



# Diseases of livestock in the Pacific Islands region: Setting priorities for food animal biosecurity



Aurélie Brioudes<sup>a,\*</sup>, Jeffrey Warner<sup>a</sup>, Robert Hedlefs<sup>a</sup>, Bruce Gummow<sup>a,b</sup>

<sup>a</sup> Discipline of Veterinary Sciences, College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville 4811, Queensland, Australia

<sup>b</sup> Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, Pretoria, South Africa

## ARTICLE INFO

### Article history:

Received 4 September 2014

Received in revised form

18 December 2014

Accepted 26 December 2014

Available online 5 January 2015

### Keywords:

Pacific Island

Tropical diseases

Prioritization

Animal health

Livestock

Food animal biosecurity

## ABSTRACT

Most Pacific Island countries and territories (PICTs) have developing economies and face a critical shortage of veterinarians with limited financial resources allocated to their animal disease surveillance programmes. Thus, animal health authorities have to set priorities for better focusing their scarce resources. The main objective of this study was to identify animal diseases perceived to be of importance by decision makers within selected PICTs, at the regional and national levels, to ensure better targeting of animal health resources. A second objective was to investigate whether the targeted surveillance programmes resulting from this rationalized approach would also benefit the local communities engaged in livestock production. A multi-criteria prioritization process was developed, involving local experts, to score and rank 132 animal diseases based on their priority at the regional and national levels for four PICTs: Fiji, Papua New Guinea, Solomon Islands, and Vanuatu, which form part of a regional Food Animal Biosecurity Network. In parallel interviews with farmers and field animal health and production workers were conducted to assess their perception of animal diseases. The list of the top-twenty ranked diseases for the Pacific Islands region shows a mix of endemic zoonotic diseases (such as leptospirosis ranked first; brucellosis third; tuberculosis sixth; and endoparasites and ectoparasites, respectively eleventh and thirteenth) with exotic diseases (such as HPAI ranked second, FMD fifth, and rabies ninth). There were different disease ranking lists for each of the four targeted PICTs, confirming different strategies of disease prevention and control may be required for each country, rather than a regional approach. Interviewed animal health and production workers were unfamiliar with most of the prioritized diseases and a majority acknowledged that they would not be able to recognize clinical signs if outbreaks were to occur in their area. Leptospirosis, which is endemic and identified as the top priority disease at the regional level, was never mentioned by any interviewed farmer. Farmers did not name any emerging infectious diseases as priorities. Instead, they identified endemic diseases (parasites, flu, coccidiosis, and scabies) as the most important. While animal disease priorities appear to differ widely between the targeted regions and countries, it also varies significantly between experts and farmers. Better targeted surveillance programmes may thus result in more rational and transparent allocation of resources, and thus enhanced food security, but may not directly match the needs of the local communities.

© 2015 Elsevier B.V. All rights reserved.

## 1. Introduction

In the Pacific Island countries and territories (PICTs) zoonotic diseases such as leptospirosis, scabies, bovine tuberculosis, and brucellosis are endemic (Brioudes et al., 2014; Kline et al., 2013), but these island countries tend to be free of serious infectious

livestock diseases such as highly pathogenic avian influenza, foot and mouth disease, classical swine fever, and rabies (Brioudes et al., 2014; Newman and McKenzie, 1991; Secretariat of the Pacific Community, 2009b; Yarrow, 2008). The potential introduction and/or dissemination of diseases threatens the development of the livestock sector and also represents a risk to humans who might be exposed to zoonosis, which account for about 75% of all emerging animal diseases. Veterinarians and field animal health workers are key players required to actively protect this favorable animal health situation but they are in severe shortage in the region (Osborne, 1974; Secretariat of the Pacific Community, 2006; Williams, 2008; Yarrow, 2008). In this context of limited

\* Corresponding author at: College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland 4811, Australia.

Tel.: +61 07 47814071; fax: +61 07 47791526.

E-mail address: [Aurelie.Brioudes@my.jcu.edu.au](mailto:Aurelie.Brioudes@my.jcu.edu.au) (A. Brioudes).

human and financial resources allocated to animal health and animal production programmes, a targeted, cost-efficient surveillance programme is crucial to protect the animal health status and to facilitate the trade of animals and animal products (Cardoen et al., 2009; Krause, 2008; Phylum, 2009; Woolhouse et al., 2011). The decision-making process for identification of which disease to target as a priority is complex, as it involves the combination of, not only technical information, but also some value judgements (Kurowicka et al., 2010). The process of prioritization, defined as the listing of diseases into a hierarchy considering their respective impacts, is thus a tool to assist decision-makers in selecting diseases that are most worthy of being addressed by public policies. The result of this prioritization can then be used to determine which prevention and control measures to implement first (Phylum, 2009).

Transparent and documented disease prioritization processes have now been quite widely conducted across the world, mostly in Europe (Balabanova et al., 2011; Gilsdorf and Krause, 2011; Havelaar et al., 2010; Humblet et al., 2012; McNulty et al., 2003; Simoes et al., 2012), but also in Africa (Uzochukwu et al., 2007), in the Middle East (Gibson, 2011), and more recently in North America (Ng and Sargeant, 2012a, b, 2013). It appears that only a limited number of prioritization exercises have been implemented for animal diseases globally (Humblet et al., 2012; McKenzie et al., 2007; Phylum, 2009; Van der Fels-Klerx et al., 2002). In the Pacific Islands region, a semi-quantitative prioritization process has been conducted by the public health sector of the Federate States of Micronesia for a revised selection of diseases to include in the National Notifiable Diseases List (Pavlin et al., 2010). Besides the initial steps taken towards a prioritization of livestock diseases in 1974 (Osborne, 1974) and the ranking of animal diseases during the GTADs conferences in 2009 and 2013 (Secretariat of the Pacific Community, 2009b, 2013), the rational and structured prioritization of animal diseases in the entire Pacific Islands region has yet to be conducted.

In 2010, a Food Animal Biosecurity Network (FABN) was established between Fiji, Papua New Guinea (PNG), Vanuatu, and Solomon Islands (hereafter defined as “FABN countries”), with the aim of “delivering enhanced animal health field and laboratory capability to the Pacific islands, particularly in the area of animal disease surveillance, to allow assessment under OIE guidelines for trade in animals and animal products”. This paper focuses on the FABN countries which can be viewed as a well-defined cluster of Pacific Island countries representative of the PICTs.

## 2. Objectives

The primary objective of this study was to prioritize the animal diseases of greatest importance within the Pacific Islands region, at both the regional and national levels, based on the opinion of animal health officials.

In addition, the study investigated whether targeted surveillance programmes based on the opinion of animal health officials would also benefit the local communities making their living from livestock production.

## 3. Methods

This study comprises two components: first the rational and structured prioritization of animal diseases through an expert elicitation process, and secondly a field survey to capture the animal disease perception of farmers and field-based animal health and production workers (AHPW).

### 3.1. Prioritization of diseases by regional and national experts

#### 3.1.1. Eligible animal diseases

The first step in the prioritization of diseases was to create a comprehensive list of eligible diseases in order to avoid elimination *a priori* of any diseases of interest for the region. The list included present and exotic diseases that could potentially pose a risk to the study area. Because the surveillance of aquatic animal diseases fits into a very specific and generally different veterinary public health approach, the study list was limited to terrestrial domestic animal diseases only.

The selection of diseases for the list was based on Brioudes et al.'s work (Brioudes and Gummow, 2013; Brioudes et al., 2014) that provided a review of diseases within the Pacific Islands region. The list also included diseases that had been officially reported by neighboring countries of the Pacific Islands countries (i.e., Australia, New Zealand, and Indonesia) to the World Organisation for Animal Health (OIE) between 2008 (starting date of the World Animal Health Information Database (OIE, 2013a)) and 2012. Since the detailed and extensive list of parasites presented in some of the references retrieved through the literature review could not be realistically included in the list of eligible diseases, these parasites were compiled under the generic terminologies of “endoparasites” and “ectoparasites” (Martin, 1999a,b,c; Martin and Epstein, 1999; Owen, 2005, 2011; Saville, 1994, 1996a,b,c,d, 1999). In total, this selection process produced a list of 132 selected diseases for the prioritization exercise.

#### 3.1.2. Panel of experts

A two-stage expert opinion elicitation study was conducted to prioritize animal disease at the regional and national levels in the four FABN countries.

**3.1.2.1. Regional experts.** The Secretariat of the Pacific Community (SPC) is an international organization that works in various areas, including public health and agriculture to help the people from its 22 member countries and territories achieve sustainable development. While this organization appoints experts from all around the world, a majority of them are from the Pacific Island region.

Regional experts used in the study were from the Animal Health and Production Team, Land Resources Division, and from the Public Health Division of SPC as well as experts from the local representation of the World Health Organisation. They were invited to participate in two workshops conducted at SPC, in Suva, Fiji. In total, five technical staff from the Animal and Production Team of SPC participated in this prioritization of animal diseases of the Pacific Island region.

A Delphi technique was used to elicit expert opinion at the workshops held in May and July 2012. The first workshop started with a general presentation on disease prioritization processes. The list of diseases selected on the basis of the literature review was presented to the group of experts and a discussion was held on whether to include other diseases. The key results obtained from the literature review on domestic animal diseases of the Pacific Islands region were distributed for information to the experts to assist them with the most up-to-date data on the diseases to be scored. A list of 10 criteria was defined on the basis of the literature review and the needs for criteria modification and for inclusion or exclusion of some criteria were discussed among the group of experts. The scoring system for each of the selected criteria was presented and revised based on experts' suggestions. Experts were directed not to score a criterion if they felt insufficiently competent in relation to a particular disease. The option of attributing different weights to the criteria for taking into account their relative importance was discussed before starting the scoring of the diseases. The regional experts decided as a consensus not to apply any such weighting.

Download English Version:

<https://daneshyari.com/en/article/6127083>

Download Persian Version:

<https://daneshyari.com/article/6127083>

[Daneshyari.com](https://daneshyari.com)