

# Antimicrobial Use in Calves on Dairy Farms

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The dairy industry recognizes the critical challenge of antimicrobial resistance and is working to promote the judicious use of antimicrobials to limit the development of antimicrobial resistant bacteria. Calves are an important area to target for reducing antimicrobial use as calves can experience diseases requiring antimicrobial treatment and possess a higher proportion of resistant bacteria compared to older cattle.



## Key Points

- Reducing antimicrobial use is an important challenge that needs to be addressed in both humans and animals.
- Antimicrobial use in calves could be an important area to focus on when trying to find opportunities to reduce antimicrobial use on dairy farms.
- The majority of treatments in calves were related to respiratory disease.
- There was tremendous variability in the amount of antimicrobials used on different farms.
- Work with your veterinarian to improve calf health management to limit disease and ultimately reduce antimicrobial use on your farm.

## CaDNetASR: A national approach to understanding antimicrobial use



The Canadian Dairy Network of Antimicrobial Stewardship and Resistance (CaDNetASR) is a national surveillance program developed to measure antimicrobial use and resistance on Canadian dairy farms and guide antimicrobial stewardship practices.

Data were collected on 144 dairy farms across five provinces, focusing on quantifying herd-level antimicrobial use and detecting herd-level antimicrobial resistance. One focus area of data collection was antimicrobial use in calves.

Farms participating in the study were visited annually for 5 years starting in 2019 to collect antimicrobial treatment records from electronic herd management software or paper-based records. Using those records, newborn heifer calves (born in the last 12 months) were identified and followed retrospectively until 60 days of age. Antimicrobial treatments and any dates of sale, or dates of death, were extracted. During the farm visits, a questionnaire was also used to gather information on calf management practices and herd characteristics.



144 dairy farms across 5 provinces



## What can dairy farms do to reduce antimicrobial use?

### Detailed antimicrobial records are key

Overall, 50% of the farms involved in this study did not have complete usable records that could be used to extract information on the antimicrobial treatments given to calves.

Even if proAction<sup>MD</sup> only requires treatment records for antimicrobials that have a milk or meat withdrawal, when trying to identify areas of opportunity in calves, being able to fully evaluate treatment records can aid in determining how many calves have been treated for disease, what diseases they were treated for, and at what age the treatment occurred. This information can be used by farmers and their veterinarians to implement management strategies to better prevent disease in calves. This is beneficial to farms because early life disease not only impacts growth and mortality in the short-term, but it can also have large economic costs in the long term due to a longer time to calving, poorer reproduction, and lower milk production. The CaDNetASR data showed tremendous variability in the amount of antimicrobials used on the farms, with a range of 0 to 88% of calves having been treated with antimicrobials.



There was also tremendous variation when using a standardized metric for antimicrobial use that takes into account farm size and mortality rates (i.e., antimicrobial treatments per calf year). This suggests that some farms have extremely low antimicrobial use and others may have an opportunity to reduce antimicrobial use. A reduction could be achieved by implementing treatment protocols or preventative practices to improve calf health and reduce the need for antimicrobials.



From the **74 farms** with usable calf treatment records (50% of the farms involved)



**7,817 calves** were used in the analysis



A total of **2,310 of calves** (29.6%) were treated at least once with an antimicrobial



Most of the antimicrobial treatments were due to **respiratory disease**, followed by diarrhea

### Feeding transition milk also influenced antimicrobial treatments:

#### Calves fed with transition milk

Defined as milk obtained from the second to sixth milkings after calving



Had about **4 antimicrobial treatments/calf-year**



#### Calves not fed with transition milk



Had about **9 antimicrobial treatments/calf-year**



There is growing evidence highlighting the importance of transition milk after colostrum feeding. Transition milk contains high levels of immunoglobulins and different bioactive products and has been shown to improve the development of the gastrointestinal tract, reduce disease, and improve growth. **Therefore, feeding transition milk could act as a management practice to reduce disease and ultimately reduce antimicrobial use.**



### Funding Partners