



Social influences in antibiotic prescription behaviour among veterinary practitioners in the Netherlands

J.M. Leneman¹ | D.L.A. Bens² | D.C. Speksnijder^{2,3}

1 Research consultant, Diversity Focus, the Netherlands
jm.leneman@gmail.com

2 Department of Infectious Diseases and Immunology, Faculty of Veterinary Medicine, Utrecht University

3 University Farm Animal Practice ULP, Harmelen, the Netherlands

Background

Insights in the key factors that drive antibiotic use and prescription by veterinarians can serve in strategically influencing veterinary antibiotic prescription behaviour and thereby curb the increasing threat of antimicrobial resistance. Social influences is one of the key factors.

People, including professionals, are socially influenced and take reference from peers and authorities, such as teachers and superiors. **Social influence** can come from everyday contact and/or from taking social reference or receiving social support. **Social reference** is taken in alignment with social positioning. **Social support** impacts behavioural change.

Methodology

After a literature review, a behavioural research model (Theoretical Domains Framework; TDF) was selected and adapted.

Qualitative and quantitative study

Semi-structured interviews were held with 11 farm animal veterinarians in 2017 to elicit as many key factors influencing antimicrobial prescription as possible.

Subsequently, a questionnaire was developed, sent out online and analysed. 135 Farm animal veterinarians working in the Netherlands completed the questionnaire. Questions consisted mainly of five point Likert scales and were validated with Cronbach's alpha.

Qualitative study results

Interviewees indicated a (separating) distance between:

Direct social environment - Immediate colleagues, Family in farming or veterinary profession, Farmers, Other advisors to the farmers;

Indirect social environment - Policy makers, Scientists, General public, (Peers in other practices).

- The **social distance to the clients is narrow**, helping the interviewees in their advisory role. The narrow relationship is not perceived as influencing their prescribing practices. Nevertheless, they have indicated to sometimes be afraid of liability issues when not prescribing antibiotics.
- Social support for (further) reducing antimicrobial prescription comes from colleagues. An urge, not support, is perceived from the indirect social environment.
- Some experience a **conflict in social alignment**.

Quantitative study results

Social Support

On average the respondents feel (somewhat) supported by their immediate colleagues to actively engage in and discuss on the reduction of antimicrobial prescription (Figure 1a-e). A small fraction (12%) does not perceive any support at all.

With regard to the farmers and other advisors on the farm, 55% of respondents perceive no support for engaging in further reducing antimicrobial prescription and 36% oftentimes perceive contradictions between non veterinary advice given to the farmer and their own advice. However, 86% thinks that farmers are (very) open to their advice for antimicrobial reduction.

Economic dependency to the farmers does not influence their advices to farmers, according to 64% of the respondents (Figure 1a-e).

Discussion

Social Influence

Both the qualitative and quantitative research results indicate that social influence plays a role in reducing antimicrobial prescription. Farmer compliance is seen as multi-factorial, but **building trust with farmers for social influence** is perceived as pivotal to advice uptake success.

Social influence from farmer to veterinarian in the antimicrobial prescription decision making is ignored or denied. The literature shows that veterinarians generally **sympathise with the farmers' perceptions** of the feasibility of advice implementation. They tend **not to give unrequested advice** and do not often repeat and guide already given advice. Both strategies, however, have been shown effective in animal health management and antimicrobial reduction.

Social reference

Farmers take (social) reference from their veterinarians with regards to animal health and antimicrobial use. However, **conflicting advice** (from other advisors) compromises compliance. In addition, veterinarians feel less equipped and supported as advisors amidst other advisors.

The practising veterinarians take most social reference from their immediate colleagues. The qualitative study, however, shows that **some of them are socially re-aligning** themselves towards more entrepreneurial and market oriented referents. In the wider society, social status and authority has undergone a shift from academic to entrepreneurial.

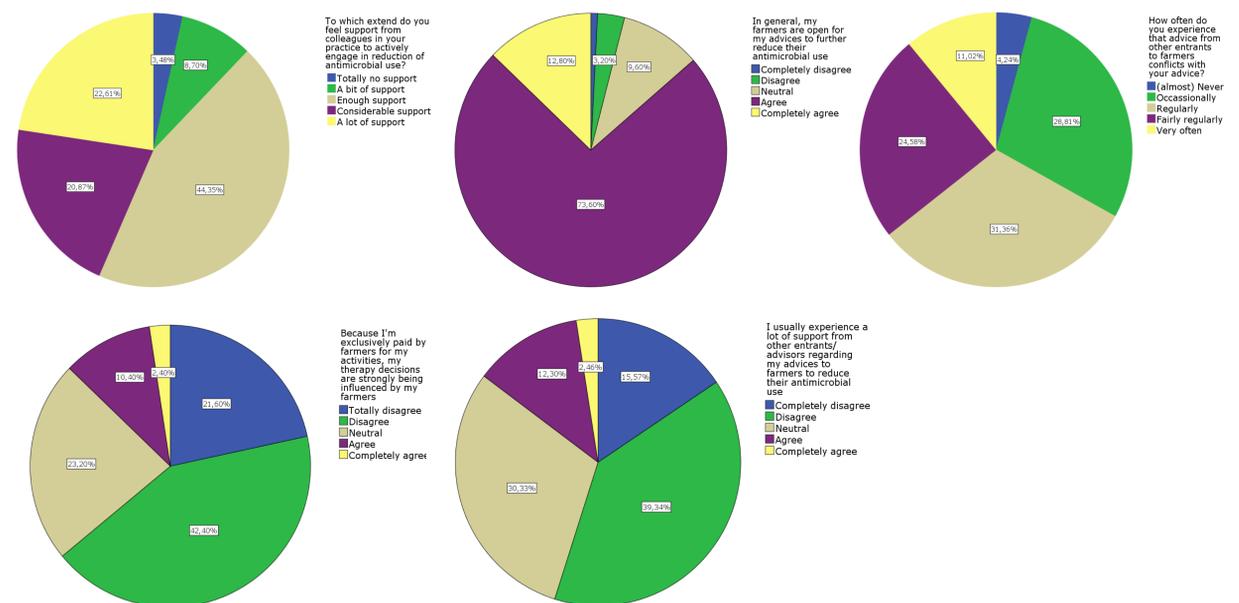


Figure 1a-e: Questionnaire results: the veterinarians' perceived social support for reducing antimicrobial use

Social Support

Social support for practising veterinarians is perceived to mainly or exclusively come from **immediate colleagues**. They are peers with whom the practising veterinarians are in social alignment. The actual prescribing behaviour takes place at the farm, where veterinary advice must compete with other advice and incentives.

On farm social support (from farmers and other advisors to veterinarians) for further reducing antimicrobial prescribing, is not yet very high. In turn, **veterinary advice** given to farmers for changes in farm management is generally also **not accompanied by social support** (enduring guidance) from the veterinarians.

Conclusions

- Social influence is perceived by veterinarians in the Netherlands as key in farmer advice uptake.
- Socially, veterinary practitioners are deeply invested in their farmers, and farmers accept them as referents, but it needs further investigation to know to which extend veterinarians really have and utilise their social influence.
- The farmer's circumstances (or perception thereof) socially influences the veterinarians' (provision of) advice.

- The importance of social reference and support is generally underestimated. It is underestimated by veterinary policymakers and colleagues in changing practitioners' behaviour and it is underestimated by veterinary practitioners in farmer compliance to their advice.
- Contradictions in advices or policies intervene with taking social reference (alignment to authority)
- Further investigation is needed into veterinary advisory and social support skills and awareness.

References

- Speksnijder, D.C. et al (2015) Attitudes and perceptions of Dutch veterinarians on their role in the reduction of antimicrobial use in farm animals. Preventive Veterinary Medicine 121 (3-4), pp. 365-373.
- Gunn, G.J. et al (2008) Measuring and comparing constraints to improved biosecurity amongst GB farmers, veterinarians and the auxiliary industries. Preventive Veterinary Medicine 84 (3-4), pp. 310-323.
- Ruston, A. et al. (2016) Challenges facing the farm animal veterinary profession in England: A qualitative study of veterinarians' perceptions and responses. Preventive Veterinary Medicine 127, pp. 84-93.
- McIntosh, W. and Dean, W. (2015) Factors associated with the inappropriate use of antimicrobials. Zoonoses and Public Health 62(1), pp.22-28.

Acknowledgements:

- The interviewed veterinarians ;
- The respondents to the questionnaire;
- This study was funded by the Dutch Ministry of Agriculture, Nature and Food Quality (LNV).