Mastitis-related antimicrobial use: Current practices on Canadian dairy farms

E. de Jong1,2, K.D. McCubbin1,2, M. Fonseca1,3, L.C. Heider4, G. Keeffe4,4, D.F. Kelton2,5, D. Légaré3, C. Luby1,2, J. McClure1, P.R. Smith1, D. Renaud1, A. Ravel1, J.-P. Roy4, J. Sanchez1, K. Tahhan1, and H.W. Barkema1,2

1Dept. of Production Animal Health, University of Calgary. 2Dept. of Health Management, University of Prince Edward Island. 3Dept. of Population Medicine, University of Guelph. 4Centre for Food-borne, Environmental & Zoonotic Infectious Diseases, Public Health Agency of Canada. 5Dept. of Large Animal Clinical Sciences, University of Saskatchewan. 6Dept. of Biology, Memorial University of Newfoundland.

Collaborators
Sponsors
Conclusion
Materials and Methods
Background

Background

• Prevention and treatment of mastitis accounts for most of the antimicrobial use (AMU) on dairy farms.
• Various stewardship programs aimed at reducing AMU in the dairy sector have emerged over the last decade.
• In Canada, collaborative efforts of various stakeholders have resulted in the ‘Canadian Dairy Network of Antimicrobial Stewardship and Resistance’ (CaDNetASR) initiative.
• This network encompasses 150 dairy farms in five regions and monitors antimicrobial resistance (AMR) and AMU patterns.
• Aim: Identify areas for a reduction in mastitis-related treatments.

Materials and Methods

• Structured questionnaires: current on-farm AMU practices.
• Subset of 110 farms in British Columbia, Alberta, Ontario and Nova Scotia.

Results

Of the 110 surveyed farms, 35% routinely practiced selective treatment of clinical mastitis (sDCT), and 54% practiced selective treatment of clinical mastitis (CM) (Figure 1).

![Figure 1: Percentage of farms practicing selective treatment of clinical mastitis (sDCT) and CM](image1)

Of the farmers practicing sDCT, 94% used somatic cell counts (SCC) to select cows for treatment (timepoint of SCC measure ranging from the last 2 weeks, to last 12 months). Median cut-off was 150,000 cells/mL (Figure 2). Time point of the previous mastitis case was used by 44% of the farmers as part of their sDCT strategy; most farmers taking the current lactation into account. 41% looked at the number of mastitis events (ranging from ranging from 1 case in her lifetime, to 4 in the same lactation).

![Figure 2: Number of farms per SCC cut-off (cells/mL) for selecting cows for dry cow therapy](image2)

Regarding selective treatment of CM, multiple factors played a role in the decision making of the farmers selectively treating CM (Figure 3). Severity of the symptoms and confirmed or suspected bacteria were the most important considerations, followed by SCC and mastitis history. 44% used SCC to select cows for treatment, based on either the last report, or the last three reports. Median cut-off was 300,000 cells/mL (Figure 4). With regards to mastitis history, treatment considerations were most often based on 1 or 2 mastitis cases in the same lactation.

![Figure 3: Reported importance of factors related to treatment decisions of clinical mastitis cases in the lactation](image3)

![Figure 4: Number of farms per SCC cut-off (cells/mL) for selecting cows for clinical mastitis treatment](image4)

Contact information: Ellen de Jong ellen.dejong1@ucalgary.ca