported products to ensure that the likelihood of a disease or pest entering into and establishing in Australia is very low. There are no provisions in the *Biosecurity Act* to manage pet food safety.

DAFF also provides certification for exported pet foods in accordance with the *Export Control Act 1982*. There are many types of pet food exported from Australia, which are regulated differently depending on type of product and importing country requirements, including verifying pre-export testing and providing export documentation (which may include an export certificate). Where an importing country requires an Australian exporter to comply with AS5812, the department certifies compliance by overseeing a third-party accreditation system in partnership with the PFIAA.

There is a voluntary incident reporting system run in partnership between the PFIAA and AVA that aims to detect pet food safety incidents in Australia and direct responses by the AVA, called Pet Food Adverse Event System of Tracking (PetFAST). It is a voluntary system accessible to veterinarians to report pet illnesses and deaths suspected of being associated with pet food, although there is limited awareness of the system among veterinarians. The PFIAA contacts pet food manufacturers when a problem is identified and encourages them to conduct investigations into incidents in cooperation with the AVA.

1.3 Pets in Australia

Pets are an important part of Australian households. A series of quantitative research studies commissioned by Animal Medicines Australia (AMA) showed dogs were the most popular pet in Australia in 2022, with 47% of households having at least one dog, followed by cats (Table 3).

Table 3: Cat and dog populations in Australia

Pet ownership in Australia 2022	Proportion of households (%)	Total owner Households ('000)	Animals per household (ave.)	Total pet Animals (000)
Dogs	47	4831.1	1.3	6375.6
Cats	33	3365.0	1.6	5333.2

Source: Marsden Jacob analysis of AMA Survey 2022 and 2022 ABS Census

The AMA estimated Australians spend over $33 billion annually on pets to ensure they are fed, healthy and well-accessorised. Food takes up the largest component of spending, representing 51% of total spending – followed by veterinary services (14%), pet products and accessories (9%) and pet healthcare products (9%).

Overall, the costs and number of animals subject to pet food are expected to continue to increase, highlighting the importance of long term pet health and food safety.

1.3.1 Relationships between pet health and human health

Evidence suggests pets promote physical and emotional health of their owners through:

- increased physical health by supporting increased physical activity that improves cardiovascular function, reduces blood pressure, and improves general health[4]
- accelerated recovery from major illness
- improved mental health through reducing stress and depression and improving self-esteem, empathy, social orientation, and general mental performance
- contributing to social capital[5]
- individual social, emotional and cultural benefits from companionship, comfort, and unconditional love.

It has been suggested these benefits lead to avoided cost from a health perspective through the promotion of community wellness, reduced visits to doctors and hospital stays. Despite this, the literature review undertaken for this study has identified that there are few estimates of the size of these benefits. As noted in Dolling et al. (2016):

[4] Health Benefits and Health Cost Savings Due to Pets: Preliminary Estimates from an Australian National Survey. Bruce Headey. *Social Indicators Research* 47, 233-243 (1999) https://doi.org/10.1023/A:1006892908532

[5] https://www.sciencedirect.com/science/article/pii/S0091743514002047
https://www.sciencedirect.com/science/article/pii/S0091743514000760
https://www.sciencedirect.com/science/article/pii/S0016718512001765
https://www.sciencedirect.com/science/article/pii/S2352827317300344

> *There is overwhelming evidence to suggest that companion animals have a significant economic impact on the UK economy; however, the scale of this remains uncertain in terms of both the range of mechanisms involved and the monetary value of these.*[6]

The most recent estimate in Australia is from 2003. The study[7] estimated that if the 56.9 per cent of Australians who always owned a pet went to the doctor as often as non-owners, the increase in doctor visits and resulting health expenditure would be about 7 per cent or about $4 billion.

A paper in the United Kingdom (UK)[8] in 2016 calculated the total benefit of avoidable costs to the UK's National Health Service (NHS) through reduced number of doctor visits and other health benefits was around £2.5bn per year in 2013. The small number of estimates and the absence of more recent studies caution against extrapolating the Australian estimate of $4 billion to estimate present-day external benefits from pets. Additionally, the relevance of the UK estimates is reduced by differences in demographics, pet prevalence and the differences between health systems.

Research suggests quantifying the economic effect of pets on human health is challenging due to limitations in the current body of research[9]. Although most studies report small to moderate improvements, several studies[101112] failed to report any relationship between pet ownership and health. Moreover, unhealthy pets could often become a source of stress that would significantly reduce the health benefits for their owners. There are also costs to human health due to pet ownership, including the potential for spreading zoonotic diseases and allergies, mammalian bites and avoiding medical care.

1.4 Pet food industry

Purchasing pet food is an essential part of owning a pet and an integral element to ensuring pet health. On average, Australian pet owners spend approximately $1,800 on pet food for dogs and $1,500 on pet food for cats, which comprises the largest component of pet-related costs. The products available in Australia are manufactured both domestically and imported. The PFIAA estimate approximately 65% of the available product is domestically produced with the remaining being imported product.

Australia's domestic pet food manufacturing industry generated about $3 billion in revenue during 2022/23, with 3 large companies representing 58% of the domestic market share[13]. Mars Wrigley is the largest industry producer, accounting for over 25% of domestic market share, followed by Nestle Australia Ltd, with about 17% market share, and Topco Investments Australia Pty Limited (Real Pet

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[6] Dolling, Luke, et al. *Companion Animal Economics: The Economic Impact of Companion Animals in the UK*, CAB International, 2016. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/unimelb/detail.action?docID=5897985

[7] Headey, B, and Grabka, M. 2003. *Pet ownership is good for your health and saves public expenditure too: Australian and German longitudinal evidence*. Paper presented to Conference: 20th anniversary of the German Socio-Economic Panel, July

[8] https://www.cabi.org/bookshop/book/9781786391728/

[9] 1 Smith, Bradley. "The 'pet effect': Health related aspects of companion animal ownership", Australian Family Physician, Volume 41, No.6, June 2012)

[10] Jorm Af, Jacomb PA, Christensen h, henderson s, Korten Ae, Rodgers B. Impact of pet ownership on elderly Australians' use of medical services: an analy-sis using medicare data. med J Aust 1997;166:376–7.

[11] Koivusilta lK, ojanlatva A. To have or not to have a pet for better health? Plos one 2006;1:1

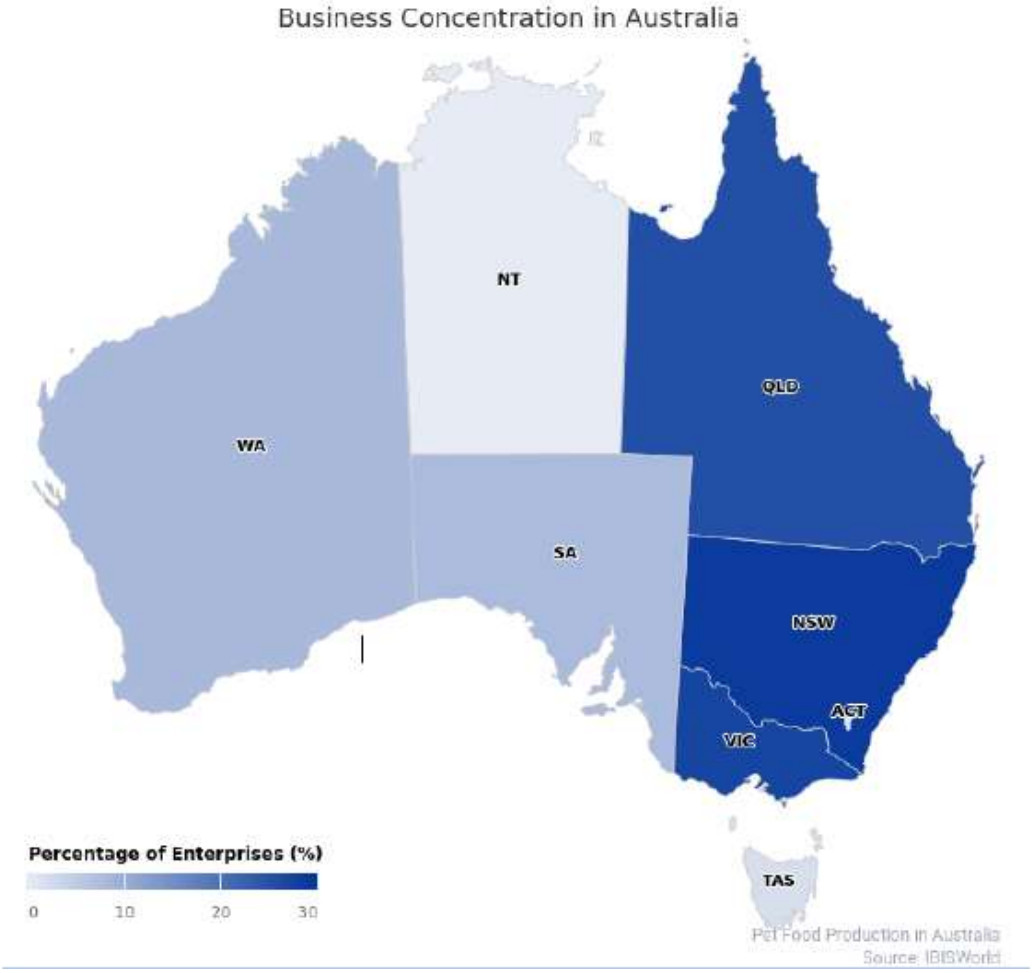
[12] Parslow RA, Jorm Af, Christensen h, Rodgers B, Jacomb P. Pet ownership and health in older adults: findings from a survey of 2,551 community-based Australians aged 60–64. Gerontology 2005;51:40–7

[13] https://www.ibisworld.com/au/industry/pet-food-production/5476/

Food Company) with about 16% market share. All three producers benefit from economies of scale by selling a range of pet food brands into many markets.

The geographic spread of pet food manufacturers largely mimics the population in Australia. About 70% of pet food manufacturers are located in the eastern seaboard states of Victoria, New South Wales and Queensland.

Figure 4: Pet Food Business Concentration in Australia (IBIS World 2022)



2. Approach to this project

A Cost Benefit Analysis is an analysis tool that consists of several steps outlined in this section.

The CBA looked to assess the incremental economic costs and benefits of five policy options (incremental to a Base Case 'do nothing' Option) to manage pet food safety in Australia.

The intention of the CBA is to provide decision-makers with information about the economic costs and benefits of potential policy options to help inform their decision-making. It provides an objective

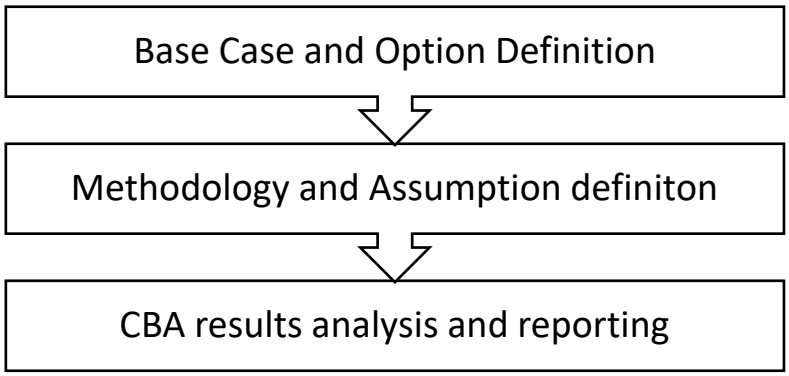
framework for weighing up different economic impacts, including impacts that occur over different periods.

The CBA assesses economic impacts by discounting the annual cost and benefits over the analysis period, in accordance with the OIA guidelines. The need to discount future cash flows is based on the general observation that individuals prefer a dollar today to a dollar in the future. Adjusting to today's dollar values through a process referred to as discounting is commonly referred to as expressing values in present value terms. This discounting process allows the comparison of values (benefits and costs) regardless of whether they are achieved now or in the future.

The CBA expresses each policy's incremental cost and benefit outcome as a Net Present Value (NPV) and a benefit cost ratio (BCR), providing a comparable basis for evaluating the options. A NPV is the present value (PV) of benefits delivered by the option minus the PV of costs incurred. NPV measures the expected benefit (or cost) of implementing the policy. The BCR is a ratio of the total benefits divided by the total costs. For example, a BCR of 2.0, indicates the option yields two dollars in economic benefit for every dollar of economic cost and is, therefore welfare generating.

The CBA has been undertaken consistent with the Commonwealth OIA requirements and Cost-benefit analysis guidance note.

The key steps of a CBA framework outlined following sections include:



3. Options analysis

The options analysis indicated five reform options should be reviewed in a detailed analysis. This section defines the process for selecting the Options for analysis in the CBA.

3.1 Approach to Options analysis

The process of determining suitable options for analysis in the CBA involves:

1. Building a long list of policy options to manage pet food safety in Australia.

2. An options assessment workshop with jurisdictional stakeholders and detailed engagement with government agencies to refine the long list of options into a draft shortlist of policy options suitable for analysis.
3. Assessment of the workshop and stakeholder engagement outcomes such that a defined set of options is developed.

In summary, the five high-level policy options shortlisted, in addition to the Base Case option, are:

- Option 2 – Co-regulation with major or serious event response framework
- Option 2A – Co-regulation with major or serious event response framework, no mandated standard
- Option 3 – Report and response-based regulation including complaints handling
- Option 3A – Report and response-based regulation including complaints handling, no mandated standard
- Option 4 – Active national regulation

3.2 Long list of options

A report by the pet food review working group in 2021 on *Managing the health and safety of pet food in Australia* considered a range of regulatory and non-regulatory options. The majority view of the working group was that implementing non-regulatory options beyond maintaining the status quo (e.g., increasing consumer awareness of the Standard, and enhanced certification schemes) would benefit from being supported by some level of regulatory intervention. As such, non-regulatory measures were only considered in terms of being complementary to regulatory options.

Table 4 below sets out a high-level long list of potential options to manage pet food safety in Australia.

The options cover the key types of reform as prescribed by the OIA, including:

- **Light-touch regulation**: Light touch regulation is less prescriptive and gives discretion to regulated parties on how they can act. Light-touch regulation allows maximum flexibility among affected groups regarding how they achieve compliance.
- **Co-regulation:** Co-regulation describes a solution where the industry develops and administers its own arrangement, and Government provides the underpinning legislation to enforce it. Such legislation can set out mandatory standards but may provide for enforcement through a code overseen by the industry.
- **Government regulation:** Government regulation comprises primary and subordinate legislation and is the most common form of regulation. It is usually used as a regulatory tool with high perceived risk or public interest, and achieving compliance is seen as critically important.
- **Complimentary instruments:** With each policy option, complimentary instruments may be available to assist in addressing the problem, and can include:

- Information and education campaigns, including product labelling or media campaigns.
- Pre-market assessment schemes such as certification and licensing.
- Post-market exclusions like bans, recalls, licence revocation or negative licensing.
- Standards and a code of conduct, which may be voluntary, compulsory or performance based.
- Other mechanisms like public information registers, mandatory audits and Quality Assurance schemes.

Table 4: High-level summary of long list of regulatory reform options

Option	Regulatory type	High-level option description
Base case	**Self-regulation model**	Base case where the Industry is self-regulated.
1.	**Non-regulation - Light touch**	Light touch might consist of using a voluntary quality assurance program or certification of trade mark demonstrating compliance with a standard such as AS5812. It is expected that PFIAA would manage the light touch regulation with support from Government.
2.	**Co-regulation**	The co-regulation model involves mandating compliance with the AS5812 Standard, which will continue to be set and managed by Industry. Industry mechanisms will be set to manage enforcement, with government intervention at specified trigger points based on expert advice. Agreements between all jurisdictions would be established to ensure consistency of approach at a national level.
3.	**Regulation (ACL)**	A regulation model that uses the Australian Competition Law (ACL) product safety framework to provide clear powers to investigate incidents, mandate product recall and conduct reporting. A pet food manufacturing and labelling Standard (e.g., AS5812) would be made as a mandatory product safety standard. The regulation would be subject to the compliance and enforcement policies and priorities of the ACCC and jurisdictional consumer affairs entities.
4.	**Regulation (FSANZ)**	A regulation model where Food Standards Australia New Zealand's (FSANZ) is responsible for developing and managing a Pet Food standard. The FSANZ-based model would require jurisdictions to use existing food safety legislation that mandates a Pet Food Standard and establishes a registration, compliance and enforcement framework for pet food manufacturing facilities.
5.	**Regulation (Jurisdiction regulation)**	A regulation model where all jurisdictions would be required to develop legislation that mandates a Pet Food Standard and establishes a registration, compliance and enforcement framework for pet food manufacturing facilities. Jurisdictions would be responsible for enforcement, except for imports (Commonwealth responsibility).
6.	**Regulation (new regulatory body)**	Similar to Option 5; however, the Commonwealth would be required to be fully responsible for all aspects of any reform, including legislation, monitoring

Option	Regulatory type	High-level option description
		and compliance. It might also include a standalone national regulatory body (similar to the ACCC) coordinating and undertaking regulatory activities, providing consumer information and setting standards.

3.3 Short list of options

A workshop was undertaken with jurisdictional stakeholders and detailed engagement with government agencies to refine the long list of options into a shortlist of policy options suitable for analysis.

3.3.1 Options Workshop

The workshop followed a process of several steps to develop a shortlist of policy options, including:

- Defined the problem definition and objectives of the regulatory outcomes
- Specified a Base Case covering Australia's current non-regulatory option managing pet food safety.
- Reviewed the long list of regulatory control options against the Options assessment criteria shown in Table 5. The assessment criteria below facilitated discussion on each option and led to a decision on which options to shortlist

Table 6 shows the high-level assessment of each option considered in the long list. The detailed shortlist assessment is provided in Table 16, Appendix 2.

Table 5: Options assessment criteria

Criterion	Review questions
Effectiveness/Efficacy	If implemented, will the options effectively address the policy problem(s)?
Practical/ Feasible	Can the option be practically/feasibly implemented? Consistency with existing legislative frameworks (e.g. animal welfare)?
Cost effective/ Proportionate	Will implementing the option incur prohibitive administrative or regulatory costs? Are the likely costs of the option proportionate to the problem/ likely benefits?
Stakeholder support	To what extent will the option be supported by stakeholders? (Industry, State Government, Commonwealth, Regulating bodies, Consumers)

Table 6: Assessment of Long List of options

Option	Regulatory type	Shortlisted
1.	Light touch regulation	**No**
2.	Co-regulation	**Yes**
3.	Regulation (ACL)	**Yes with changes to broaden beyond ACL**

Option	Regulatory type	Shortlisted
4.	Regulation (FSANZ)	**Yes with changes to broaden beyond FSANZ**
5.	Regulation (Jurisdiction regulation)	
6.	Regulation (Commonwealth -new regulatory body)	**No**

3.3.2 Stakeholder engagement

Following the workshop, Marsden Jacob and the Department further engaged with several stakeholders as part of the shortlisted Options, including:

- ACCC
- FSANZ
- Standards Australia
- Australian Pesticides and Veterinary Medicines Authority (APVMA)
- RSPCA
- PFIAA
- Australian Veterinary Association and PetFast volunteers (AVA).

Each stakeholder was provided with an overview of the Options and given an opportunity to provide feedback. The feedback was used to refine the Options to better reflect high level expected government costs, implementation complexities, regulatory processes and goodness of fit to existing regulations.

In summary, three high-level policy options were shortlisted, including a Base Case:

- Co-regulation with major or serious event response framework
- Report and response-based regulation including complaints handling
- Active national regulation.

3.4 Options considered in the CBA

The workshop and stakeholder engagement resulted in a defined set of options for analysis using a CBA framework.

Table 7 provides an overview of the core components of options used in the CBA. Each option is described in more detail in the following section.

Table 7: Overview of Options

Option	Core components
Option 1 – Base case	• No government investigation and recall mechanisms • PetFAST reporting system for vets • Voluntary industry standard that manufacturers can choose to comply with
Option 2 – Co-regulation with major or serious event response framework	• Major/serious response framework for pet food safety incidents • PetFAST reporting system for vets • Mandating the industry standard (passive enforcement)
Option 2A – Co-regulation with major or serious event response framework, no mandatory standard	• Major/serious event response framework for pet food safety incidents • PetFAST reporting system for vets • Voluntary industry standard that manufacturers can choose to comply with
Option 3 – Report and response-based regulation including complaints handling	• Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system) in all jurisdictions • Mandating the industry standard (limited enforcement through report-based government investigation mechanism)
Option 3A – Report and response-based regulation including complaints handling, no mandatory standard	• Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system) in all jurisdictions • Voluntary industry standard that manufacturers can choose to comply with
Option 4 – Active national regulation	• Mandating the industry standard with active compliance and enforcement supported by a manufacturer and importer register and licencing program • Report-based government investigation and recall mechanism • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system) in all jurisdictions

3.4.1 Option 1: Base Case

Under this option, there would continue to be a voluntary industry standard for the manufacture and marketing of pet food (AS5812). The current incident reporting system, PetFAST, would continue to be operated by the AVA on a volunteer basis, with support by the PFIAA. Any responses to pet food safety incidents would continue to be handled by relevant manufacturers and importers, supported by the PFIAA where appropriate. In this regard, government would not take any direct action to respond to such incidents involving manufactured pet food and allow industry to resolve matters with consumers on its own.

3.4.2 Option 2: Co-regulation with major or serious event response framework

In Option 2, Government would co-regulate pet food safety with the pet food industry by intervening in major or serious events. The determination of what constitutes a major or serious event requiring intervention would be made by the government regulator based on engagement with the PFIAA and other stakeholders. This option would have some similarities to the European regulatory approach to managing pet food safety.[14]

Legislation would be introduced to enable governments to intervene in specific limited circumstances such as major or serious events to minimise the magnitude and severity of a pet food safety incident. Government intervention could occur where an industry response to a major pet food safety risk or incident is assessed to be inadequate and there is a strong need for government intervention to protect pet safety. Government intervention could include undertaking investigations, mandating a product recall, public reporting, holding an imported product, or undertaking enforcement action for serious non-compliance (e.g. fines, prosecutions). State and territory governments would be primarily responsible for undertaking any government intervention, with national coordination support by the Commonwealth and in collaboration with Industry (e.g. PFIAA). The Commonwealth would also have responsibility of imported products.

Legislation would also be introduced to mandate compliance with the standard for all pet food sold in Australia. Industry would self-manage compliance with the Standard, supported by existing industry mechanisms (e.g. PFIAA) and public engagement (e.g. increased consumer awareness of the standard) to ensure compliance and enforcement. In addition, PetFAST would continue to be monitored and administered by the AVA with support from the PFIAA in accordance with current arrangements.

3.4.3 Option 2A - Co-regulation with major or serious event response framework, no mandatory standard

A potential variation to Option 2 is not to mandate compliance with a standard. Governments would only intervene in specific, limited circumstances to minimise the magnitude and severity of a pet food safety incident. For example, undertaking an investigation or mandating a product recall where an industry response to a pet food safety incident has been inadequate. PetFAST would also continue to be monitored and administered by the AVA with support from the PFIAA in accordance with current arrangements.

3.4.4 Option 3: Response and reports-based regulation with complaints handling function

In Option 3, Government would regulate pet food safety based on consumer complaints and reports through existing regulatory bodies. This option would be similar to New Zealand's regulatory approach to managing pet food safety that does not make a therapeutic claim[15].

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[14] [14] A summary of international regulation is contained in the Regulatory Impact Analysis.

Government would take on the responsibility for handling consumer complaints and veterinary reports in relation to pet food safety. A database of complaints and reports would be developed and used to support investigations of suspected pet food safety incidents to limit the magnitude of incidents when they occur. This could involve government funding and leveraging the current PetFAST system and associated activities by expanding its remit to accept consumer reports, or the creation of a new monitoring system. A public site for pet food product recalls would be maintained to provide information for consumers.

Governments would work closely with industry to investigate reports of suspected pet food safety incidents. If industry responses are not initiated in a timely manner or are inadequate, government may conduct independent investigations and mandate product recalls. Any government activities, however, would be subject to its regulatory priorities, policies and resourcing capacity.

In addition, legislation would be introduced to mandate compliance with the standard for all pet food sold in Australia. While government would not actively regulate compliance with the Standard, it may investigate reports of non-compliance and take enforcement action (e.g. fines) subject to its regulatory priorities, policies and resourcing.

3.4.5 Option 3A – Report and response-based regulation, including complaints handling, no mandatory standard

A potential variation to Option 3 is not to mandate compliance with a standard for the manufacture and marketing of pet food (such as AS5812). Government intervention would be focussed on ensuring pet food safety incidents are identified, investigated and addressed in a timely and effective manner, mitigating the magnitude and severity of pet food safety incidents that occur. This would be informed by consumer complaints and veterinary reports, which government would take on responsibility for handling and recording.

3.4.6 Option 4: Active national regulation

Under Option 4, Government would actively regulate pet food safety in Australia through existing regulatory bodies. This option would be similar to the regulatory approach to pet food safety implemented in the United States.

Legislation would be introduced to mandate compliance with AS5812 or a similar pet food manufacturing and labelling standard for all pet food sold in Australia. A key difference from Option 3 is that the government would actively monitor and enforce compliance with AS5812 (or a similar standard) by systematically reviewing and assessing AS5812 audit reports and implementing a register and certification program for pet food manufacturers and importers. Governments would have powers to take enforcement action (e.g. issuing fines), undertake investigations, require product recalls and apply import conditions for pet food safety. These powers may be exercised as part of active monitoring and enforcement of compliance with AS5812 (or a similar standard), or in response to reports of pet food safety risks and incidents.

Similar to Option 3, Government would take on responsibility for handling consumer complaints and veterinary reports in relation to pet food safety, a database of complaints and reports would be developed and used to support investigations and a public site for pet food product recalls would be maintained to provide information for consumers. This could involve government funding and leveraging the current PetFAST system with an expanded remit to accept consumer reports, or the creation of a new monitoring system.

4. CBA methodology and assumption definition

This section defines the key assumptions associated with the costs and benefits and the methodology for applying them in the CBA.

4.1 Overarching assumptions and methodology

The CBA sought to assess the incremental economic costs and benefits of five policy options (incremental to a Base Case Option) to manage pet food safety in Australia. The major features of the CBA include:

4. 20-year timeframe for analysis
5. Central real discount rate of 7%, with sensitivity analysis using real discount rates of 3% and 10%
6. Threshold analysis – where benefits can be quantified on a robust evidence base
7. All values are real, 2022 Australian dollars
8. Sensitivity analysis based on changes to other key variables given the limited data available, including in relation to pet food safety incidents and associated costs
9. Distributional analysis to assess the impacts of costs, benefits and transfers on major stakeholder groups.

4.1.1 Analysis period

A 20-year analysis period has been used in line with OIA guidance, from 1 July 2023 to 30 June 2043. Whilst all options are likely to be enduring and have benefits beyond 20 years, the total period needs to be long enough to capture all the potential costs and benefits but not too long that the costs and benefits become negligible because of discounting.

Commencement and implementation of the options

The commencement of each policy option is when the regulation will take effect. The implementation of each policy is the time prior to this. Commencement and implementation for each option are assumed to occur from the following dates:

- Option 1 is assumed to commence from 1 July 2023 as it is the Base Case. No additional implementation activities are to occur.
- Options 2 and 3 are assumed to commence from 1 January 2027. This reflects an estimated 6 months to assess and update AS5812 to be suitable as a mandatory standard under regulation, two years to establish the legislative framework (including drafting and passage of legislation), and a further year for regulatory arrangements to be put into effect (e.g. to communicate the new regulatory arrangements, set up the required teams, systems and processes, and give businesses time to comply).
- Options 2A and 3A are assumed to commence from 1 July 2026. This reflects an estimated two years to establish the legislative framework for these options (including drafting and passage of legislation), and a further year for regulatory arrangements to be put into effect (e.g. to communicate the new regulatory arrangements, set up the required teams, systems and processes, and give businesses time to comply).
- Option 4 is assumed to commence from 1 January 2028. This reflects an estimated 6 months to assess and update AS5812 to be suitable as a mandatory standard under regulation, two years to establish the legislative framework for these options, and a further two years for regulatory arrangements to be put into effect. The longer timeframe compared to Options 2 and 3 is due to this option applying more onerous requirements on businesses (necessitating more time to transition) and requiring more complex processes and systems to be established (including a licencing and registration program) and additional resourcing.

The above commencement dates are estimations and could vary depending on individual state and territory circumstances.

4.1.2 Discount Rate and Consumer Price Index

The central case assumes a real discount rate of 7%, consistent with OIA guidance. We have also undertaken sensitivity analysis for 3% and 10% real discount rates. Lower discount rates may be applicable for policies that have long-term or intergenerational benefits.

The Consumer Price Index (CPI) has drawn from the long run average since June 2012, using the Australian Bureau of Statistics, Consumer Price Index, Australia June 2022 for All Groups[16]. Because real values are used in the analysis, the CPI is only used to ensures that all cost and benefit values are in 2022 dollars.

4.1.3 Threshold analysis

Threshold analysis is an extension of sensitivity analysis used to identify an assumption's minimum or maximum value. Specifically, threshold analysis aims to identify a specific value an input under consideration must achieve to reach a threshold point.

In this analysis, as there is a high degree of uncertainty associated with the efficacy of the policy options (e.g. due to limited data on pet food incidents), a threshold analysis is used to assess how

[16] https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release

much each option would need to reduce our best estimates of the total number of pet food safety incidents to achieve a BCR of 1 and an NPV of 0. The threshold is calculated by increasing the efficacy of each option from 0% - 100% (in 5% increments) such that the present value of the costs equals the benefits.

In making this assessment, it should be noted that the analysis does not take into account benefits that cannot or are difficult to be quantified (see below at Section 1.2.4) which are potentially significant (i.e. the reduction to pet food safety incidents required to reach threshold values may be over-estimated given it does not account for unquantifiable benefits). It should, however, also be noted that the analysis does not take into account costs that are difficult to quantify, such as potential industry costs associated with undertaking more product recalls (either mandatorily or voluntarily).

4.1.4 Data availability

A key information source for the CBA is a quantitative research study surveyed people nationally[17]. The study included over 1000 participants, was commissioned by Animal Medicines Australia (AMA) and was undertaken by Newgate Research in 2019[18], then updated in 2021[19] and 2022[20]. While the 2021 and 2022 updates reflected potential impacts on pet ownership from COVID-19, pet ownership rates are not expected to significantly change in the future as the impacts of COVID-19 reduce over time. The total sample size was 2,453, resulting in an overall maximum error margin of +/-2.0% at the 95% confidence level. Survey results were weighted using ABS Census data to correct any sampling bias.

Engagement with PFIAA and AVA members provided data relating to the estimated costs for industry and for managing PetFAST associated with the options. Industry costs were further supported by data in the IBIS World Pet food production in Australia from 2020 report. Government costs were estimated and verified in consultation with the AGSOC Pet Food Working Group and DAFF. The CBA also relied on previous reviews and reports on pet food safety in Australia including the Senate inquiry on regulatory approaches to ensure the safety of pet food and the Pet Food Review Working Group's report on managing the health and safety of pet food in Australia.

4.1.5 Pet Food Safety Incidents

As previously noted for the purpose of this analysis we define a pet food safety incident as one that results in serious consequences such as illness requiring veterinary care or death. Currently, there is limited information on the number, frequency and magnitude of serious pet food safety incidents within Australia because there is only a voluntary incident reporting system (PetFAST) accessible only to veterinarians. Consultation with stakeholders from the PFIAA and AVA (which jointly manage

[17] https://animalmedicinesaustralia.org.au/report/pets-in-australia-a-national-survey-of-pets-and-people-2/
[18] https://animalmedicinesaustralia.org.au/wp-content/uploads/2019/10/ANIM001-Pet-Survey-Report19_v1.7_WEB_high-res.pdf
[19] https://animalmedicinesaustralia.org.au/wp-content/uploads/2021/08/AMAU005-PATP-Report21_v1.41_WEB.pdf
[20] https://animalmedicinesaustralia.org.au/wp-content/uploads/2022/11/AMAU008-Pet-Ownership22-Report_v1.6_WEB.pdf

PetFAST) indicate the figures are significantly underestimated. Therefore, the CBA assumed there is a material underreporting of incidents of about 90%.

Since October 2018 (when PetFAST reports were systematically recorded) there have been 147 PetFAST reports, which equates to about 36 reports per year. Based on the nature of previous pet food safety incidents recorded on PetFAST, the analysis assumes 10% of incidents result in illness or death. Applying the 90% underreporting estimate, an assumed 37 pet deaths and 331 pet illnesses requiring veterinary care resulted from pet food safety incidents in 2022. The number of pet food safety incidents increases proportionally to the assumed pet population. Whilst this is proportionally very small compared to the estimated 2022 population of 6.4 million dogs and 5.3 million cats in Australia, there are likely to be many pet food incidents with minor consequences and negligible economic impacts. This is the case for human food safety incidents, where the vast majority of incidents have minor consequences - for example, in the United States, only 0.26% of food incidents result in hospitalisation and an even smaller number in death[21].

The percentage of underreporting is tested as part of the sensitivity analysis to determine the effect of any changes on the costs and benefits.

4.2 Benefits quantified in the CBA

For the CBA, the benefits are primarily associated with avoided costs to pet owners through potentially reducing the likelihood and magnitude of pet food incidents through regulation. Given the uncertain surrounding the extent to which each policy option would reduce the likelihood and magnitude of pet food incidents, a threshold analysis has been undertaken (see Section 4.1.3).

It is noted that a pet food safety incident could result in many different outcomes, including multiple vet visits, ongoing care, and additional veterinary expenses. However, due to data availability, the analysis only quantifies two possible outcomes – pet illness (morbidity) or pet death (mortality).

4.2.1 Avoided pet owner costs

Illness associated with pet food can present as different diseases and syndromes (e.g. liver or kidney disease), which makes estimating an average avoided cost of pet morbidity difficult. The avoided cost of pet morbidity has been estimated by approximating the average pet insurance claim values reported by the RSPCA for gastroenteritis, which is about $1,400[22]. This is an estimated average to cover lower and higher costs based on severity of illness – it recognises that, analogous to human food safety incidents, while some pet food safety incidents would result in more severe illnesses with higher costs (e.g. kidney or liver failure), a significant number of pet food safety incidents are likely to result in minor illnesses that require little to no cost (e.g. a veterinary visit and medication for temporary pain relief). We will also apply a sensitivity analysis to the pet morbidity cost to determine the extent to which this could have a material impact on the overall outcomes of the CBA.

[21] https://www.cdc.gov/foodsafety/foodborne-germs.html
[22] https://www.rspcapetinsurance.org.au/claims

With respect to the avoided costs for a pet mortality, there is limited information available. Our review of Australian and international literature identified only one study that has estimated the value of pets, which could be used to estimate the avoided cost of a pet mortality. Carlson et al.[23] estimated the value of statistical dog life (VSDL) using a willingness to pay survey from a large representative national sample of US dog owners. The survey directly asked participants' willingness to pay to reduce the risk of death for pet dogs from influenza. Based on the analysis and consideration of its assumptions, the study recommended a central value of $10,000 (USD 2018 $) as the VSDL. This equates to approximately $16,000 VSDL in AUD 2022.

The avoided cost of pet mortality was derived from the Carlson et al. estimated value of a statistical dog life (VSDL). Similar approaches have been used in Australia to evaluate potential policies that reduce human mortality, and the OIA Guidance Note provides more information on the approach.

In the absence of an Australian study, the US study is considered a good proxy to apply for the Australian context. Reasons for this include the similarity between US and Australian populations and their attitudes towards pets, care, and insurance levels. There is also a similarity in the policy question – willingness to pay for interventions that reduce risk of pet death. The study is contemporary and well-designed to reduce the risk of hypothetical bias that can result in overstating values for pets.

No studies have been found on the value of statistical life of a cat. Therefore, in the absence of such data or evidence to suggest it should be higher or lower, it is assumed the underlying willingness to pay to reduce risk of death (and in turn value of statistical life of a dog) estimated above is the same for a cat.

The economic cost to pet owners of mortality and morbidity due to a pet food event will be evaluated by calculating the change in the number of pet food illness-related deaths with and without regulation for dogs and cats across the analysis timeframe.

4.2.2 Increased impacts for dogs that serve a function

Illness or death in dogs that serve a function beyond being a pet (e.g. assistance, police, inspection or farm dogs) are likely to have a higher economic impact. Most of these dogs are likely to be working farm dogs, based on studies in 2012[24] and 2015[25] estimating the working farm dog population in Australia at 270,000 (based on the number of livestock producers in Australia).

As these dogs were excluded from the VSDL study, an alternative value associated with the mortality and illness of working farm dogs has been incorporated into the CBA. A study in 2012 estimated a median value for working farms dogs over their working lifetime (10 years) of $40,000 (2012 $)[26] which is about $50,000 in present value terms. The analysis assumes the number of working farm

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[23] D. Carlson, S. Haeder, H. Jenkins-Smith, J. Ripberger, C. Silva, and D. Weimer, "Monetizing Bowser: A Contingent Valuation of the Statistical Value of Dog Life," *Journal of Benefit-Cost Analysis,* vol. 11, no. 1, pp. 131-149, 2019, doi: 10.1017/bca.2019.33.

[24] Arnott, E. R., Early, J. B., Wade, C. M., & McGreevy, P. D., "Estimating the economic value of Australian stock herding dogs." *Animal Welfare*, vol. 23, no. 2, pp. 189-197, 2014.

[25] https://agrifutures.com.au/wp-content/uploads/publications/15-081.pdf

[26] Arnott, E. R., Early, J. B., Wade, C. M., & McGreevy, P. D., "Estimating the economic value of Australian stock herding dogs." *Animal Welfare*, vol. 23, no. 2, pp. 189-197, 2014.

dogs in the CBA to be the same as those estimated in previous studies (at approximately 270,000), representing about 5% of the Australian pet dog population in 2023.

For completeness, it is noted that dogs that serve a function beyond a pet other than working farm dogs (e.g. assistance dogs) have not been included in this CBA due to the lack of data available (the previous studies referred to above only considered working farm dogs) and the small proportion of these dogs in the overall pet dog population in Australia (such that their potential higher economic impact is likely to have a negligible impact on the CBA's outcomes).

4.2.3 Avoided time costs

A proportion of the time consumers spend caring for their unhealthy pets can be avoided by reducing pet food related illness. These activities could include travelling to the vet, providing medication or time off work to monitor pets. The cost is based on an hourly value derived from OBPR Regulatory Burden Measurement Framework that sets default labour rates for individuals performing a task in their leisure time at $36/hour. Based on previous analysis, it is assumed to take about 8 hours per pet illness (1 day off work) and 24hrs (3 days off work) per pet death.

4.2.4 Benefits not quantified

While the CBA has sought to quantify all benefits with respect to the policy options, there are some benefits that are difficult to quantify and instead are discussed qualitatively below. These include:

- **Avoided pet suffering**: the economic impact of a pet food incident is largely monetised through values associated with human beings. However, utilitarian economic theories would consider pets to have equal standing to that of humans. We have not attempted to attribute a value directly to pet suffering largely due to a lack of data and appropriateness of values for this preliminary CBA.
- **Other avoided non-monetary costs to pet owners from pet illness**: the wellbeing of pet owners is likely to be negatively affected by the suffering of their pets, even if the pets fully recover. We have not quantified this benefit.
- **Human health impacts from pet companionship:** based on current academic research, there is limited to no causal relationship between human health and pet ownership[27]. Although most studies report small to moderate improvements, several studies[28][29][30] failed to report any relationship between pet ownership and health. Additionally, there are also a number of impacts of pet ownership, including physical health effects like bites or disease, increased stress and loss of freedom to travel and/or undertake leisure activities where pets are not allowed, such as holidays. These potentially offset some of the benefits associated with pet ownership or at least increase the uncertainties associated with estimating human health impacts. Additionally, the CBA has not quantified any benefits associated

[27] Smith, Bradley. "The 'pet effect': Health related aspects of companion animal ownership", Australian Family Physician, Volume 41, No.6, June 2012)
[28] Jorm Af, Jacomb PA, Christensen h, henderson s, Korten Ae, Rodgers B. Impact of pet ownership on elderly Australians' use of medical services: an analy-sis using medicare data. med J Aust 1997;166:376–7.
[29] Koivusilta lK, ojanlatva A. To have or not to have a pet for better health? Plos one 2006;1:1
[30] Parslow RA, Jorm Af, Christensen h, Rodgers B, Jacomb P. Pet ownership and health in older adults: findings from a survey of 2,551 community-based Australians aged 60–64. Gerontology 2005;51:40–7

with potential human illnesses from cross-contamination of pet food (e.g. contaminated pet food accidentally eaten by humans), given this is not likely to be significant.

- **Alignment with public expectations and impacts on consumer trust:** implementing policy options to regulate for pet food safety, such as by mandating minimum manufacturing and labelling standards for pet food, would improve consumer trust in pet food products and may align more closely with public expectations. This impact has not been quantified in the CBA.

4.3 Costs quantified in the CBA

The costs in the CBA are primarily Government and industry associated. Government and industry costs have been developed through engagement with relevant Commonwealth, state and territory government agencies, and the pet food and veterinary industries. These costs are based on the default labour rates associated with individuals performing a regulatory task, whether as part of their employment in a business or community organisation or as a private citizen in their leisure time, as per the OIA Regulatory Burden Measurement Framework Guidance Note.

4.3.1 Approach to quantifying the costs of options

In estimating the costs of implementing the policy options, each option in Table 7 has been broken down into its core components, for which costs to deliver them have been estimated (Table 8).

Table 8: Core components associated with each option

Core components	Potential measures
Incident response mechanisms	• No government investigation and recall mechanisms • Response framework for significant incidents and risks • Report-based government investigation and recall mechanism
Reporting and complaints handling	• Continuation of current PetFAST reporting system • Government funded reporting system that accepts consumer reports (e.g. expanded PetFAST or new system)
Standard setting	• Voluntary industry standard • Mandating the industry standard (limited enforcement through report-based government investigation mechanism) • Mandating the industry standard with active compliance and enforcement supported by a manufacturer and importer register and licencing program

4.3.2 Government costs

Government costs for each option comprise of three elements:

- The cost to governments of administering the regulatory arrangements ('administration' cost), comprising of a set up component and an ongoing component. For the set-up component, we have taken a conservative approach in assuming the Commonwealth and all states and territories would need to introduce legislation to implement Options 2 to 4 (noting if an implementation approach was adopted that only required legislative changes at the Commonwealth level, this would reduce the set

up costs).

- The cost to governments of undertaking foundational education and awareness raising activities to ensure the regulated community and broader public understand the new arrangements ('education and awareness' cost)
- The cost to governments of delivering a reporting and complaints handling function, which is proposed for Options 3 and 4 ('reporting and complaints handling' cost).

The costs are estimated based on yearly full-time equivalent (FTE) resourcing requirements. The costs are *in addition to* current teams that perform similar functions, not a reflection of the total number of FTE required (i.e. they will be implemented within an existing regulatory framework and/or regulator and will not involve the establishment of new regulatory entities).

Importantly, we note that based on consultation with state and territory government stakeholders, there is likely to be significant variation between jurisdictions in their costs of administering any regulatory arrangements because there are significant differences in existing legislative and regulatory frameworks within jurisdictions and potential variability in terms of how they could apply and the priority given to any required legislative amendments. There are also significant challenges with implementing the options through legislative amendments at the Commonwealth level, which presents additional uncertainties.

Consequently, government costs have been determined by taking a broad average of the costs that jurisdictions have estimated they would incur for each option, noting this may be significantly higher for some and significantly lower for others depending on how the options are implemented in the future. Furthermore, minimum and maximum ranges of these costs have been estimated (i.e. a doubling of the costs and a halving of the costs) to determine the range of CBA outcomes in the event the government costs incurred are significantly higher or lower.

In addition, while a reduction in the number of pet food safety incidents over time should be expected as a result of the implementation of Options 2 to 4, the costs to Government have not been reduced to reflect this because:

- The impact of this reduction in incidents would be limited to costs associated with government functions to respond to an incident.
- There is a baseline level of resources required to maintain capability to effectively respond to incidents.
- The reduction is expected to occur over time as businesses begin implementing process improvements to ensure compliance with the regulations. By applying the discount rate to future costs and taking into consideration the points above, we expect this impact to not be material to the outcome of the CBA.

1. Administration

Option	Administration set-up costs	Ongoing administrative costs
Option 1	No government set up costs	• Based on the frequency and nature of previous major government responses to pet food safety incidents (2018

Option	Administration set-up costs	Ongoing administrative costs
		megaoesophagus and 2021 horse meat incidents), we have assumed every three years, a state or territory government will stand up a temporary team of 6 FTE for 6 months to manage and respond to the incident. • This equates to 1 FTE (i.e. 6 FTE for 6 months every 3 years overall across all jurisdictions)
Option 2	• 0.2 FTE per jurisdiction and the Commonwealth for 1 year to assess the suitability of AS5812 to be mandated under legislation, including working with Industry to update AS5812 where required. • 1 FTE per jurisdiction and the Commonwealth for 2 years to make legislative changes for mandating a standard and establish required powers (totalling 18 FTE). These cover designing and drafting legislation, including determining the mechanism to mandate the pet food standard (e.g. codifying AS5812 in full or in part) and any arrangements to support smaller manufacturers to comply with the Standard.	• 2 FTE for the Commonwealth to play a coordinating role for any multi-jurisdictional government interventions and manage any regulation on imported products. • Similar to Option 1, 6 FTE for 6 months every 3 years across all jurisdictions (equating to 1 FTE) to respond to major incidents (i.e. base case estimate).
Option 2A	• 1 FTE per jurisdiction and the Commonwealth for 2 years to make legislative changes to establish required powers (totalling 18 FTE).	
Option 3	• 0.2 FTE per jurisdiction and the Commonwealth for 1 year to assess the suitability of AS5812 to be mandated under legislation, including working with Industry to update AS5812 where required. • 1 FTE per jurisdiction and the Commonwealth for 2 years to make legislative changes for mandating a standard and establish required powers (totalling 18 FTE). This covers designing and drafting legislation, including determining the mechanism to mandate the pet food standard (e.g. codifying AS5812 in full or in part, or a similar standard) and any arrangements to support smaller manufacturers to comply with the Standard.	The same 3 FTE as Option 2, plus: • 0.7 FTE for each jurisdiction and the Commonwealth to monitor for incidents and actively engage with Industry to address reports, as well as attend any interjurisdictional meetings to coordinate and decide on government responses (totalling 6.3 FTE).
Option 3A	• 1 FTE per jurisdiction and the Commonwealth for 2 years to make legislative changes to establish required powers (totalling 18 FTE).	
Option 4	• 0.2 FTE per jurisdiction and the Commonwealth for 1 year to assess the suitability of AS5812 to be mandated under legislation, including working with Industry to update AS5812 where required. • 1.25 FTE per jurisdiction and the Commonwealth for 2 years to make legislative changes for mandating a standard, establish required powers and establish a licencing and registration system	The same 3 FTE as Option 2, plus: • 1.5 FTE per jurisdiction and the Commonwealth to review and assess audit reports conducted by third parties, as well as manage the register and licencing program (totalling 13.5 FTE). These resources would also attend

Option	Administration set-up costs	Ongoing administrative costs
	(totalling 22.5 FTE). While some jurisdictions have existing licencing and registration systems that can be expanded to cover Option 4, some jurisdictions do not and will need to introduce legislation to establish this. This is reflected in a higher average FTE per jurisdiction. • 2 FTE per jurisdiction and the Commonwealth for an average of 9 months to establish the manufacturer and importer register and licencing program, including certifying and licencing current manufacturers and importers (totalling 13.5 FTE). This incorporates the fact that some jurisdictions will be able to complete this activity in less than one year as they already have an established system, while other jurisdictions will need one year to establish a new system.	interjurisdictional meetings to coordinate regulatory approaches.

Note: some of the ongoing costs may be cost recovered from industry if a cost recovery regime is introduced under this option. This would transfer some of the costs from government to industry but would not change the total cost of the option.

2. Education and awareness

The implementation of Options 2 to 4 will require initial stakeholder communication activities to ensure the regulated community and the public are aware of the new arrangements. The 'education and awareness' cost component reflects the costs associated with these initial stakeholder communication activities. The costs are based on developing or updating a website, drafting communications products, and potentially running industry/community information forums to inform the community and Industry of the new regulatory arrangements.

We have assumed there are no ongoing 'education and awareness' costs as ongoing stakeholder communication to ensure continued engagement and awareness of the regulatory arrangements are part of the routine administration of regulation and therefore accounted for in the 'administration' costs. Set up costs are assumed to occur in the year preceding implementation.

Table 9: Education and awareness government costs

Option	Set up cost
Option 1 (base case)	0 FTE, as governments currently do not allocate resources for education and awareness.
Option 2 and 2A	0.2 FTE for each jurisdiction including the Commonwealth (totalling 1.8 FTE)
Option 3 and 3A	0.2 FTE for each jurisdiction including the Commonwealth (totalling 1.8 FTE) This is assumed to be the same as Option 2. Although the messaging would be different, the amount of material would be similar.

Option	Set up cost
Option 4	0.3 FTE for each jurisdiction including the Commonwealth (totalling 2.7 FTE) for website set ups, drafting of communications products etc. This is assumed to be slightly higher than Options 2 and 3 because of the more onerous requirements imposed under this option, which will necessitate more engagement with businesses and importers

3. Reporting and complaints handling

For Options 3, 3A and 4, Government would undertake monitoring and reporting of pet food safety incidents, including handling consumer complaints about pet food safety. This function would also involve managing a register of pet food safety incidents, noting the specific nature and operation of this register has not been determined (e.g. it may fund and leverage the existing PetFAST system or other existing government incident monitoring and reporting systems).

In addition, we have assumed government regulators will deliver this function with an existing complaints handling function (which can be adapted to include handling pet food safety complaints).

Table 10: Reporting and complaints handling government costs

Option	Setup	On-going
Options 1 (base case), 2 and 2A	0 FTE as these options retain the current reporting arrangements (i.e. PetFAST), noting this is undertaken by volunteer veterinarians with support from the PFIAA.	
Option 3, 3A and 4	• 0.25 FTE per jurisdiction based on 0.5 FTE for 6 months (2 FTE) to integrate pet food into existing reporting and complaints handling systems	• 0.5 FTE per jurisdiction (4 FTE) to manage consumer complaints and undertake reporting including managing a register of pet food safety incidents. • Options 3 and 4 are assumed to be the same because they have the same expectations for reporting and complaints handling.

Government-initiated review of AS5812 as a mandatory standard

All options involving mandating a pet food standard have assumed the version of the AS5812 Standard at the time of implementation would be adopted and mandated following an initial assessment of its suitability as a mandatory standard. Although AS5812 is currently under review, there is a possibility AS5812 could be found to be not appropriate as a mandatory standard (given its current operation as a voluntary standard) and a government-initiated review of the Standard may be needed.

AS5812 is managed and owned by Standards Australia, and any person or entity can submit a proposal for the Standard to be reviewed. Standards Australia initially assesses the proposal, and if approved, the proposal is sent to the relevant technical committee to undertake the review. The

technical committee for the AS5812 Standard includes representatives from Industry, consumer groups and welfare groups as well as state, territory and federal government agencies.

If a government-initiated review of AS5812 were to be conducted, additional costs would be incurred (e.g. government resources to initiate the review proposal and be on the technical committee), and the timeframe for implementing the regulations would be extended. Based on previous reviews of AS5812, the review process can take 1-2 years. In addition, if there were significant changes to AS5812 following a government-initiated review, there may be additional industry costs associated with complying the new Standard, the magnitude of which would depend on the requirements of the new Standard.

4.3.3 Industry costs

Industry costs are estimated based on average hours per month per business spent on tasks to comply with regulatory requirements under each option.

According to the IBIS World report *Pet food production in Australia* from 2022, there are 140 domestic pet food production businesses. Based on consultation with the Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) biosecurity regulatory function for pet food imports, there are approximately 131 cat and dog pet food importing businesses in Australia.

Accordingly, it has been estimated that 271 businesses will be required to comply with the regulatory requirements legislated under the policy options, including potentially a mandatory AS5812 standard. The following assumptions have been made in making this estimation:

- The estimated number of pet food manufacturing businesses approximates the number of dog and cat food manufacturing and importing businesses in Australia. The number of pet food manufacturing businesses in the IBIS World report *Pet food production in Australia* from 2022 appears to include pet food manufacturers for all animals. However, it is unclear the number of businesses that exclusively produce pet food for animals that are not dogs and cats (e.g. birds).
- Based on consultation with the PFIAA, AS5812 is not intended to apply to pet meat processors such as abattoirs, knackeries or butchers unless they have a commercial operation retailing pet meat to the community as a ready-to-eat pet food. It is assumed that mandatory AS5812 Standard would apply the same approach to pet meat processors, and pet meat processors that produce pet meat as a ready-to-eat pet food are captured within the estimated 285 pet food production and importing businesses in Australia.
- The estimated number of pet food manufacturing is based on businesses that have been registered. It does not capture unregistered businesses such as some home-based pet food manufacturing businesses.
- Some local manufacturers also import finished pet food products and will be counted in both the estimated number of importing businesses and the local manufacturers, which may overestimate the number of businesses. However, the number of overlapping businesses is unknown, and the likely overestimation may be balanced by the exclusion of unregistered businesses mentioned above (home-

based pet food manufacturing businesses).

Compliance rate

The compliance rate is the estimated number of businesses who are projected to comply with the Standard. In order for a business to be deemed to comply with the Standard, they must undertake an independent audit of compliance with the Standard every 12 months.

Table 11: Industry compliance rate assumptions

Option	Assumption
Option 1 (base case), 2A and 3A	• 11% compliance based on 29 certified PFIAA members (26 certified manufacturing members and 3 certified marketing members) out of 271 total businesses. • It is assumed only PFIAA members are conducting annual audits against the Standard to ensure compliance and that there are no non-PFIAA members who comply with the Standard. • Some imported products may meet an international standard equivalent to AS5812. However, there is no data on the number of products that would meet these criteria and therefore have not been included in the assumed compliance rate.
Options 2 and 3	• It is estimated that an average of 80% of all businesses will comply with the mandated the Standard (noting we have assumed all PFIAA member businesses that currently comply will continue to comply). This reflects an assumption that there will be some non-compliance with the mandated Standard due to the absence of active compliance monitoring and enforcement under these options. • There is uncertainty regarding the specific compliance rate (e.g. compliance could improve over time as business practices build in regular audit processes, although compliance could reduce due to the lack of active compliance and monitoring). The current rate has been chosen because it can be assumed that most businesses will comply with introduced regulation due to consumer awareness and industry competition pressure and most if not all pet meat businesses already have some regulation and will likely comply with new regulation. • A sensitivity analysis of the compliance rate will be undertaken to determine the magnitude of impact to the CBA from potential variations in compliance.
Option 4	• It is estimated that an average of 97% of all businesses will comply with the Standard (noting we have assumed all PFIAA member businesses that currently comply will continue to comply) because of active monitoring and auditing by government regulators. This is based on the estimated rate of compliance under similar arrangements involving full active regulation.

Administration

This represents costs incurred by businesses in complying with regulation, such as audits, record keeping, reporting or other administrative processes or systems. Based on discussions with the PFIAA, audits of compliance with the Standard cost between $2,500 and $6,000 depending on the size of the manufacturer, the type of audit and travel costs. The administration cost is based on the number of annual audits

multiplied by the compliance rate, taking into account the likely size of manufacturers.

- The PFIAA's membership include many large Australian manufacturers, with the three largest producers of pet food being PFIAA members. As such, PFIAA members comprise on average larger Australian manufacturers and non-PFIAA members are generally smaller manufacturers with small to medium production volumes.
- On this basis, it has been assumed that:
  - PFIAA member audits are on the higher end of audit costs, at an average of $5,000 per audit
  - Non-PFIAA member audits would be on the lower end of audit costs, at an average of $3,500 per audit.

Substantive

This represents the costs (excluding administrative costs) incurred to deliver the regulated outcome being sought. It is assumed most substantive costs are incurred from updating processes to comply with the mandated Standard and time spent preparing for audits (e.g. record keeping) conducted once a year. Based on information from the PFIAA, preparing for audits can take 1-2 days. It is assumed businesses will spend 10 hours per year preparing for audits. In addition, it is assumed that businesses will spend 10 hours per year, on average, to update processes to comply with the mandated Standard. For each Option, the 20 hours estimate is discounted by the compliance rate to capture only the businesses projected to comply with the Standard.

4.3.4 Costs not quantified

The cost of conducting a recall for Industry has not been included in this CBA for any of the options (including the base case). These costs are difficult to estimate given the variability in scale and frequency of recalls. Although not included in the CBA, it is noted the frequency of recalls and, therefore, the cost to Industry may increase under Options 2, 2A, 3, 3A or 4 due to the possibility of mandated recalls or increased desire to voluntarily recall products. From the experience of human health regulators consulted, mandatory recalls are very rarely initiated because manufacturers typically voluntarily recall products to avoid the reputational damage of a mandatory recall.

5. Cost Benefit Analysis Results

5.1 Results overview

The results are based on a 20-year analysis period and 7% central discount rate. The results focus on the incremental present value of each option compared to the base case; how effective each policy option is relative to the costs and benefits of continuing with business as usual.

As discussed in section 4.1.3, a threshold analysis was used due to lack of robust evidenced based information on the regulatory impact of each option. Thus the results should be interpreted in terms of how effective each policy option would need to be (at a minimum) for the benefit to be equal the costs i.e. a BCR of 1 and NPV of 0.

The results of the threshold analysis are shown in Figure 5. The findings indicate:

- Option 2 would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 23% (e.g., by reducing the number of pet deaths and illnesses from pet food by 23%). If the option were to reduce the impact of pet food safety incidents by more than 23%, it would result in a net benefit.
- Option 2A would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 9%.
- Option 3 would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 45%.
- Option 3A would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 31%.
- Option 4 would result in a net cost unless it could reduce the impact of pet food safety incidents by at least 68%.

Option 2A requires the lowest efficacy rate to achieve a BCR of 1 and NPV of 0. Option 4 has the highest incremental cost and requires a commensurately high efficacy rate to make the option net beneficial.

Figure 5: Threshold results overview

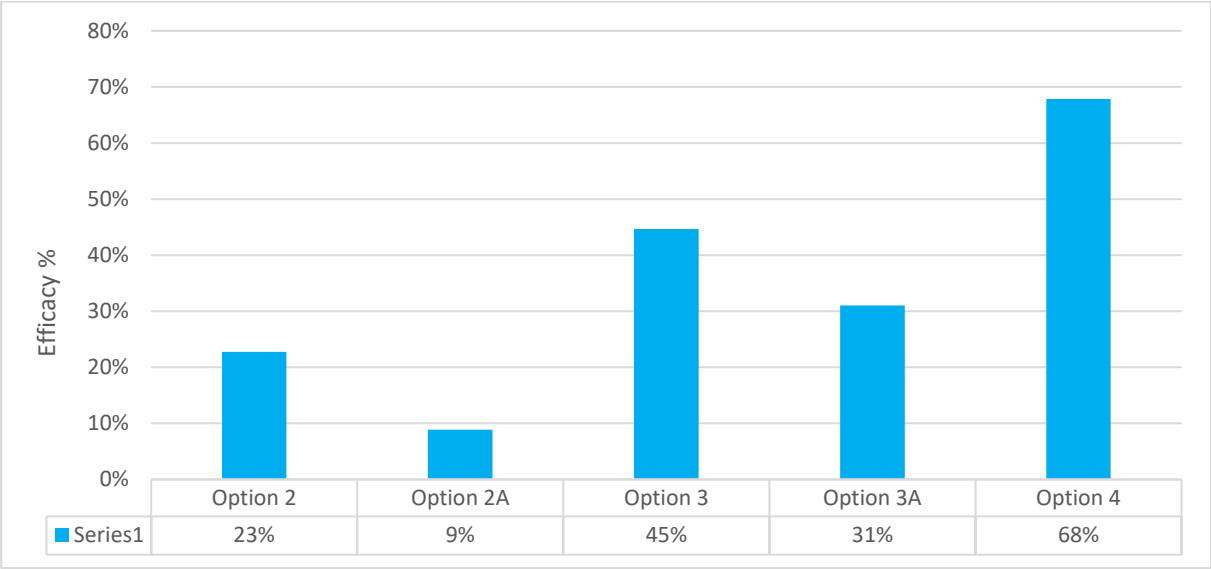
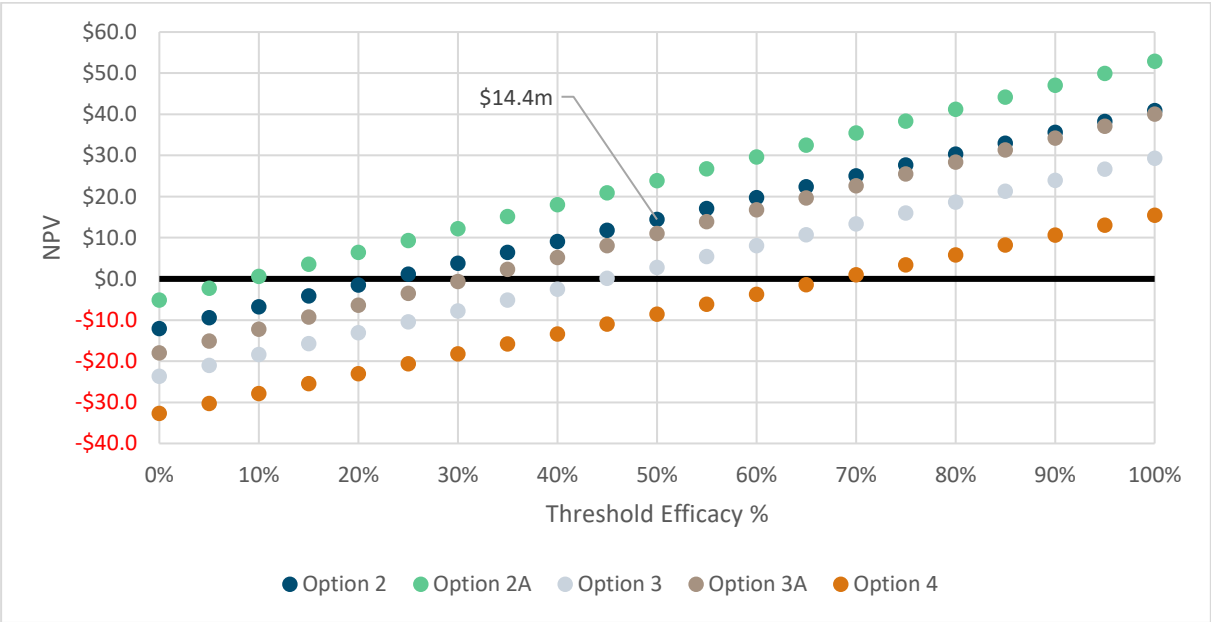


Figure 6 below shows the NPVs for each policy option based on efficacy values ranging from 0% to 100% at increments of 5%. The solid black line represents a NPV of $0. Points below the line have a negative NPV and indicate a net cost. Points above the line have a positive NPV and indicate a net benefit from the policy option. The analysis shows if Option 2 could reduce the impact of pet food safety incidents by 50%, it would result in a net benefit of about $14.4million.

Figure 6: NPV of option based on efficacy between 0 and 100%



5.2 Detailed results

5.2.1 Analysis of incremental costs

The incremental costs associated with each of the options are detailed below in Table 12.

Government administration and industry audit costs are the primary cost drivers for each option. Administration costs increase in line with the regulatory complexities of each option due to resource requirements. As such, Option 4 has the highest incremental administration cost of about $20 million, and Option 2 and 2A have the lowest at about $5 million.

The industry costs for Options 2, 3 and 4 are driven by incremental audit costs imposed on Industry. Due to no change from the base case, Option 2A and 3A have zero incremental costs associated.

Table 12: PV incremental Costs associated with each option, relative to the Base Case ($million, 7% discount rate)

	Option 2	Option 2A	Option 3	Option 3A	Option 4
Administration	$4.8	$4.9	$11.8	$12.6	$20.2
Education and public awareness	$0.2	$0.2	$0.2	$0.2	$0.3
Monitoring and complaints handling	$0.0	$0.0	$4.7	$5.1	$4.2
Industry costs	$7.0	$0.0	$7.0	$0.0	$8.0
Gross costs	**$12.0**	**$5.2**	**$23.7**	**$18.0**	**$32.7**

Figure 7 illustrates the yearly Government costs in real terms over the analysis period.

Figure 7: Yearly Government costs over the analysis period

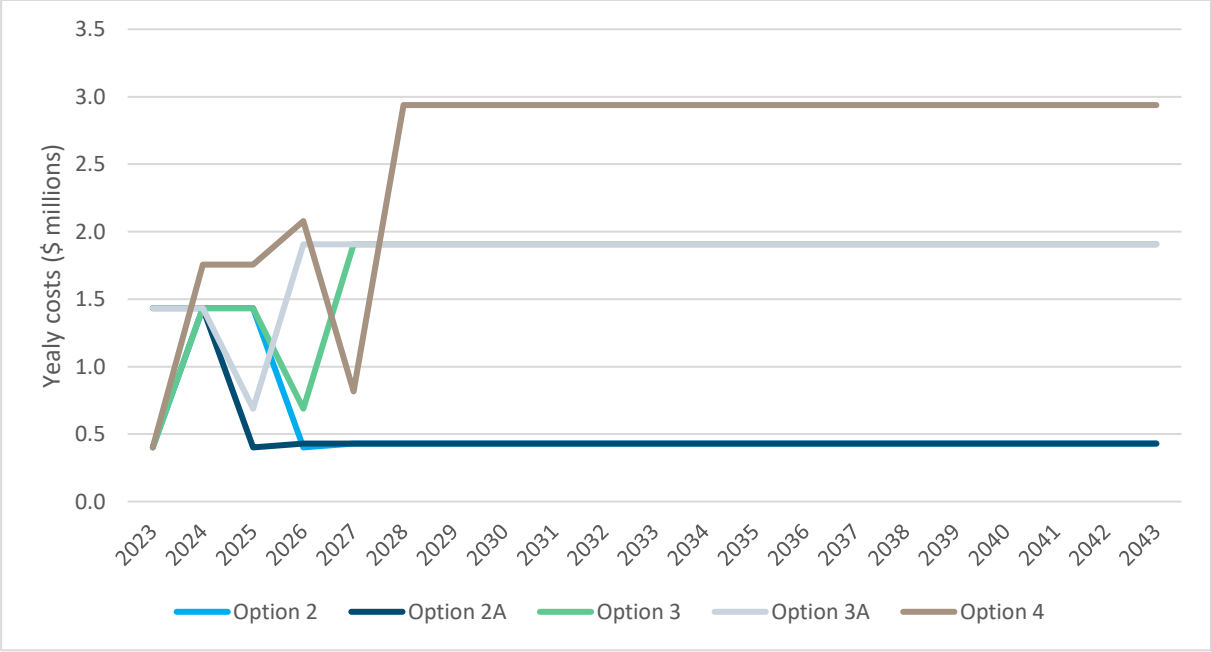
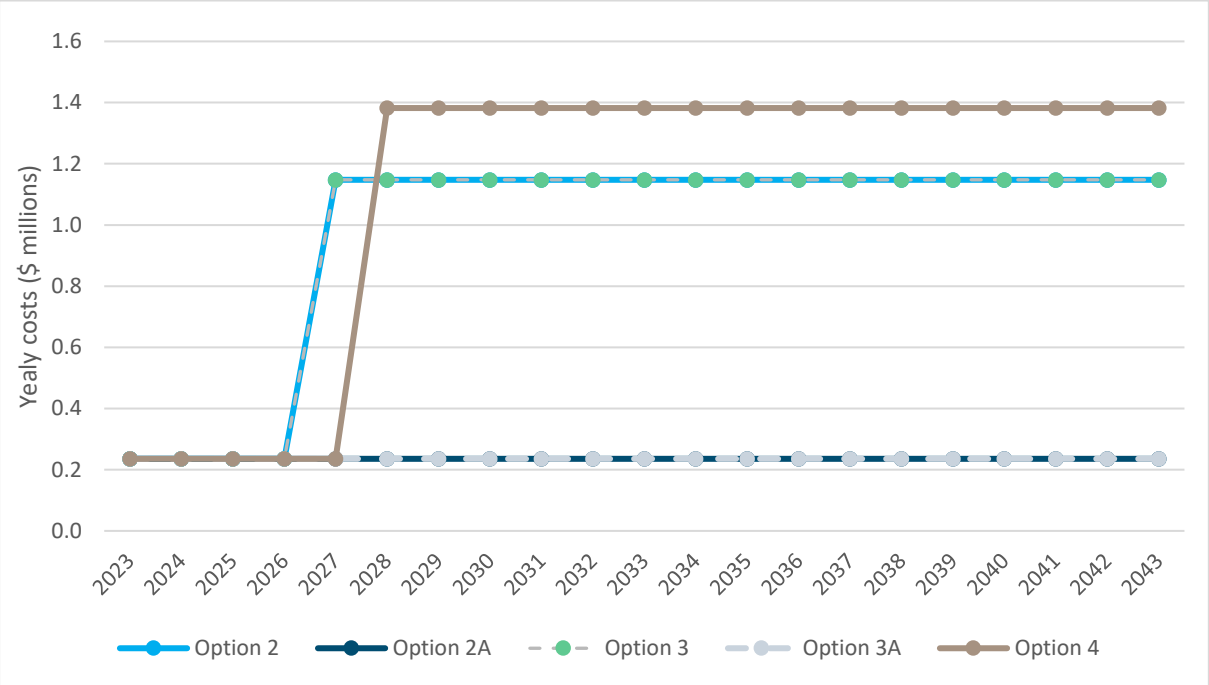


Figure 8 below illustrates the yearly Industry real costs over the analysis period. As industry costs are related to compliance with a mandatory standard, the industry costs for Options 2A and 3A are the same as the base case (i.e. ongoing Industry costs of about $300,000, representing the current costs that PFIAA members incur in complying with the voluntary AS5812 standard).

Options 2 and 3 have the next highest yearly costs due to the assumption that a compliance rate of 80% is achieved when each option is implemented. Option 4 is similar but has a 97% compliance rate due to more active and rigorous compliance and enforcement activities.

Figure 8: Yearly Industry costs over the analysis period



5.2.2 Analysis of incremental benefits

As discussed previously, a threshold analysis was used as there is insufficient evidence to estimate the efficacy of the policy options in reducing the impact of pet food safety incidents in Australia. As such, the benefits are not quantified, limiting our analysis of the results.

The incremental benefits associated with a 1% efficacy level for each option are detailed below in Table 13. All options have relatively similar benefits at the 1% level, with small differences resulting from each option's varying implementation date. For example, a 1% reduction in 2023 populations reduces to 30 vet visits and 0.38 deaths. The longer it takes to implement each option, the more discounting impacts the benefits. Overall, the benefits are primarily driven by the number of pet food incidents assumed to occur each year.

Table 13: Benefits associated with each option achieving a 1% efficacy ($million, 7% discount rate)

	Option 2	Option 2A	Option 3	Option 3A	Option 4
Avoided vet service	$0.39	$0.43	$0.39	$0.43	$0.36
Avoided pet death	$0.06	$0.06	$0.06	$0.06	$0.05
Avoided time costs	$0.08	$0.09	$0.08	$0.09	$0.07
Gross benefits	**$0.53**	**$0.58**	**$0.53**	**$0.58**	**$0.48**

5.3 Sensitivity Analysis

The results have significant uncertainties, especially the number of pet food incidents and values assigned to the benefits streams. Recognising these uncertainties, a sensitivity analysis was conducted to test impact of changes in key assumptions on the results. Sensitivity analysis was undertaken for:

- Alternative discount rates (3% and 10%)
- Changes to the avoided cost of pet health impacts from mortality and morbidity (+/- 100% relative to central assumption)
- Changes to the estimated number of pet food incidents (+/- 50% relative to central assumption)
- Changes to the estimated industry costs (+100%/-50% relative to central assumption)
- Changing the government administration costs (+100%/-50% relative to central assumption)

Results of the sensitivity analysis are summarised in

Table 14: Sensitivity Analysis Results Compared to Central Base Case

Sensitivity Results	Option 2	Option 2A	Option 3	Option 3A	Option 4
Central Base Case	**23%**	**9%**	**45%**	**31%**	**68%**
3% discount rate	21%	7%	43%	29%	64%
10% discount rate	24%	10%	46%	33%	71%
100% increase in pet mortality	21%	8%	40%	28%	61%
100% increase in pet morbidity	13%	5%	26%	18%	39%
50% increase in pet food incidents	15%	6%	30%	21%	45%
50% decrease in pet food incidents	45%	18%	89%	62%	136%
100% increase in Industry costs	32%	9%	54%	31%	80%
50% decrease in Industry costs	18%	9%	40%	31%	62%
100% increase in Government costs	32%	18%	76%	62%	119%
50% decrease in Government costs	18%	4%	29%	16%	42%

Table 15, indicating the change away from the central result due to changes in the assumptions.

The key findings from the sensitivity analysis include:

- Option 2A is most sensitive to changes in discount rates, reflecting that most costs are accrued early in the analysis period (confirmed above in Figure 7).
- A 100% increase in the avoided costs of pet mortality improves the efficacy percentage of each option by 10% compared to results generated by our central assumptions. A 100% increase in pet morbidity costs improves the results by 43%.

- The information available shows very few pet incidents in Australia. Assuming a 90% underreporting rate, this equates to only 37 pet deaths and 331 pet illnesses requiring veterinary care per year, compared to the 11.7 million cats and dogs in Australia. A 50% increase in the number of incidents causes the efficacy percentage of each option to change decrease by 33%. A 50% decrease in the number of incidents causes the efficacy percentage of each option to increase by 100%.
- Changes to the estimated industry costs (+100%/-50% relative to central assumption) only affect Options 2, 3 and 4 by between -9% to 42%. Options 2A and 3A have the same costs as the base case, so no change occurs.
- Changing the government administration costs by either reducing them by 50% or doubling impact most significantly on Options 2A and 3A because most of their overall costs come from Government administration (Table 12). Changes to Government costs provide a reference for each jurisdiction, given that each will have potential differences in how any regulation would be implemented.

Table 14: Sensitivity Analysis Results Compared to Central Base Case

Sensitivity Results	Option 2	Option 2A	Option 3	Option 3A	Option 4
Central Base Case	**23%**	**9%**	**45%**	**31%**	**68%**
3% discount rate	21%	7%	43%	29%	64%
10% discount rate	24%	10%	46%	33%	71%
100% increase in pet mortality	21%	8%	40%	28%	61%
100% increase in pet morbidity	13%	5%	26%	18%	39%
50% increase in pet food incidents	15%	6%	30%	21%	45%
50% decrease in pet food incidents	45%	18%	89%	62%	136%
100% increase in Industry costs	32%	9%	54%	31%	80%
50% decrease in Industry costs	18%	9%	40%	31%	62%
100% increase in Government costs	32%	18%	76%	62%	119%
50% decrease in Government costs	18%	4%	29%	16%	42%

Table 15: Sensitivity Analysis Results Compared to Central Base Case showing % change

	Option 2	Option 2A	Option 3	Option 3A	Option 4
Central assumption	**37%**	**9%**	**51%**	**23%**	**77%**
3% discount rate	-8%	-17%	-5%	-6%	-6%
10% discount rate	7%	15%	4%	5%	5%
100% increase in pet mortality	-10%	-10%	-10%	-10%	-10%
100% increase in pet morbidity	-43%	-43%	-43%	-43%	-43%
50% increase in pet food incidents	-33%	-33%	-33%	-33%	-33%
50% decrease in pet food incidents	100%	100%	100%	100%	100%

	Option 2	Option 2A	Option 3	Option 3A	Option 4
100% increase in Industry costs	42%	0%	21%	0%	17%
50% decrease in Industry costs	-21%	0%	-11%	0%	-9%
100% increase in Government costs	42%	100%	70%	100%	76%
50% decrease in Government costs	-21%	-50%	-35%	-50%	-38%

5.4 Distributional Impacts

Distributional impact analysis assesses which stakeholders receive benefits or incur costs due to the Options. The CBA quantifies costs associated with Government and Industry at an aggregated level.

We acknowledge that the pet food industry contains many producers, from small scale businesses to large scale market leaders, and each will be impacted differently by each Option considered in this analysis. However, the analysis has been confined to a broad industry definition to accommodate the type and availability of data, limiting the ability to determine business specific impacts.

Overall, the total incremental Industry costs associated with each option are estimated to be between $0 (Option 2A and 3A) and $1.3 million per year (Option 4), assuming 271 pet food manufacturing businesses. The IBIS World report *Pet food production in Australia* from 2022 estimates that annual revenue from pet food produced for Australian consumption in 2022-23 of $3.31 billion and forecasts annual revenue to grow over the next five years to $3.54 billion in 2027-28. Therefore, at a maximum (Option 4), the total yearly costs represent just 0.03% of industry revenue in 2022-23. Inferring that should costs be passed onto consumers in the form of price increases on pet food, the increase will likely be marginal across the industry as whole.

The potential impact on pet food businesses will be a function of several factors, including:

- the implementation of each option and any specific measures. For example, no assumptions were made about the type of regulation (prescriptive versus outcomes-based) or the structure of any funding agreements to aid implementation such as business grants
- the volumes of pet food produced or imported by the relevant business, and
- whether the product currently complies with AS5812 (for the options that mandate the standard).

The three largest industry participants already comply with the current AS5812 Standard and will likely see marginal changes to their audit processes under the current high-level options defined in this CBA. It is likely that producers who are not part of the PFIAA (estimated 242 businesses) and do not undertake voluntary audits will be most affected by the audit costs imposed on Industry, which is assumed to be one audit annually at $3,500.

For example, under an option that mandates a standard, a manufacturer that does not currently comply with the voluntary standard would incur more costs to meet the standard (that could be passed on to consumers) than a manufacturer that already voluntarily complies. If the manufacturer

makes small volumes of pet food products, these additional costs could result in a bigger price increase compared to a larger manufacturer who would benefit from economies of scale. This could, reduce the market competitiveness of some pet food manufacturers, particularly smaller manufacturers who do not currently meet the AS5812 standard and are not PFIAA members.

Further, depending on each Option, there are also potential impacts on the PFIAA. Under Options 2 and 2A, the PFIAA will be incremental to the operation of these options. Option 3 could involve government funding and leveraging the current PetFAST system and associated activities of PFIAA by expanding its remit to accept consumer reports or creating a new monitoring system. Options 3A and 4 would likely remove existing reporting of incidents as well as management and development of a Standard.

5.5 Uncertainties

The data and information used in the CBA were not without uncertainties. The results above reflect the information that was able to be gathered and should be viewed in light of the following challenges:

1. Limited verifiable data on pet food incidents (see section 4.1.5)
2. High-level regulatory definitions that do not include implementation specifics (see section 3.2)
3. Difficulty assigning efficacy levels to policy options (see section 4.1.3)

6. Conclusion

Based on the economic analysis, the following conclusions are made:

1. Government administration and industry audit costs are the primary cost drivers for each option. Administration costs increase in line with the regulatory complexities of each option due to resource requirements. Industry audit costs are only incurred for options mandating a pet food safety standard, as compliance with the standard would require annual independent audits to be undertaken.
2. Except for the Base Case option, Option 2A has the lowest costs, followed by Option 2 and then Option 3A. Implementing Option 4 has the highest cost. Reflecting the relative costs of the policy options, excluding the Base Case option, Option 2A requires the smallest reduction to the cost of pet food safety incidents in order to achieve a net economic benefit, while Option 4 requires the largest reduction.
3. The sensitivity analyses revealed the following findings:
    a. The estimated number of pet food safety incidents in Australia has a significant impact on the CBA's outcomes. The CBA conservatively assumes that the number of pet food safety incidents that would result in illness requiring treatment and/or death is underreported in PetFAST by a factor of 90%. If the actual under-reporting of pet food safety incidents is lower than this, that could significantly increase the required efficacy levels for the policy options (except the Base Case option).
    b. Increasing the avoided cost of pet morbidity reduces the efficacy values required to achieve an NPV of $0 by 43%. These results illustrate that whilst we have made a conservative assumption in basing the avoided cost of pet morbidity on the average pet insurance claim for gastroenteritis (a substantial proportion of pet food safety incidents would be minor and not require substantial costs, similar to food safety incidents in humans), a large-scale outbreak of a severe disease from pet food such as megaesophagus could have a material impact on the cost to society.
    c. There is likely to be significant variation between jurisdictions in their costs of administering any regulatory arrangements. To account for this, we have taken a broad average of jurisdictions' estimated costs for each option. As these could be significantly higher or lower for individual jurisdictions, the sensitivity analysis specifically analysed changes (100% increase and 50% decrease) to government costs to reflect potential jurisdictional differences. Options 2A and 3A were most impacted due to government costs being a majority of their overall costs.
4. Overall, the total incremental Industry costs associated with each option are estimated to be between $0 (Option 2A and 3A) and $8.0 million (Option 4), assuming 271 pet food manufacturing and importing businesses.
    a. The actual impact on specific pet food businesses will be a function of several factors, including the implementation approach of each option, such as the type of regulation (prescriptive versus outcomes-based) or the structure of any funding agreements to aid implementation, such as business grants. The volumes of pet food produced or imported by the relevant business is also a

key factor, and whether the product currently complies with AS5812 (for the options that mandate the standard).

b. There is insufficient information to be able to quantify the impact of the policy options on the price of specific pet food sold in Australia. However, in general:

   i. It is likely that producers and importers who are not part of the PFIAA and do not undertake voluntary audits will be affected by any costs imposed on the industry from the policy options. These businesses include a significant number of small to medium pet food manufacturers and importers.

   ii. We expect that the price of pet food sold in Australia by PFIAA members is unlikely to increase substantially as a result of the policy options, given they comply with AS5812. We understand these businesses produce 60-80% of the pet food sold in Australia by volume, although they comprise 11% of all pet food manufacturers and importers.

5. There is insufficient evidence to estimate the efficacy of the policy options in terms of their impact on reducing the cost of pet food safety incidents. As such, there is a risk that introducing regulation may not reduce the impact of pet food safety incidents in line with the cost of administering regulation.

6. Further information on pet food safety incidents, including information on the prevalence of different outcomes from pet food safety incidents (e.g. disease classification) and the number of affected pets, would materially improve the specificity and confidence of these results and better inform future policy development in relation to pet food safety in Australia. This information is not available and would require significant time and resources to collect.

Appendix 1. Data assumptions

The following table outlines the data assumptions we have used for the CBA.

Category	Assumption	Value	Description	Source
Global assumptions	**Discount rate**	7% with sensitivity analysis for 3% and 10%	A standard 7 per cent discount rate allows for consistent comparison across pet food safety options, and values of 3 per cent and 10 per cent represent a meaningful range to test whether the outcome of a CBA is sensitive to the choice of a discount rate.	OIA Guidelines https://oia.pmc.gov.au/resources/guidance-assessing-impacts/cost-benefit-analysis
	Analysis period	20 years	2023 is the base year applied to all options with development costs on the basis that it is the most completed year.	OIA Guidelines https://oia.pmc.gov.au/resources/guidance-assessing-impacts/cost-benefit-analysis
Option implementation date	**Option 1 Base Case**	1 July 2023	The date each Option will be implemented.	Discussions with stakeholders and jurisdictions
	Option 2	1 January 2027		
	Option 2A	1 July 2026		
	Option 3	1 January 2027		
	Option 3A	1 July 2026		
	Option 4	1 January 2028		
Pet ownership in Australia	**Household penetration**	Dog 48% Cats 33%	The percentage of households that have a pet.	Based on Animal Medicines Australia Survey on 'Pets in Australia' in 2022

	Average animals per household	Dog 1.3 Cats 1.6	The number of pets per household that has pets.	
	Estimated number of pets in Australia 2023	Dogs 6.4 million (of which 270,000 are working farm dogs) Cats 5.3 million		
Industry and Government labour rates	**Work-related labour costs**	$79.63 per hour	The default labour rates are for costing individuals performing a regulatory task, whether as part of their employment in a business or community organisation or as a private citizen in their leisure time.	OIA Regulatory Burden Measurement Framework Guidance Note https://oia.pmc.gov.au/resources/guidance-assessing-impacts/regulatory-burden-measurement-framework
	Non-work-related labour costs	$36 per hour		
Pet health benefits	**Avoided morbidity bills (2022 $)**	$1,400 per ill pet	The average cost of treating gastroenteritis	Pet insurance claim values reported by the RSPCA
Pet health benefits	**Avoided mortality death (2022 $)**	$16,000 per death $25,000 per death of a working dog	The value of a statistical dog life (VSDL) is estimated to be $16,000 for a dog (excludes working dogs).	Carlson, D., Haeder, S., Jenkins-Smith, H., Ripberger, J., Silva, C. and Weimer, D. (2019) "Monetizing Bowser: A Contingent Valuation of the Statistical Value of Dog Life," Journal of Benefit-Cost Analysis. Cambridge University Press, 11(1), pp. 131–149. Doi: 10.1017/bca.2019.33.

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<tr><td></td><td></td><td></td><td></td><td>Arnott, E. & Early, Jonathan & Wade, Claire & McGreevy, Paul. (2014). Estimating the economic value of Australian stock herding dogs. Animal Welfare. 23. 10.7120/09627286.23.2.189.</td></tr>
<tr><td></td><td>Median pet age when an incident occurs</td><td>5 years</td><td>The median pet age for a dog is about 10 years. We have assumed a pet food incident will occur in year 5.</td><td>Teng, K.Ty., Brodbelt, D.C., Pegram, C. et al. Life tables of annual life expectancy and mortality for companion dogs in the United Kingdom. Sci Rep 12, 6415 (2022). https://www.nature.com/articles/s41598-022-10341-6#citeas</td></tr>
<tr><td>Travel costs</td><td>The time associated with travel to a veterinarian</td><td>$36/hr</td><td>The default labour rates for leisure time</td><td>OIA Regulatory Burden Measurement Framework Guidance Note https://oia.pmc.gov.au/resources/guidance-assessing-impacts/regulatory-burden-measurement-framework</td></tr>
<tr><td>Government Costs (FTE)</td><td colspan="3">Government Costs
<table>
<tr><th></th><th>Option 1</th><th>Option 2</th><th>Option 2A</th><th>Option 3</th><th>Option 3A</th><th>Option 4</th></tr>
<tr><td>Administration</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Set-up</td><td>0</td><td>19.8</td><td>18</td><td>19.8</td><td>18</td><td>37.8</td></tr>
<tr><td>Ongoing pa</td><td>1</td><td>3</td><td>3</td><td>9.3</td><td>9.3</td><td>16.5</td></tr>
</table></td><td>Discussions with stakeholders and jurisdictions</td></tr>
</table>

		Education and public awareness							
		Set-up	0	1.8	1.8	1.8	1.8	2.7	
		Reporting and complaints handling							
		Set-up	0	0	0	2	2	2	
		Ongoing pa	0	0	0	4	4	4	
	Total FTE	**Set-up**	**0**	**21.6**	**19.8**	**23.6**	**21.8**	**42.5**	
		Ongoing pa	**1**	**3**	**3**	**13.3**	**13.3**	**20.5**	
Industry Costs (FTE)	**Industry costs**		**Option 1**	**Option 2**	**Option 2A**	**Option 3**	**Option 3A**	**Option 4**	Discussions with stakeholders and jurisdictions
		Compliance rate	11% (PFIAA members only)	80%	11% (PFIAA members only)	80%	11% (PFIAA members only)	97%	
		Administration costs	$145,000 per year	$802,300 per year	$145,000 per year	$802,300 per year	$145,000 per year	$963,545 per year	
		Substantive costs (average hours/year per business)	4.2	16	4.2	16	4.2	19.4	IBIS World report *Pet food production in Australia* from 2022, PFIAA website
		Industry members and average audit costs	Total pet food manufacturers and importers: 271 PFIAA members: 29 ($5,000 per audit) Non-PFIAA members: 242 ($3,500 per audit)						

Appendix 2. Assessment of long listed options

Table 16: Assessment of Long List of options

Option	Regulatory type	Effectiveness	Feasibility	Cost-effectiveness / proportionality	Stakeholder support	Shortlisted
1.	**Light touch regulation**	Unlikely to be effective due to the voluntary approach	Relatively feasible and easy to implement without the need to consider other legislation	Relatively cost-effective but not proportionate to address the problem	Not supported for shortlisting	No
2.	**Co-regulation**	Potentially effective	Relatively feasible and easy to implement with minor changes to legislation	Relatively cost-effective and likely proportionate to address the problem	Stakeholders supported the shortlisting of this Option	Yes
3.	**Regulation (ACL)**	Potentially effective	Relatively feasible with further exploration with ACCC on how consistent it is with the ACL	Relatively cost-effective and likely proportionate to address the problem	Stakeholders supported the shortlisting of this Option	Yes with changes to broaden beyond just ACL
4.	**Regulation (FSANZ)**	Potentially effective	Relatively feasible with further exploration with Jurisdictions and FSANZ on consistency.	Relatively cost-effective and likely proportionate to address the problem	Stakeholders supported the shortlisting of this Option to be combined with Option 5	Yes with changes to broaden beyond just FSANZ
5.	**Regulation (Jurisdiction regulation)**	Potentially effective	Relatively feasible with further exploration with Jurisdictions on consistency.	Relatively cost-effective and likely proportionate to address the problem	Stakeholders supported the shortlisting of this	

Option	Regulatory type	Effectiveness	Feasibility	Cost-effectiveness / proportionality	Stakeholder support	Shortlisted
					Option to be combined with Option 4	
6.	**Regulation (Commonwealth - new regulatory body)**	Potentially effective	Not feasible to implement, and substantial effort would be required to make consistent	Not cost-effective or proportionate to the problem	Not supported for shortlisting	No

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