researchsnapshot
summarize | mobilize

While Ontario sheep receive fewer antimicrobials than other livestock, off-label drug use is common

What is this research about?

Antimicrobials, which are substances that kill or slow the growth of bacteria or fungi, are commonly used in the livestock industry. These substances may also be used to prevent infection and encourage growth in young livestock animals. Although much antimicrobial use (AMU) is done according to manufacturers' instructions, some animals are given drugs that were licensed for use in other species or for other health problems, a practice referred to as "extra-label drug use" (ELDU). Unfortunately, few antimicrobials are licensed for use in minor species such as sheep. Excessive or inappropriate use of antimicrobials in livestock can cause serious public health problems. First, the overuse of antibiotics can lead to the development of drug resistant strains of harmful bacteria or fungi. Second, potentially harmful amounts of these drugs may also remain in food-animal by-products such as milk, eggs, and meat. ELDU treatment may not always be effective, as information on dosage, treatment length, and withdrawal times is typically adapted from those for other species. Little is known about AMU and EDLU in the Canadian sheep industry.

Keywords:

Antimicrobial, antibiotic, livestock, sheep, extra-label drug use, antibiotic resistance

What did the researchers do?

Drug use on 49 Ontario sheep farms was studied for a twelve-month period. Farmers were asked to record information on every case of AMU, including the class of sheep (lamb or ewe), number of sheep treated, antimicrobial used, treatment length, dosage, reason for use, and who decided (farmer or veterinarian) that the AMU was needed. Farmers also completed a questionnaire to identify farm demographics and AMU practices in the previous twelve months.

Cite this work:

University of Guelph, Institute for Community Engaged Scholarship (2013). While Ontario sheep receive fewer antimicrobials than other livestock, off-label drug use is common. Retrieved from: http://hdl.handle.net/10214/6545

What you need to know:

Rates of antimicrobial use in Ontario sheep were low when compared to rates in other livestock species in Canada such as swine and cattle. However, since relatively few drugs are licensed for use in sheep, rates of extra- or off-label drug use were high.

University of Guelph — Changing Lives Improving Life

Project supported by: A program of the OMAFRA-U of G Partnership.

Agri-Food and Rural Link — A program of the OMAFRA – U of G Partnership — Mobilizing Agri-Food and Rural Research Knowledge

What did the researchers find?

Over the twelve month period, 397 AMU events on 37 farms were recorded for lambs, while 621 AMU events on 41 farms were noted for adult sheep. In lambs, higher AMU rates were associated with group (vs. individual) treatment and with producers who had 20-29 years of experience. In adult sheep, higher AMU rates were associated with group treatment, post-lambing ewes, producer decision to treat, and producer experience of 20 years or more. In both lambs and adult sheep, lower AMU rates were connected to treatment for specific common diseases such as respiratory disease and wounds/injuries. One fifth of "antimicrobial exposure days" involved a non-licensed antimicrobial, while extra-label uses of licensed antimicrobials were responsible for 811.6 per 1000 "exposure days" of AMU. ELDU was associated with treatment for conditions for which no drug was licensed.

About the University of Guelph researchers:

Olaf Berke is an Associate Professor, Scott McEwen is a Professor, and Paula Menzies is an Associate Professor in the Department of Population Medicine in the Ontario Veterinary College at the University of Guelph.
Email: oberke@uoguelph.ca; smcewen@uoguelph.ca; pmenzies@uoguelph.ca.

Article citation:

Moon, C.S., Berke, O., Avery, B.P. et al. (2011). Rates and determinants of antimicrobial use, including extra-label, on Ontario sheep farms. *The Canadian Journal of Veterinary Research, 75,* 1-10.

How can you use this research?

Sheep farming organizations can use this research to better understand the extent of antimicrobial use (AMU) and extra-label drug use (ELDU) among sheep farmers, and identify those drugs for which a license for use in sheep should be pursued. This is particularly important when promoting the prudent use of antimicrobials: to assure that the drugs are being used properly and that suitable withdrawal periods for meat and milk are used.

Public health organizations can use this research to develop policies and guidelines for the appropriate use of antimicrobials in sheep.

Antimicrobial manufacturers can use this research to seek licensure of antimicrobials for diseases or species that are currently off-label.

Veterinarians can use this information when making submissions to the Canadian global Food Animal Residue Avoidance Databank (FARAD).

This summary is a project of the Institute for Community Engaged Scholarship (ICES) at the University of Guelph, with project partners: the Catalyst Centre, SPARK Program at the University of Guelph, and the Knowledge Mobilization Unit at York University. This project is part of the Pan-Canadian Research Impact Network.
http://www.csahs.uoguelph.ca/pps/clear_research