Association between the inventory of empty containers and on-farm treatment records to quantify antimicrobial usage in dairy herds

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The assessment of antimicrobial usage (AMU) is vital for interpreting the origin of trends in antimicrobial resistance (AMR). On-farm treatment records are one of the tools for collecting antimicrobial use data. In theory, treatment records should be the definitive method of recording AMU when used properly. However, maintaining accurate treatment records requires effort from all people working with the animals and failure to establish it on a dairy farm due to incomplete, unverifiable records is not uncommon. Other methods for measuring AMU in dairy farms include questionnaires and inventory and audit systems of empty containers. The inventory of empty containers is a powerful tool to quantify total AMU on a farm. The objectives of the present study were to estimate the association between AMU recorded using health records and AMU recorded using the audit of garbage cans.

Antimicrobial daily dosages (ADDs) were calculated for 51 herds using the two different methods. Overall use of antimicrobials recorded was 31,840 ADDs using audit of garbage cans and 14,487 ADDs using health records, indicating that for every record entry, 2.20 records were recorded using the audition of garbage cans. For all antimicrobials evaluated, the mean number of ADDs was significantly higher using the audition of garbage cans than the one recorded using health records. The estimated mean difference when ignoring the antimicrobial class was 340 ADDs per herd. Still, there was a strong positive correlation between the two methods indicating that herds with increased number of ADDs recorded using the audition of garbage cans also had increased number of ADDs recorded using health records. That positive association held for all 6 most commonly used antimicrobials.

This study first provided dairy farmers with a comparison of two different methods of recording AMU in a dairy herd. Methods are easy to implement, and provide the farmer with a measure of total AMU in the herd. The availability of such information can aid in interpreting trends of AMR inside a herd, serving as a basis for decision-making of control measures, and allows the evaluation of interventions for controlling AMR.