Discussion and draft recommendations

Rabies risk assessment

The risk assessment methods and tools presented during the workshop were valued by the participants. Approaches to collecting expert opinion at both provincial/state and national levels were seen as practical and able to be implemented.

There is a need for simple risk assessment methods to be promoted within animal health and the risk assessment community. The challenge of engaging with decision-makers and politicians was acknowledged. The application of simple tools might facilitate this engagement process. Also, the validity of the process for transboundary diseases such as rabies needs to be argued and promoted. Having access to the (limited) peer-reviewed, published literature on rabies risk assessment would assist.

Although the methods and tools presented in the workshop were focused on the international and transboundary spread of rabies, their use for country-specific internal disease control was appreciated. The control of rabies spread within islands in this region is needed to enable international control of rabies spread.

There is great value in carefully documenting and extracting expert opinion and local knowledge. Participants expressed a desire to develop these skills. It was acknowledged that the highly technical numerical needs of risk assessment modelling can be a barrier to the regular implementation of this methodology; but the practical aspects – especially the development of risk pathways and expert opinion – is an area in which animal health officers can actively engage.

Access to – and further development of – standards and guidelines is desirable. Also, the application of risk assessment methodology to a zoning approach and freedom-from-disease for rabies in the region is a need.

During the workshop participants appreciated the issues of data quality in terms of valid risk assessments. This process has benefits for highlighting data gaps and promoting research priorities. It also has a role in preparedness training.

Other needs identified included training in participatory methods, and links to public health.

Rabies disease spread modelling

How rabies spread modelling can be used to improve disease control and prevent spread was discussed. There was a focus on what is needed to facilitate the use of this method.

In Bali there was an intense debate about culling versus vaccination as a disease response, during the period 2008–2013. However, since 2014 the response to rabies has predominantly focused on vaccination (with 400,000–600,000 dogs being vaccinated). The change in strategy has been largely attributed to disease spread modelling, which provide the information to convince decision-makers and politicians of the futility of a culling-focused strategy. This is a major “success story” for disease spread

modelling. Modelling has also been used to target disease response (for example, in certain locations) and has been applied to the issue of demonstration of freedom from disease.

A critical data gap for quality rabies modelling is dog demographics, and particularly population size and turnover rate.

In the Bali situation, it took approximately 12 months to produce robust modelling results.

Models can be used as a "check" for proposed rabies disease control strategies, and are acknowledged to depend on the assumptions that have been made. This might highlight policy gaps not identified otherwise.

It was observed that modelling is more useful during the eradication and end-stages of rabies campaigns.

There is a need to document field activities, and data that has been collected, that might be invaluable for use in rabies spread modelling. Even "stories" and anecdotes can prove useful in this regard. The is a need for modelling capacity and training – both at the "high end" of coding and infectious disease epidemiology and at the field end in terms of data gathering to facilitate modelling.

Draft Recommendation 1

Investigate in detail the socio-cultural drivers and motivators of dog movements across the Indonesian–Malaysian land border and more broadly throughout the region. This needs to be achieved via an integrated epidemiological–sociological approach, concurrent with tool development.

During the West Kalimantan field trip conducted by the OIE Experts, a range of reasons why people move dogs were proposed. In addition, some of these explanations were confirmed during the workshop and pre-workshop meeting, and other explanations were provided. Sociological and anthropological methods could be applied to understand these drivers, and epidemiological data collection would enable their implications for rabies spread to be quantified.

Draft Recommendation 2

Build capacity in expert opinion data gathering methods and use of appropriate tools.

The application of risk assessment and disease spread modelling methods require information on a wide range of parameters. In most situations, this data is unavailable. To produce information from these analytical methods then, we need to rely on expert opinion to fill the data gaps. A range of methods are available, and training is needed to enable regions and countries to collect the necessary data to facilitate rabies risk assessment and disease spread modelling.

Draft Recommendation 3

Prioritise identified regional disease spread pathways for disease surveillance. Regular inter- and intra-country discussions, together with accessible risk assessment and prioritisation tools, such as the spreadsheets used in this workshop, are needed.

To reach the goal of regional rabies control, the ongoing spread of rabies needs to be halted so that rabies control programs can have an effect. Preventing disease spread requires a deep understanding of existing and emerging disease spread pathways, followed by prioritisation and data collection. This approach is best achieved via regular (annual) regional discussions, as demonstrated in this workshop. The OIE or FAO could lead such annual discussions.

Draft Recommendation 4

Invest in data collection and analysis of basic dog demographics, and in-country training

During the workshop, a brief presentation of approaches to estimating dog population sizes was given. The workshop participants showed strong interest in these methods and particularly how these could be applied. In most regions, the size of the dog population at-risk of rabies is not well enumerated. This has implications for disease response (e.g. number of vaccine doses, level of herd immunity), surveillance and disease freedom, and risk assessment and disease spread modelling. Most methods for dog counting are easily implemented and require minimal technology. Workshop participants strongly believed that further training in these methods would be of value in rabies disease control and prevention.