Prioritization of zoonotic agents in Switzerland for their surveillance and control

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Key words
Zoonoses, prioritization, decision-making, stakeholder opinion, Delphi panel, Conjoint Analysis

Aim of the study
This study was performed to: (i) identify criteria related to disease prioritization for their surveillance and control; (ii) weight these criteria using both a modified Delphi panel and choice-based Conjoint Analysis questionnaire; and (iii) use the weightings obtained to rank 16 zoonotic diseases classified as notifiable and/or emerging in Switzerland.

Material and methods
In a first step, a literature search for studies on disease prioritization was performed, and the method, number and type of criteria used were summarized. A list of 28 criteria, classified under 6 domains, was prepared, and this was evaluated and weighted by 6-7 experts involved in a modified Delphi panel; the median weight was used as a weighting score. In a second step, a choice-based Conjoint Analysis questionnaire was prepared using 8 of the 28 original disease criteria. This questionnaire was administered to 32 health professionals and 212 students, and data from the questionnaire were analyzed to generate importance scores. Both median weighting scores and importance scores were then used to rank 16 zoonotic diseases.

Results and significance
Thirty-eight relevant studies were identified, and these were used to generate a list of 28 criteria. The experts involved in the modified Delphi panel weighted the majority of the criteria similarly, and the top three criteria were "Severity of disease in humans", "Incidence and prevalence of disease in humans", and "Treatment in humans". Based on these weightings, the three highest ranked diseases were Avian Influenza, Bovine Spongiform Encephalopathy, and Bovine Tuberculosis.

With the Conjoint Analysis questionnaire, the most important criterion for both groups was "Severity of the disease in humans". For the professionals, however, the criteria "Economy" and "Treatment in humans" were considered the next most important, whereas for the students the criteria "Treatment in humans" and "Incidence of the disease in animals" were weighted as the second and third most important, respectively. Bovine Spongiform Encephalopathy was ranked as the most important disease for surveillance and control based on importance scores from both groups.

These results provide insight on how to improve risk communication of disease management strategies, while helping with future decisions regarding resource allocation for disease control and prevention in Switzerland.

Publications, posters and presentations
Stebler, N. (2013) Priorisierung von Zoonoseerregern für die Kontrolle und Bekämpfung in der Schweiz. DACh Epidemiologietagung, 4 – 6 September 2013 in Hannover.

Stebler, N. (2015) Prioritization of zoonotic agents in Switzerland for their surveillance and control. Doctoral Dissertation, Veterinärmedizinische Fakultät, Universität Bern.

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