A round table discussion around the theme of ‘Public Health from Animals to Man’ was held on December 3rd 2013. The overall goal of the meeting was to begin scoping the expertise and research interests and provide an environment for identifying new potential collaborative partnerships to be explored and taken forward into the future.

Summary of discussion

This note summarises key points made during the discussion, for reference.

Stakeholder landscape

- Multiple stakeholders were identified, although no systematic review of them was identified.
- The need to understand and map out the stakeholder environment in order to devise the best research questions aimed at providing evidence for informed decision making was agreed.
- Understanding the conflicting motivators and other relevant drivers is important to ensure research is valuable at the national, international and policy level but also at the farmer and producer level in terms of their day to day activities.
• Ultimately, farmers need to maintain a sustainable business but are likely to have significant concerns around how their businesses can be affected by farming-related public health scares e.g. food poisoning.
• The major motivating factor in control of animal diseases in farming was often the associated (human) public health risk, with a resulting lack of incentive, economic or otherwise, for farmers to take up new animal vaccines or treatments – integrated funding across public health and animal health would facilitate this research effort.
• Economic and political influences operating in the environment of antibiotic use in agriculture were also highlighted, including the commercial interests of the agrochemicals industry.
• The consortium should consider what information decision makers would need to make informed policy decisions on antibiotic use in agriculture and filter that down to the coordinated research plans and data sets that would need to be gathered. Important to integrate social science researchers from the beginning.
• Important to interface with those working in policy research, linking up with key researchers in Cambridge and using the expertise at the Centre for Science and Policy (CSaP) as well as the existing networks of relevant CSaP policy fellows.
• A recent Defra meeting highlighted their interests in interfacing with other disciplines including social science to integrate the ‘human’ perspective into animal related scientific investigations.
• Important for the consortium to be multidisciplinary from the outset including geography, social anthropology, rural economy amongst others.
• The commonly held view that farming is to blame for transmission of antibiotic resistance between animals and humans is not necessarily backed up by consistent evidence. An unbiased research effort integrating animal and human health studies could potentially identify the key questions and the research required to address these in an unbiased research effort.
• It is important to remember that this is a global issue and as such requires global solutions.

Data, modelling and surveillance

• Despite the fact that there are very interesting questions at the interface between the human and animal health, modelling work on animal or human pathogens is often conducted separately, possibly due to data constraints.
• Surveillance data are not as good as they need to be. With the exception of notifiable illnesses such as bovine TB, the surveillance data in animals and human is fairly poor. The surveillance process in England and Wales is further hindered by the (human) death registration process which currently requires certainty on cause of death before a death can be registered. This can take up to six months.
• Cost effectiveness modelling has been a valuable approach in public health research to demonstrate where benefits of interventions are felt. Cost effectiveness modelling at the interface of animal and human health might be useful to demonstrate the benefits of animal infection control outside the agricultural sector. This could aid a wider appreciation of the need to have cross-funder investment in this area to successfully address the public health issues.
• Linking surveillance data between animals and humans and building on that in terms of cost effectiveness could be used to demonstrate areas of need for improved surveillance and the potential value of that.
• Historical modelling is important for future-orientated policy. There is often good historical data available on mortality and hospitalisations from past epidemics.
• Evidence from well-designed studies alone is not enough to drive policy changes – data presentation is key to influencing public and policy including use of effective graphics.
• Modelling linked to existing epidemics can be relatively straightforward but it is more difficult in terms of both availability of data and methodologically, to work on early epidemic emergence. It may also be possible to study pathogens frequently crossing the species barrier but that have not yet emerged as threats, although it is important to avoid a disproportionate response to potential threats.
• Definition of antibiotic resistance is different for different sectors and different methodologies and may differ between animal and human health researchers.
• Links with computer science could be used to access greater quantities of data from society, including from internet and social media sources, although there may be data security issues. When discussing data needs, it is important to have clarity on the scale, content and required use.

**Animal/human cultural and biological interface**

• How animals and humans live alongside each other is key to our understanding of the emergence of global zoonotic infections.
• Different communities geographically and historically have different approaches to public and private space with respect to animals, as exemplified by issues around the control of dogs in public or treatment of strays.
• Animals live amongst us in different ways including domestic animals, companion animals and “liminal” animals such as pigeons living in cities due to human waste behaviour.
• Cultural differences in thinking about the place of animals in communities must be considered in animal/human health research.
• Social control was responsible for eradication of rabies in the UK, illustrating the importance of historical and social perspectives in this area.

**Risk perception**

• A multitude of factors govern the ways in which people perceive the risks around them and the options they have open to them. Lay understandings of science play a role, as do the radical changes to the ways people consume information (e.g. through social media).
• Public perception of risk and public anxiety doesn’t necessarily relate to the available scientific information and evidence from research. Local and peer-based information exchange is very influential.
• Different environmental processes produce different perceptions of risk in terms of the relationship between humans and animals. Changes in climate and environment alter patterns of animal migration posing new or increased health risks. Social perception of risk can be unpredictable and hard to manage for previously unknown diseases or threats such as emerging global epidemics.
• The complex issues surrounding risk perception at the individual, local and community level are important factors for research at the human/animal interface.

**Other Themes**

Other relevant areas to consider were discussed in the meeting:

• Developments in whole genome sequencing have opened up new avenues of pathogen related research when combined with epidemiology and Cambridge is well positioned to use this.
• Although it was clear that host genomics would have a large impact on infectious disease transmission, hazard identification and risk management, no clear interests were identified in this area for the PublicHealth@Cambridge network.
• It is accepted that different agricultural production systems lead to different antibiotic resistance in bacteria. Animal welfare studies could potentially be relevant here.
• It was noted that the animal/human interface does not just relate to disease so other areas of research relating to animal/human behaviour should not be disregarded.
• As a comparator, strands of international research could be developed as well as UK based, giving different insights into the same issue from different locations.
• The group was keen to be kept informed about the potential joint workshop on infographics and data visualisation for early-career researchers being planned by the digital humanities and public health networks.
Participants

Chairs:
Mark Reacher       Public Health England East of England Field Epidemiology Unit, Cambridge Institute of Public Health
James Wood       Department of Veterinary Medicine

Attendees:
Sheila Bird       MRC Biostatistics Unit
Paul Birrell       MRC Biostatistics Unit
Barbara Bodenhorn       Social Anthropology
Andrew Conlan       Department of Veterinary Medicine
Anna Davies       Cambridge Infectious Diseases
Paula Frampton       PublicHealth@Cambridge
Simon Frost       Department of Veterinary Medicine
Theo Gouliouris       Department of Medicine
Andrew Grant       Department of Veterinary Medicine
Mark Holmes       Department of Veterinary Medicine
Phil Howell       Department of Geography
Theresa Manful       Department of Biochemistry (CAPREx fellow)
Duncan Maskell       Department of Veterinary Medicine
Anthony Podbersek       Department of Veterinary Medicine
Colin Russell       Department of Veterinary Medicine
Dan Tucker       Department of Veterinary Medicine
Eiko Yoneki       Computer Laboratory

Apologies:
Nigel Leader-Williams       Department of Geography
Daniela de Angelis       MRC Biostatistics Unit
Wenzel Geissler       Social Anthropology
Nicola Lewis       Department of Zoology
Christos Lynteris       Social Anthropology
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