

The current status of livestock quarantine in Australia

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Abstract

Objective: Secure data from veterinarians regarding the impact of the Frawley Review of 2003 on livestock quarantine.

Design: Oral history interviews were conducted with veterinary personnel involved in quarantine.

Results: Ten invitations were sent to veterinary quarantine personnel, eight accepted and participated in the project. The research consisted of oral history interviews which were conducted in 2015/2016. Each respondent agreed that livestock quarantine was necessary for Australia and required the participation of veterinarians for its success. All had misgivings regarding the current status of quarantine, especially surveillance and monitoring. All recognised that Frawley made a contribution to the debate regarding quarantine, but had not led to an improvement of the system. Interviewees were not confident about Australia's future status as a "Clean and Green" nation.

Conclusions: The efficacy of the Quarantine system of economic livestock in Australia has been questioned for some time and the Frawley Review recommendations have done little to ameliorate the situation.

Abbreviations: AVR: Australian Veterinary Reserve; AHA: Animal Health Australia; AQIS: Australian Quarantine and Inspection Service; TPP: Trans-Pacific Partnership

Introduction

Australia enjoys a unique reputation in livestock trade because it is relatively disease-free. However, a number of reviews have raised the issue of the vulnerability of our quarantine system [1-4]. In 2002, the Commonwealth Government initiated a review of veterinary service in Australia. The review was chaired by Peter Frawley and became known as the Frawley Review. It was published in 2003 [3].

Addressing the issue of quarantine surveillance and monitoring, Frawley stated;

The current surveillance and monitoring system is unlikely to continue to meet the increasing stringent requirements of Australia's trading partners for assurances about disease freedom and status.

This research was undertaken to assess whether Frawley had improved Australia's livestock quarantine since its release. It consisted of oral history interviews conducted with quarantine veterinary personnel during 2015-2016 [5,6].

Procedure

To determine the current status of livestock quarantine in Australia, a research project was undertaken to interview quarantine veterinary personnel. This research was conducted under the auspices of Murdoch University. An oral history questionnaire was designed for the interview of animal quarantine veterinary personnel and submitted to the Human Ethics Research Committee of Murdoch University for approval.

Once sanctioned, 10 quarantine veterinarians were invited to participate in the project. Each was contacted by email and received an "Introductory Letter" outlining the purpose of the research, assuring anonymity and indicating that the interview was for research purposes

only. In addition, they received a "Consent Form", to be signed by those prepared to be interviewed.

Participants answered the same set of questions. Interviews were conducted at a time and place convenient for participants and took, on average, one and a half hours. Each interview was digitally recorded and the interviewee received a copy. The record of the interview was transcribed and responses to a series of questions were documented maintaining the interviewee's anonymity. Answers to questions are in italics, indented and placed in a different font to the main body of the article.

Results

Personal details

Ten invitations were sent and eight accepted. All, with one exception, were born in Australia. They were born between 1937 and 1957 and graduated, as veterinarians, between 1960 and 1980. Seven graduated from Australian Veterinary Schools and one graduated in the United Kingdom.

All interviewees were past or present government employees. Some allocated most of their working-life to quarantine service, whilst others had spent time working in other veterinary activities.

Quarantine questions

1. Is quarantine necessary?

Interviewees were asked if they considered Australia's livestock quarantine essential? Everyone responded in the affirmative;

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Yep, you do need a quarantine system, but you need one that is flexible and one of the big issues is that you can have a program that looks good on paper, but doesn't deliver an effective outcome. You need people who look where the risks are, not follow rigid guidelines.

There is a good case for biosecurity, but it needs to be well thought-out and targeted. What are the important diseases we are trying to keep out? And this should be done industry by industry.

It is important to maintain our clean and green image. It's essential, not just because of the animal welfare issue, but increasingly we are operating in a global market for our commodities and increasingly you need to have a niche in the market place, and Australia has got the image, so as much as anything else it is a marketing advantage and that will only increase dramatically as the free trade agreements and the TPP come on board.

Definitely, because of a range of things, primarily for our export industries, it is critical, but for human health and animal productivity, to minimise disease and maximize productivity. But number one is definitely export potential. If we don't have surveillance, we can't confirm we are free of diseases we are not going to export our product, and I think that is number one.

Absolutely, we need it; the modelling that is out there shows that if we get the wrong animal diseases here it would be catastrophic for trade. And think of all the free-trade agreements we have got now. A lot of that is predicated on a certain amount of our disease-free status. There is a huge economic impact and there is an environmental impact with diseases that could affect our native species, so absolutely it is very important.

2. Is our present system adequate?

Respondents varied in their assessment of Australia's present system and state of preparedness;

As to surveillance at this time it has to be said that passive surveillance has been degraded by the loss of regional government veterinary services across Australia. The system under which regions or districts were led by a DVO or RVO with VO's and stock inspectors and the support of free production animal laboratory services and advisors and extension officers provided very effective surveillance. Given that much of that infrastructure is no longer available surveillance is inevitably affected.

You will never get rid of all the holes. I think the emphasis has to shift to prevention rather than detection; try and stop the stuff getting in rather than to flog surveillance. You can do surveillance, but rather, try to prevent it, which means stopping it off-shore.

The fundamental question will still be that we should be applying good science, good rational thoughts. The people setting policy often do not have a good grounding in the science and they need direction by people who have a sound understanding in these areas, such as vets.

Everyone understands that prevention is better than cure, but nobody will try it – look at Ebola. It is easy to get money for curing a problem after the event has started, but it's a different matter when you try to prevent. It is not good to start asking the vital question when you already have a problem

Most, if not all emerging diseases come from south-east Asia, and that's where we should be investing in prevention.

It's not just trying to keep it out, but knowing what sort of risk we are taking.

It's hard to get producers to pay for surveillance and monitoring...the problem will be to know what it is important and what to look for...there are a number of actions that are not really needed.

We haven't looked at what were the important pathways and the real threat and what was the best place to put our dollars.

We give the impression that we have an effective quarantine apparatus in place that can be brought into effect at a moment's notice; but this is not the case.

There is no veterinarian who is in position to influence government ministers in Australia today...A message the profession needs to hear today is there is a need for leadership and this requires more than an administrator, you have got to have a vision and an ability to build a network of people who can bring about change. Leadership is seriously lacking.

At present I don't think responsible personnel are targeting the risks as well as they might.

Quarantine people should be flexible. The issue isn't protocols, but the people who operate these protocols as was seen in the Equine Influenza outbreak a few years ago. The protocols were ok, but they weren't followed by the people involved in quarantine. You need competent people as well as competent protocols.

Good risk assessment is not in place and I'm not convinced that we have the expertise to assess these different risk.

Not only is our surveillance and monitoring compromised, the question really is, do we have competent staff to conduct it?

3. Your assessment of the Lindsay and Nairn Reviews?

Not all interviewees were well informed regarding these two reviews of the 20th century.^{1,2} As a result, not all answered this question;

Basically, the minister, John Kerin, Dave Lindsay and the members of the committee, wanted a hard review. I was on the team and David was good because we asked hard questions like the gross waste of money of the current quarantine system...The plant quarantine guy on the team said if we removed plant quarantine from the budget it would make no difference because we are getting so many weeds into the country we are getting so many bulbs and materials going into garden centres and they can then get out into the bush.

The Lindsay Review set-up the Nairn Review.

I agree that the Nairn Review was the most significant review of the 20th century regarding quarantine and Nairn has every reason to be frustrated about the lack of action that came out of it. He is very practical and has the capacity to engage with people who are on the ground and get information out of them, and a lot of people can't do that, especially bureaucrats. The people at the coal face know who is genuine, and the question then is, are they prepared to share that information with someone from the outside? One of his skills is that he relates very easily and people relate to him and then they are very willing to share information with him.

What I don't know is what changed as a result of the various reviews, because I don't have enough data...But the positive thing, I suppose you could say, Australia has had little devastating incursions and is that because we are isolated or it is because of the effectiveness of our quarantine measures? It's probably a bit of both.

4. Your assessment of the Frawley Review?

All interviewees were aware of the Frawley Review and were prepared to comment on it.¹ Each interviewee recognised the contribution made by the Frawley Review of 2003;

I like what was said about surveillance and agreed with Frawley's marrying surveillance with veterinary surgeons.

Frawley did not impact on surveillance and monitoring, because it wasn't given resources.

If the government sponsors a review, it is going to have to decide if they will support its recommendations and support it with money.

Frawley highlighted the problems, but did not lead to execution and, although a lot has happened since the release of Frawley, it could be circumstantial and there is no definite tying it down to Frawley.

Frawley wanted private veterinarians to work in partnership with government.

Frawley tried to develop a system of support for animal production by insuring good veterinary support with effective prevention of disease, monitoring of disease and eradication of disease. But how can you go about that when, in Sydney, you've got vets spaying dogs and cats all day? How can you get these people back in the field?

The Frawley review provided a good opportunity, but in the intervening years, the response has been less than adequate. Today, professional judgement is based on Google.

What did Frawley achieve? It achieved nothing, but it is still relevant today; the challenge is still with us.

All forms of agricultural activity are dying – agriculture itself and ancillary services such as Farm Advisory services, the Pasture Protection authorities, and when you try to get money out of farmers it's not always easy... If you are going to have a sustainable service in rural areas, what can you do? Are you going to use government vets or private vets? How do you train them? How do you give advice in real time of an emerging problem? There are so few of these people in the field. It all comes down to supply and demand.

In fact, surveillance has probably deteriorated further since Frawley. The number of government officers employed by DAFWA has probably decreased.

I would agree that our quarantine, surveillance and monitoring has degenerated over time. Certainly, surveillance and monitoring, we are far weaker than we have ever been. Quarantine as the boarder approach has probably decreased due to the massive increase in people coming here. I don't think it has reduced as such, and certainly not as much as surveillance has decreased. Stopping things at the boarder has dramatically deteriorated, but detecting anything here has deteriorated and the general public is not on-side, and I find that disturbing because people don't consider what would happen if we got rabies into this country...The Johnny Depp dog saga could have been used in a positive manner instead of the farce it became.

I think our quarantine and surveillance is flakier today than when Frawley reported on it, especially in terms of the comprehensiveness of the actual physical surveillance. Quarantine is more sophisticated in terms of the analysis side and I think we are just seeing the beginnings of people using the internet as a proxy for surveillance. So, for example, in this school, there is a team who predict paralysis tick numbers from examining the number of cases seen in a certain area. It is an indirect

measure but it seems to be fairly reliable. This desk-top analysis side is relatively sophisticated, but the out there scanning, surveillance, looking, actual physical recording is much less than it was.

5. Your assessment of the Australian Veterinary Reserve?

A major recommendation of Frawley was the formation of the AVR – its initial establishment was funded by the Commonwealth Government and it was maintained by AHA.¹ There was comment from all interviewees regarding the AVR.

The major thrust of Frawley was the Australian Veterinary Reserve. One hundred practitioners signed up and some were involved with Equine Influenza. Today, I'd be surprised if you could get 100 rural vets to sign up for a program of surveillance. I have the impression that today's male graduates are not really interested in rural practice.

The concept of the veterinary reserve was a good one for training people and getting them skilled in diagnosing exotic disorders.

Two Million dollars was made available initially as "seed money" for the establishment of the Australian Veterinary Reserve, but no further money was made available.

Although in the very first cohort of members, I only functioned once during the whole time of the reserve and that was in the 2007 outbreak of Equine Influenza...the concept came under attack for its performance, but this criticism came from government veterinary officers who had a vested interest in wanting the money made available for the reserve for themselves.

I have seen too many examples of recommendations wither because no one is responsible for driving it forward and being accountable for it.

There is no functioning Australian Veterinary Reserve today.

Was the AVR the priority Frawley claimed? I think the concept, that we have centrally the skills and the capacity to deal with a major emergency, particularly an exotic disease incursion was good, but I don't think the execution of it has led us any closer to where we need to be.

I contacted AHA with a request for information on the current status of the AVR and received the following advice on 13 October 2015 (personal communication). The AVR was no longer in existence. One hundred practitioners were trained in the two AUSTVETPLAN roles of field surveillance and surveillance training officers. There were two recruitment rounds during 2004-2006 and after that the program went into "maintenance phase" with continued training for existing members. In 2012, the AHA handed back the management of the AVR to the Department of Agriculture. The advice made the point that during the Equine Influenza outbreak of 2007, the AVR did not function as originally intended with many practitioners unable to assist with the response.

6. Your assessment of the Beale review?

Although the Equine Influenza outbreak of 2007 can be seen as a trigger for the Beale Review, some respondents questioned its establishment at all, as they thought it provided little advancement to Nairn's Review.^{2,4}

Only two interviewees responded to this question;

Elements of Beale have been useful, but the most important thing about Beale was the Equine Influenza problem...the impact of Beale could be traced back to the awareness of the public and politicians about quarantine and the consequences of its breakdown...I recognise what I

call the 'DEAD cycle' you have a disaster, you conduct and expensive enquiry, which is followed by apathy, and then you have another disaster and this related to Beale. You had a disaster, Equine Influenza, you had the expenditure of an enquiry, you now have apathy waiting for the next disaster.

Beale made no mention of the Australian Veterinary Reserve.

7. Risk Management in animal quarantine?

A major element of quarantine is risk management and some responded to the question of the importance of risk management to quarantine;

Our whole world as veterinarians is designed around managing risk, evaluating risk, mitigating risk, minimising risk... Our profession has failed to seize the opportunity offered by risk-management. We should be at the forefront.

There is the risk involved in quarantine related to the resources that are made available to it...I wonder if the resources made available are based on a knowledge of the risk or just because it looks good to do.

I advocate the adoption of a risk management approach, and veterinarians are the ones who learn about risk from day one, they have it in their DNA. We should be employed to mitigate risk, but the profession has not come to this conclusion yet. We are the champions of risk management and the world needs competent risk management and our profession could play a major role.

I think in terms of animals the risk is seen to be in northern Australia, maybe illegal importations, but I do wonder about the importation of exotic species as pets being a bigger threat than the traditional livestock threat. Who tests the introductions of exotic pets into this country and what test are being performed?

Good risk assessment is not in place and I'm not convinced that we have the expertise to assess these different risks.

8. The risk of Foot-and-Mouth Disease?

FMD is always placed at the top of the list of exotic livestock disease threats to Australia. However, the only documented account of the disease occurring here was nearly 150 years ago.^{7,8} (Fisher, Bunn) Either our quarantine has been effective, or the disease has had difficulty establishing itself here.

There were a range of views expressed regarding the introduction of FMD into Australia and its consequences;

There is a lot of nonsense talked about the threat of Foot-and-Mouth Disease...a lot of exaggeration is bandied about and what it does is make the public aware of the threat. However, a great deal of it is a waste of time.

At the time of the FMD outbreak in the UK, there were 50 other countries in the world that had FMD, but we only cleaned shoes from people from the UK...If there was an outbreak of FMD in Victoria you don't shut the whole country down.

If we get FMD in this country the cost will be \$50 billion in the first year.

FMD is a real threat, but I am not convinced that it is the major threat. In the past, we were really secure with our position regarding FMD, but now that there is the threat of global terrorism, I am more concerned about bio-terrorism rather than straight out terrorism. If you

want to cripple Australia, introduce FMD into the north; it would have a huge impact. It wouldn't be hard to do, so I am more concerned with FMD as a bio-terrorism act rather than an accidental introduction in the normal course of events...Globally, everyone talks about FMD and seldom mentions any others...If FMD gets into a piggery or feedlot in the south, it will be quickly identified, but that is not the case in the north.

I think it's real enough and I think it is a major proxy we use when mounting an argument for improved quarantine. I think absolutely it is a real risk. I think information about global animal disease information is essential. However, it is one thing to make recommendations and another thing to implement the recommendations. Ministers and bureaucrats are needed who are committed to expedite the recommendations; this is the failure of Frawley. Today for government, it's all about maintaining the absence of a problem; if you can do that then it's no longer a problem that needs immediate attention. You need to frame your recommendations in a way that you know will lead to their implementation. With Frawley, the recommendations were unlikely to be implemented unless they had ministerial support and that wasn't forthcoming.

9. Your assessment of the future of animal quarantine?

The final question concerned the future of quarantine and the role veterinarians could play;

We are a victim of our own conservatism. All too often, individually and as a profession, an issue comes along it is an issue we have expertise in and the wider community would probably agree that we have expertise, but we do nothing and say nothing and a vacuum is created, for example, animal welfare, and the vacuum is filled by incompetent, but enthusiastic people and what do we do as a profession? We sit back and suck on our beer and say we are the ones who should be consulted.

In WA, the pastoral industry strongly supported the establishment of the veterinary school, which should have been established at the University of Western Australia, but was not. Murdoch did not fulfil its promise and its premise for coming into existence. I asked a student from Murdoch, how many of your classmates will end up in agriculture and she said, I can't think of anyone... Veterinary schools are extremely expensive and someone should do a cost-benefit analysis of their productivity...If I was the paymaster and I was confronted with the prospect of financing veterinary schools to produce dog and cat vets then the answer is, I wouldn't do it.

If you want to remain relevant, then get yourselves into areas where there is a need and where Australia has an opportunity for a marketing advantage.

The problem in Australia at the moment is that we can't get the message across to enough urban Australians of the value of agriculture and the major political parties do not consider agriculture critically important anymore.

In my view, it all starts with education. Education can teach people to think rather than just assemble stuff, cribbing off each other and getting good on-line assessments. If you can think, then the profession has a future, for we need a thinking profession.

My personal view is that we have to think outside the box in terms of how we use information that is already there – at the producer level, the local practitioner level, the abattoir level, and gather surveillance data from activities that are happening anyway...I think we have the capacity to connect these via the internet at a much higher level. There are opportunities and these would be fairly cost-effective. There is a lot of information available and we are not bringing it together.

At the moment, however, I can see a risk that something bad will happen from an unexpected quarter. We all are expecting FMD and so are prepared. But something could come from a quarter that is totally unrecognised and not scrutinised and will get away from us. Also, these unlikely sources of disease aren't going to be detected until well established. It could be a dog, a bird or any of the exotic animal species being introduced, we only seem to think in terms of traditional livestock diseases.

Discussion

The conduct of oral history interviews is an accepted research technique [5,6]. Here it was used to examine the efficacy of livestock quarantine in Australia and it did so by interviewing veterinarians involved in the provision of that service.

An aspect of Australia's future animal health is the maintenance of an effective quarantine capability. However, during the last 30 years there have been a series of inquiries which indicated disquiet with the system of Australia's quarantine service [1-4].

To examine this concern, eight quarantine veterinary personnel were questioned. The interviewees represented a mature and experienced cohort and their responses could be considered representative of those involved in this field of veterinary activity.

After securing personal details, the first questions posed was is quarantine necessary and is the current system adequate? All participants considered an effective animal quarantine system essential, but they expressed concern that the system in place was inadequate.

They emphasised the need for more flexible guidelines in the conduct of quarantine, with the emphasis on well thought-out and targeted measures, focusing on where the risks are most likely to arise.

There was general agreement that any program of surveillance must emphasise prevention rather than cure and must be properly funded for it to be effective.

Like Frawley, they saw a central role for veterinarians. Competent, well-trained veterinarians, well-grounded in risk assessment and management were considered essential. In addition, they should have a leadership role and not act purely as technicians. In the opinion of participants this lack of leadership by veterinarians has led to the policy decision-making being in the hands of those with little understanding of the science involved in the execution of quarantine.

Participants were asked for their assessment of two of the most significant reviews of the 20th century, namely, the Lindsay and Nairn Reviews [1,2]. Unfortunately, not all were familiar with these reviews. However, those that were, spoke highly of them and lamented their inadequate uptake.

Participants were asked to assess the Frawley Review [3]. This review found that there was a need for a more integrated system of national surveillance. In addition, Frawley considered rural veterinarians were a key resource in this endeavour.

Frawley proposed extension programs to producers, improved data collection and the commissioning of private practitioners to undertake surveillance activities. There is the precedent for the use of private practitioners in government sponsored veterinary programs, such as was seen in the Tuberculosis and Brucellosis Campaigns of the 20th century [7].

Frawley was critical of Australia's ability to meet what it termed "stringent requirements of international trade in the future" and the

centre-piece of its recommendations was the establishment of the AVR. The Commonwealth Government allocated two million dollars to establish a body of private practitioners who were to be available in case of the intrusion of an exotic disease into Australia.

Although 100 practitioners were trained, this effort failed when the plan was put into action. On the one occasion, it was implemented – the Equine Influenza outbreak in 2007 – the end result was criticism of the effort of those involved and the limited number of trained practitioners who made themselves available [8].

Frawley emphasised that Australia's capacity for surveillance depended on having skilled veterinary personnel in the field, supported by a capable diagnostic infrastructure and an effective system for recording and retrieving data relating to animal diseases. This was not likely to be met by government veterinary officers in the field, but was possible by utilising veterinarians in private rural practice. Further, there has been a decrease in State government diagnostic services and this raised the question, can the current diagnostic facilities meet the challenge? [9].

Finally, there would need to be a system of accurate recording and retrieval of surveillance and monitoring data.

All interviewees were aware of this review and provided their assessments. They agreed that Frawley's observations were accurate, but inadequate resourcing ensured its failure of implementation.

Frawley wanted to include private veterinarians in the quarantine mix in surveillance and monitoring. Participants considered this a good idea, but not likely at present, because a number thought that the veterinary profession's current attention was placed, almost entirely, on companion animal practice.

Frawley was followed by the Beale review in 2008 which recommended a change from "Quarantine" to "Biosecurity" to emphasise its objective of a system that allowed safe movement of animals, plants, people and cargo to and from Australia. Apart from the change in name, some respondents considered that this review added little that provided by Nairn in 1996 [2].

Beale also proposed changing the *Quarantine Act 1908* and replacing it with a new act. It also highlighted the need to reverse the declining capacity for biosecurity expertise [4].

Risk evaluation and its management are central to the conduct of quarantine and interviewees thought veterinary education and training provided them with a greater appreciation of "Risk" than other professionals. Under this heading, one emphasised the need for increased vigilance across Northern Australia.

FMD is always used as the most dangerous exotic disease for which Australia needs an effective quarantine service. This is in spite of the fact that the only recorded outbreak of this disease in Australia was in 1872 [10,11]. Responses ranged from an appreciation of its seriousness and cost associated with its eradication, to the threat being exaggerated.

In 2011, the Commonwealth Government commissioned a specific enquiry into how would our quarantine system cope with an incursion of FMD? This review was critical of a number of assumptions that had been made regarding Australia's preparedness for such an outbreak and made a series of recommendations to correct the shortfalls [12].

As to the future, opinion ranged from condemning the professions' conservatism to its failure to remain relevant. One stated the problem was the failure of urban Australia to value agriculture and the

perception that the major political parties do not consider agriculture important anymore.

Now, more than a dozen years later, the issues raised by Frawley can be examined. For example, did the AVR succeed in achieving its intended purpose? Although 100 rural private practitioners signed up, this body was utilised on one occasion, the Equine Influenza outbreak of 2007, and is now defunct.

Has surveillance and monitoring improved? Veterinary quarantine personnel indicated that they have deteriorated further and the report on the Equine Influenza outbreak in 2007 supports this position [10].

Does Australia have sufficient, competent surveillance operatives in place? Respondents stated that this was not the case.

Has the diagnostic laboratory infrastructure kept pace with requirements? Definitely not, as was foreseen by Gee in 1994 [11].

Have practitioners become an integral part of surveillance? Private practitioners have not, as yet, been allocated a significant role in Australia's quarantine.

Frawley failed to deliver an improvement in the status of Australia's surveillance and monitoring capability and so its findings of an underperforming system remain.

Conclusion

Since the beginning of the 21st century, a number of incursions of exotic disease have occurred in Australia, so the conclusion to be reached is that Frawley did not significantly improve Australia's surveillance and monitoring capacity. For that matter, the release of the Beale Review in 2008, in response to the Equine Influenza incursion, has not significantly improved our capacity to mount an effective barrier to the introduction of exotic diseases of livestock in Australia, as was made clear in the Matthews Review of 2011.

The major implementation of the Frawley Review was the establishment of the AVR. Although 100 private practitioners were recruited into this body, it was only called on to act on one occasion; the 2007 outbreak of Equine Influenza. Today it is inactive.

The essential questions to ask regarding Australia's surveillance and monitoring of exotic livestock diseases are – Is it necessary? – If so, how should it be conducted and by whom? Then the question becomes, who should pay for it and who should receive the data?

One interviewee made the observation that the focus needed to be on education that teaches students how to think, not just regurgitate data. For veterinarians to have a future in quarantine, or for that matter, any veterinary endeavour, we have to have a thinking profession.

Now, it is time to think, to consider a practical alternative to that which is in place. One that incorporates private rural practitioners, as well as State and Commonwealth veterinary personnel. One that is professionally conducted, commercially sustainable and properly funded. One that will provide accurate data and effective surveillance and monitoring.

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