

The social and political impact of animal diseases

B. Evans

Summary

The twenty-first century is characterised by 'epidemiological globalisation' on an unprecedented scale with resulting impacts at the interface of economic, scientific, social and political forces arising from the emergence and re-emergence of animal diseases. Throughout history, animals have served as a source to humankind of food, transportation, medicines, entertainment, clothing, fuel, military advantage and financial security. It is therefore not at all surprising that animal diseases have resulted in significant social and political impacts that have shaped and continue to shape the course of national and international events. The social impacts can be expressed as indirect health consequences or behavioural changes, changes in societal values and changes in social standing and can be felt at the individual, family or community level. The political impact of major disease outbreaks can include loss of public and consumer confidence, resistance to investments in disease surveillance, reluctance to report disease detections in a timely or transparent manner, failure to implement science-based international standards for safe trade (which protect animal, human and ecosystem health) and the removal of government officials. The magnitude of these impacts would support that social and political impacts warrant their inclusion in the consequence assessment of a robust animal disease risk analysis framework.

Keywords

Animal diseases, Disease impact, Political impact, Public awareness, Public health, Repercussions of disease, Social impact, Veterinary services, Zoonoses.

L'impatto sociale e politico delle malattie animali

Riassunto

Il ventunesimo secolo è caratterizzato da una 'globalizzazione epidemiologica', di rilevanza senza precedenti, con conseguenti impatti sulle forze economiche, scientifiche, sociali e politiche che scaturiscono dall'insorgenza e dalla nuova insorgenza di malattie negli animali. Storicamente, gli animali sono stati utilizzati dall'uomo come risorsa alimentare, mezzo di trasporto, mezzi terapeutici, svago, vestiario, scopi militari e sicurezza finanziaria. Pertanto non sorprende che le patologie animali abbiano avuto conseguenze sociali e politiche importanti, che hanno influito e continuano ad influire sul corso di eventi nazionali e internazionali. È possibile spiegare gli impatti sociali come conseguenze indirette di carattere sanitario o modifiche comportamentali, cambiamenti nei valori della società e nella posizione sociale, che possono essere avvertiti a livello individuale, familiare o comunitario. L'impatto politico dei più importanti episodi di malattia può includere una perdita di fiducia pubblica e del consumatore, una resistenza agli investimenti per il controllo delle malattie, riluttanza nella

Chief Veterinary Officer, Canadian Food Inspection Agency, 59 Camelot Drive, Ottawa K1A 0Y9, Canada
bevans@inspection.ac.ca

notifica di patologie in modo preciso o trasparente, l'insuccesso nell'implementazione di standard internazionali, scientificamente dimostrati, per un commercio sicuro (che protegga la salute dell'animale, dell'uomo e dell'ecosistema) e la rimozione di funzionari governativi. La rilevante importanza degli impatti sociali e politici dovrebbe far sì che essi venissero inclusi in un efficiente modello di analisi del rischio delle malattie animali.

Parole chiave

Effetti delle malattie, Informazione pubblica, Impatto delle malattie, Impatto politico, Impatto sociale, Malattie animali, Sanità pubblica, Servizi veterinari, Zoonosi.

Introduction

The convergence of a number of factors has increased the potential for occurrence and the severity of consequences associated with animal disease detection at the international level. Certainly the globalisation of commerce, changing human and animal population densities and demographics, the interface between animal species and between animals and humans, environmental changes and animal husbandry practices have been well described as contributing factors (3).

Recent animal and zoonotic disease outbreaks, including foot and mouth disease (FMD), severe acute respiratory syndrome, highly pathogenic avian influenza and bovine spongiform encephalopathy (BSE) have resulted in a significant increase in the visibility of both the potential public health consequences of disease outbreaks as well as the disruption of international commerce with resulting significant repercussions on economies. However, less visible but equally devastating are the profound social and political impacts of animal diseases that warrant recognition.

These social dimensions are by no means new and can be seen in the words of the people of Basutoland captured by a French missionary at the time of the great rinderpest pandemic in Africa in the late 1800s, 'No more cattle, no more milk, what shall we eat? No more cattle, no more fuel, what shall we use for making fire? No more cattle, no more skin for clothes, what shall we wear? No more cattle, no more marriages, how shall we marry? No more cattle, no more ploughing, what shall we eat and where shall we get money?' (4).

Social impacts of animal diseases

The social impacts of animal diseases encompass a wide community which includes individual producers and their families, the extended agricultural sector, rural and urban constituencies and emergency responders. These impacts can be considered in the context of health determinants (beyond acute disease), changes in behaviour, societal values and social standing.

For the purpose of this article, it is important to differentiate between direct and indirect health consequences. The former describe and quantify the health impacts of animal disease occurrence as the morbidity and mortality associated with exposure to foodborne pathogens or non-foodborne zoonoses and is not the subject of this paper. Rather, in considering the social impacts of animal disease, the focus will be on the indirect health consequences. Efforts to describe the indirect health impacts of animal disease occurrence must begin with the individual and the family of the producer. Although difficult to quantify, these indirect health impacts are often the result of exposure to prolonged stress and anxiety. The cause of the stressors can range from the financial distress associated with loss of income, feelings of failure or guilt or response to peer pressure.

If recognised and if appropriate support programmes exist, these indirect health impacts may be treatable through counselling or medication. In the absence of such programming, there may well be physical, emotional or psychological manifestations that may be acute or chronic.

The range of clinical symptoms experienced can extend from alcoholism, indigestion and stomach ulcers, to insomnia and severe depression. The consequential social impacts are then observed as loss of productivity, domestic violence, marital and family breakdowns or even suicide.

Although difficult to measure, the indirect health care costs associated with management of such stress, through treatment with anti-depressants, counselling and other supporting programmes, are important considerations. In developed countries with socialised medical programmes, the costs on the health care system may be significant and long-term. In those jurisdictions where there are not publicly funded health care programmes to offset such costs, they may have to be borne by the individual, thereby further adding to their financial burden.

For producers who have spent their entire lives with a working routine of tending to their animals, the depopulation of premises as part of the disease control activities can leave them mentally and emotionally scarred and without a sense of purpose. Given their loss of identity as a producer of quality livestock or safe food, their inability to provide for their family or the feelings of remorse or guilt for the destruction of their livelihood, despair is not unexpected.

Through personal communications, it has been reported that following the depopulation of sheep on holdings in the United Kingdom during the 2001 FMD outbreak, several farmers remarked on the phenomenon of the 'silence of the lambs' or the absence of the sounds of their animals at various points in the day that haunted them, making sleep impossible.

In Canada, the culling of animals in response to BSE resulted in several owners expressing a deep sense of guilt or betrayal of their ancestors from whom they had inherited the herds and who had invested generations in genetic improvement which had been lost.

An alternate basis for stress may be found in the severe financial challenges encountered by the producers and their families arising from disease detection and control whether compensation programmes exist or not. When economic losses occur, families may be forced to redefine their immediate priorities. Typical sacrifices, which can have social impacts, include loss of ability to fund post secondary education and the withdrawal of children from studies; the ceasing of attending social, community or cultural activities leading to isolation; the decision of the next generation of producers to leave the agricultural sector and the need to apply to social assistance and welfare programmes to make ends meet.

Such displacement, disorientation or sense of isolation is not always self-imposed. In certain situations, a livestock owner who has experienced a disease outbreak may be the source of the spread of infection to neighbouring herds or to other premises, as the result of commerce or biosecurity failures, and may be criticised or blamed by other producers who suffer economic losses. The perception of a producer as a pariah by their peers or community may lead to changes in social behaviours which are counterproductive to a commitment to effective disease control approaches. Fear of reprisals or the anger of others may lead to the infamous 'shoot, shovel and shut up' attitude in an attempt to hide the presence of disease, to avoid detection and the associated economic consequences of quarantine or disease control interventions. The phrase refers to the decision or actions of an owner to kill a sick animal, bury the carcass on the farm and not

reveal the problem to his veterinary practitioner, veterinary authorities or others.

It is therefore incumbent on the public and private sector to create an environment which facilitates disease surveillance, detection and reporting by profiling, recognising and rewarding appropriate behaviours that serve to protect animal and human health and food safety.

The recent Canadian experience, following the diagnosis of BSE, demonstrated that individual producers, who have actively participated in the surveillance programmes and identified potentially suspect animals for testing at the farm level, have come to be regarded by the general public as role models within the industry and stewards of animal and public health protection and food safety. Such actions have also been the foundation for sustained consumer trust and associated domestic and international market confidence.

It should not for a moment be assumed that such social and indirect health consequences are confined to farm families and livestock owners. When disease control measures, such as quarantine and movement controls, are instituted or when borders close and commerce is interrupted in response to disease outbreaks, the impacts can ripple through a number of sectors. This includes agriculture service and support industries, such as the trucking industry, the feed industry, the farm machinery and equipment maintenance sector, rural communities, the food service industry and beyond. In instances where public confidence in food safety or inspection systems is undermined, it can further impact on the purchasing, eating and social patterns of behaviour of national and international populations.

An additional group which can suffer stress and anxiety with subsequent health and behavioural consequences are first responders or those involved in the emergency management response and recovery elements. In such instances, prolonged

hours of work, confronting volatile and emotionally charged circumstances, taking difficult decisions that have an impact on so many others and the prospect of massive animal depopulation and disposal can profoundly affect the mental and emotional health of the individuals involved (7). For many veterinarians who have spent a lifetime protecting, caring for and treating animals to recover from disease situations, the reality of large-scale eradication campaigns can be very traumatic. It is imperative that assistance and support programmes for emergency responders be an integral part of the planning for animal disease outbreaks.

In developing and transition countries or in instances where poverty dictates that the sole means of feeding one's family is based on the rearing of personally owned animals or poultry, the occurrence of disease can eliminate the primary source of nutrition, further exacerbating health consequences.

The social impacts of disease occurrence can also be expressed in additional changed behaviours at the cultural level. With the depopulation of backyard flocks, impacts and displacement can occur for racing pigeon or raptor enthusiasts and for those whose cultures embrace fighting birds. In other species, disease outbreaks have led to the cancellation of livestock events, ranging from horse racing and bull fights to fairs and livestock exhibitions.

In the same vein, disease outbreaks can have an impact on hunters/anglers through the decimation of wild animal populations and fish stocks; this also has an impact on those whose livelihoods are associated with supporting such past-times and on ecotourism due to movement controls or closure of habitats. Furthermore, in many countries, many aboriginal and 'first-nation' people can be socially impacted when animal species that have significant spiritual or cultural

value either die or are killed as the result of epizootics or control measures.

In a world of increasing urbanisation and concentration of human populations, aging, the presence of immunosuppressive diseases and drugs and the use of animal tissues and organs in medical procedures, it is essential that we acknowledge the convergence of factors that may result in redefining the relationship between people and animals in response to future major disease outbreaks in animal populations.

There is a growing recognition that in both the developed and developing world, human behaviours adapt to disease outbreaks. With reports that cats could possibly be susceptible to avian influenza, what were previously beloved companion animals were now viewed by some as threats to their family. At the same time, as the debate on whether migratory birds were primarily a vector or the victims of the global spread of highly pathogenic avian influenza, some people expressed support for the massive culling of wildlife without considering the potentially negative consequences for the ecosystem, health and balance of nature. The occurrence of animal disease may increasingly be a factor in societal value changes as well. The global phenomenon of urbanisation has also resulted in a loss of connectivity between much of society and the rural communities and agricultural production practices from which their food is derived (1). Such separation results gives rise to questions on the acceptance of production methods and poses significant communications and education challenges.

Increasingly, social concerns are an additional critical factor to be addressed in the course of animal disposal efforts in response to disease outbreaks. Beyond the potential environmental, public health and logistical challenges associated with large-scale disposal, there is often public resistance to the use of municipal or other land

burial sites referred to the 'NIMBY' or 'not in my back yard' syndrome. Society has an expectation that when animal slaughter or depopulation methods are required, they will be humanely administered. Equally, society is expressing concerns that every effort should be made to salvage what may be valuable animal protein in disease control efforts to both return value to the life of the animal and to serve broader societal needs, such as food banks or feeding the hungry. These concerns also extend to the consequences of the loss of biodiversity for wildlife and endangered species when disease situations spill over to such populations

Therefore, given the scope and potentially profound nature of the social impacts of animal diseases, it would be prudent to ensure that the consequence assessment of any animal disease risk analysis should provide for consideration beyond economic concerns. Furthermore, risk communication, education and awareness activities on the part of veterinary services and veterinary practitioners should be considered to be imperative in the current global threat environment if the social consequences of animal and zoonotic diseases are to be more effectively managed in the future.

Political impact of animal diseases

The political impact of animal diseases are equally expressed at the national and international level and are founded on the imperative of maintaining public trust and confidence in governments to provide an appropriate level of protection against preventable risks, to secure an affordable food supply for its population and to act in the public interest to prepare for and respond to disease outbreaks when they occur.

The profound economic and social consequences of major animal or zoonotic disease outbreaks can extend well beyond the agriculture sector and so

it is not surprising that ministers of national governments have been removed from office as the result of disease outbreaks. Government departments have also been reorganised and governments have been defeated in elections in part due to their handling of such emergencies. It is this reality of the broad-ranging impacts of animal and zoonotic diseases that provides the impetus for the changes in the organisation of veterinary services in many countries and the inclusion of a broad constituency in the development of associated public policy, programme design and delivery.

One of the most visible political impacts arising from animal disease is the decision taken by countries when disease occurs in another jurisdiction. Often, in spite of science-based standards to protect animal and public health having been developed and adopted at the international level, governments may take trade decisions which do not reflect those that their designated regulatory officials and experts have supported.

Such trade decisions can have the result of acting as a deterrent to other governments making appropriate investments in surveillance and reporting for fear of the economic consequences that may arise from this detection and reporting. Such approaches run contrary to all logic to secure animal and public health and food safety at the global level as it has the potential to provide market access opportunities only to those not actively looking and managing diseases effectively.

On a parallel level, a further political dynamic is created when a government decides to close borders to other jurisdictions upon the occurrence of a disease event; this sends a very clear message to their consumers and general public of the perceived severe health or other consequences associated with the disease. Should the disease then subsequently occur within their own country, the public is pre-sensitised to believing that the risks

are extremely high and can only be effectively mitigated by drastic interventions. The government is then challenged to maintain domestic confidence when other countries in turn close their borders to them.

While it is certainly true that trade decisions are taken based on the consideration of a number of factors which include biological science, political science, economic science, social science and, even occasionally, pseudoscience, nevertheless it must be clearly understood that actions taken have consequences.

Fortunately, considerable foresight and leadership has been demonstrated in recent years by the OIE (World organisation for animal health, formerly known as the Office International des Épizooties and still referred to by the acronym of the 'OIE'), in providing the pathway forward for the world to move away from the historic paradigm of country freedom of disease as the sole basis for international trade (6). Responsive, progressive and visionary advancements have been made in two critical areas, namely: disease reporting and international standards which protect animal and public health while providing the means for safe trade thus diminishing the potential for unwarranted economic consequences associated with trade disruptions.

In the former area, the elimination of the designation of diseases by the OIE as 'List A' (requiring immediate notification) and 'List B' into a single consolidated list (5) and redefining the reporting obligations of countries, based on defined epidemiological criteria was an evolution of approach based on the recognition that the convergence of a number of factors dictated that maintaining a country free of an extended list of diseases was not sustainable.

From this adjustment in disease reporting, the principles of zone freedom (regionalisation) based on geographic or internal political borders and

compartmentalisation based on biosecurity, subpopulation definition and husbandry practices have been embraced.

In the latter area, adjustment of science-based standards for international trade to fully consider commodity risk for disease transmission and recognition of appropriate mitigation measures, inspection systems and control programmes implemented by countries have moved the yardsticks from one of penalising a country for its investments in surveillance, reporting and disease control to rewarding governments and industries for investments made to protect animal and human health.

In the current global context, recognition of the intimacy that exists between animal health, ecosystem health and public health outcomes and the reality of globalisation (2), climate change and deliberate threats have forced political reconsideration of the wisdom of 'from the border inward' strategies for disease prevention to one of addressing disease threats at their source by investing in the quality of veterinary services, at the domestic and international level, as the most effective and advantageous recipe for public security and prosperity.

The broad-reaching impact of animal disease occurrence has also served to profile national veterinary services as a global public good as well as the need for integrated management of risks along the wildlife-domestic animal-human population continuum. This in turn can lead to additional investments in surveillance which spans this continuum and provides opportunities for real-time analysis and forecast modelling of disease occurrences.

With the establishment of a new international framework, with an emphasis on the protection of animal and public health and an associated obligation to ensure the quality of veterinary services, safe trade can be achieved which provides

for the continued benefits to be derived from globalisation of commerce. However, given that zero risk is not attainable, it is equally incumbent on governments to reconsider the appropriate balance between public funding for compensation in order to create and sustain an environment which encourages early reporting of disease and to support short-term business continuity programming but not to the extent that industry is not compelled to make investments in biosecurity, traceability and private insurance coverage where possible.

Given the major impact on public confidence and how the public perceives risk associated with animal disease outbreaks, governments must also move from probabilistic risk assessment approaches to approaches which address the consequences of an outbreak. Critical to this evolution is also the need for governments to proactively make significant investments in risk communication.

Consumers and the general public now have access to information from a large number of sources that range from the media, internet, industry, academic, special interest groups and official publications. As a result, conflicting, inconsistent and often inaccurate information is provided and creates a significant challenge for individuals and society to take informed decisions. Only through timely, proactive and consistent communication of potential risks, efforts to prevent entry and to prepare and respond to a disease outbreak should it occur, can governments inform consumers and build the necessary awareness for support of actions when they are required to sustain public confidence in the face of adversity.

In assessing the political impacts that can arise from major disease outbreaks, it is important also to recognise that in many countries, the elected terms of governments and politicians are not

always compatible with the time-frames needed to effect meaningful transformative changes. It is therefore incumbent on national veterinary services to work to achieve a high level of citizenship engagement, private sector support and academic institution and non-government organisation involvement in the design and delivery of sustainable programmes. At the same time, as the concept of one world/one health/one medicine is profiled, increasingly close collaboration between veterinary services and public health services to address zoonotic diseases is imperative.

Conclusion

A number of high profile animal and zoonotic disease events have occurred in recent years. These disease occurrences have had a profound social and political impact on many countries and will continue to do so into the future.

Fortunately, there are early indications of an increased global effort to support the adoption and implementation of science-based international standards and to invest in the quality and capacity of veterinary services. These must be maintained and accelerated if governments are to maintain the confidence and trust of their citizens and to achieve the animal health and public health outcomes that are the foundation for public security and prosperity. Furthermore, a concerted effort is needed to move away from probabilistic approaches to risk assessments for animal disease occurrences to more robust inclusion of consequence assessments that give full consideration not only of economic factors but of social and political impacts of animal diseases as well.

References

1. Council for Agricultural Science and Technology (CAST) 2005. Global risks of infectious animal diseases. CAST, Ames, Iowa. Issue Paper, **28** (10), 16 pp.
2. Crosby A.W. Jr 1994. Germs, seeds and animals: studies in ecological history. M.E. Sharpe, New York, 232 pp.
3. King L.J. 2004. Emerging and re-emerging zoonotic diseases: challenges and opportunities. *In* Compendium of Technical Items presented to the International Committee or to Regional Commissions, 2004. Technical item for the 72nd General Session of the OIE, May. Office International des Épidémiologies, Paris.
4. Nikiforuk A. 2006. Pandemonium: bird flu, mad cow disease and other biological plagues of the 21st Century. Viking Canada, Toronto, Ontario, 55-83.
5. Office International des Épidémiologies (OIE) 2006. Diseases notification. OIE, Paris (www.oie.int/eng/maladies/en_classification.htm).
6. Office International des Épidémiologies (OIE) 2006. Terrestrial animal health code, 15th Ed. OIE, Paris (www.oie.int/eng/normes/mcode/en_sommaire.htm accessed on 5 October 2006).
7. United Kingdom Department of Health 2002. Evidence submitted to Cumbria foot and mouth disease inquiry. The health and social consequences of the 2001 foot and mouth epidemic in North Cumbria: an action research project. Institute for Health Research, Lancaster University, 10 pp (www.lancs.ac.uk/fass/ihr/research/mental/documents/footandmouth.pdf accessed on 6 October 2006).