Rational Use of Antimicrobials-Improving Clinical Reasoning with Case Based Learning

Louise Anderson, School of Veterinary Medicine, University of Glasgow

University of Glasgow | School of Veterinary Medicine

University of Glasgow, charity number SC004401

"a great revision tool"

"the interactive format was good for this subject"

INTRODUCTION

Responsible antimicrobial use is not only an **RCVS day one competency**[1] but is of vital importance in reducing the development of future antimicrobial resistance. Feedback from final year veterinary students at the University of Glasgow mirrored the observations of tutors, in that while all were aware of the increasingly important issue of antimicrobial resistance, most felt lacking in their ability to make rational clinical decisions regarding antimicrobial use in the field.

METHOD

To consolidate learning, a small-group tutorial was implemented, using a case-based, collaborative discussion format. Students were given on-line access to a range of clinical scenarios and printed resources for pre and post-session self-directed learning (SDL).

Student feedback was gathered after the tutorial with an optional questionnaire, using a mix of Likert-type and free-response questions.

Approximately 50% of the final year cohort attended, with 76% of those attending completing the questionnaire. This data was used to evaluate the efficacy of this format in improving student confidence and clinical reasoning with regard to antimicrobial use.

RESULTS

Student feedback was **extremely positive.**
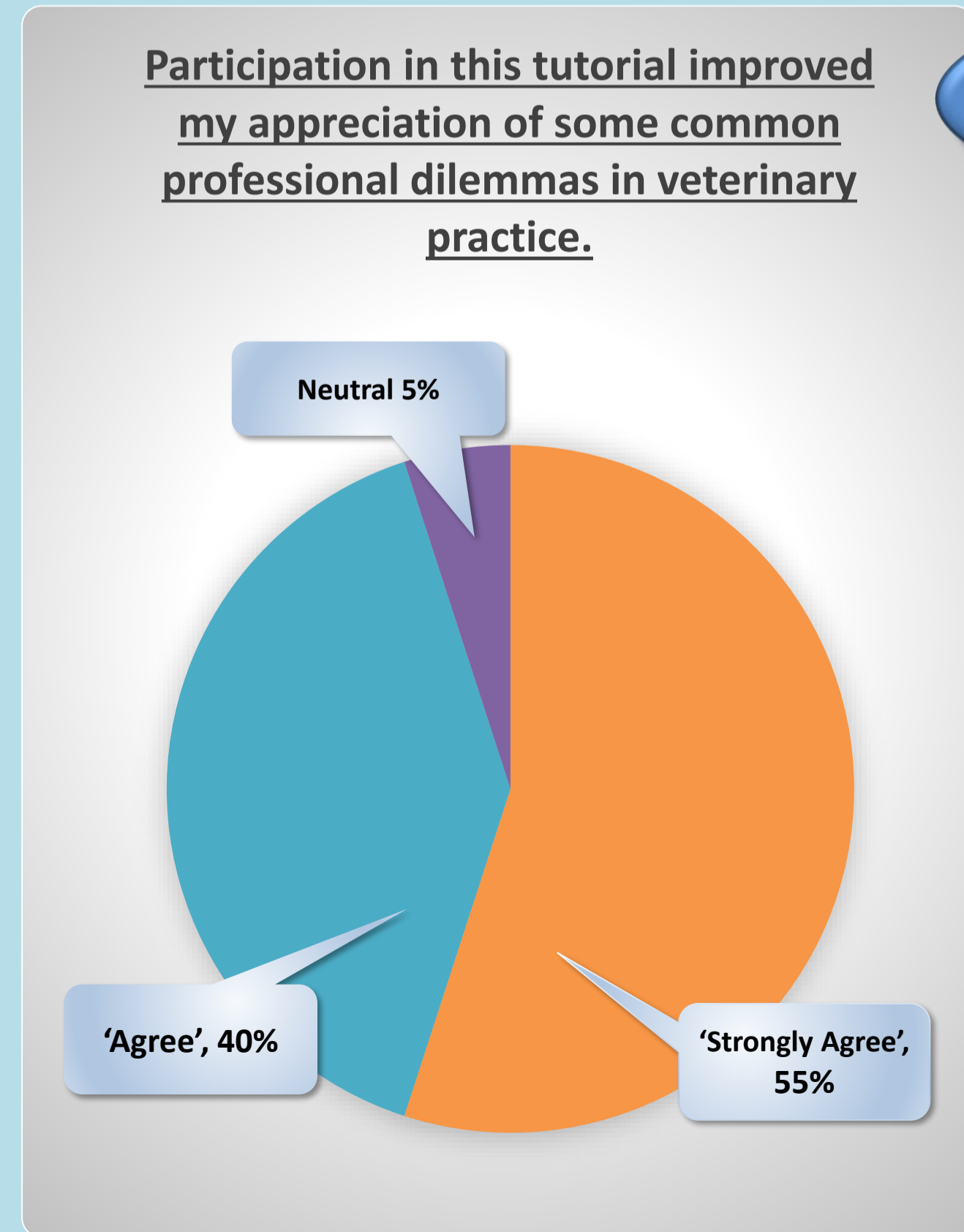-**100% of students agreed that the tutorial had improved their confidence and decision making ability in this area.**

-several students requested **more tutorials**, given earlier in the course.
-most students found the pre-reading and scenario images helpful
-those that felt neutral were those students who admitted they had not prepared beforehand.

-most students felt that this format helped them independently source information.
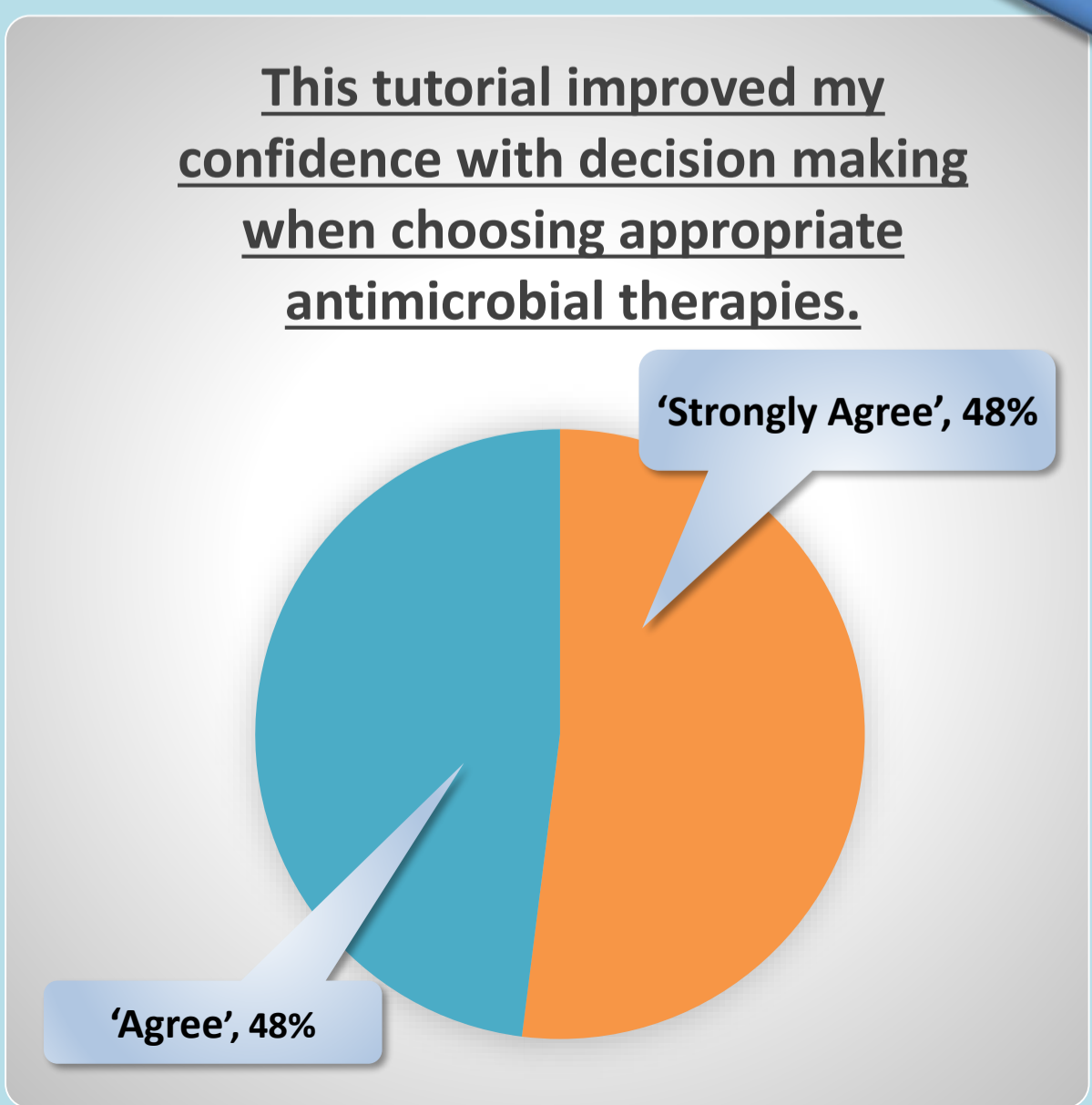
CONCLUSIONS

The overwhelmingly positive student feedback here supports previous conclusions that the more structured, guided inquiry method of case-based learning (CBL), as opposed to the more open enquiry approach of problem-based learning (PBL) is particularly well received by time-pressured students[2]. Results also support the argument that **CBL is an effective strategy for increasing student self-confidence in clinical reasoning**, with the caveat that 'expressed self-confidence may not accurately reflect competence'[3]

Of crucial importance in the training of veterinary undergraduates in **key issues** of wider professional and global concern is that SDL, whilst encouraging interaction and engagement, also **promotes a culture of life-long learning**[4].

However, the **less positive** responses from unprepared students also correspond with findings of a recent *flipped classroom* study, in that effective SDL and CBL is dependent on an ability of students to 'self-regulate learning.'[5]

" a good variety of common and useful cases"

"engaging and kept me thinking"

'More tutorials like this earlier in the course would be helpful'

Participation in this tutorial improved my appreciation of some common professional dilemmas in veterinary practice.

Neutral 5%
'Agree', 40%
'Strongly Agree', 55%

This tutorial improved my confidence with decision making when choosing appropriate antimicrobial therapies.

'Strongly Agree', 48%
'Agree', 48%

I found the pre-session reading and scenario images helpful for this tutorial.

Neutral **10%**
'Strongly Agree'33%
'Agree'57%

This tutorial improved my ability to independently search sources of data regarding licensed and non-licensed antimicrobials.

Neutral 31%
'Disagree' 5%
'Strongly Agree' 19%
'Agree', 45%

REFERENCES

1. RCVS. *RCVS Day One Competencies* [Internet]. London: Royal College of Veterinary Surgeons; 2014. Available from http://www.rcvs.org.uk/document-library/day-one-skills/DayOneSkills.pdf
2. Srinivasan M, Wilkes M, Stevenson F, Nguyen T, Slavin, S. Comparing Problem-Based Learning with Case-Based Learning: Effects of a Major Curricular Shift at Two Institutions. *Acad Med*. 2007; 82:74-82.
3. Patterson JS. Increased student self-confidence in clinical reasoning skills associated with case-based learning (CBL). *J Vet Med Educ,* 33:426-431, 2006.
4. Chigwere M, Boudreaux, KA, Ilkiw, JE. Self-directed learning in veterinary medicine: are the students ready? *Int J of Med Educ,* 8:229-230, 2017.
5. Dooley LM, Frankland S, Boller, E, Tudor E. Implementing the Flipped Classroom in a Veterinary Pre-clinical Science Course: Student Engagement, Performance, and Satisfaction. *J Vet Med Educ,* [Internet]. 2018 [cited 2018 June]. Available from http://jvme.utpjournals.press/doi/pdf/10.3138