calves on arrival, and to gain insight into the characteristics of highest- and lowest-risk calves. Identification of risk factors present in veal calves on arrival may help improve both their productivity and welfare, as well as that of their female counterparts on the dairy farm of origin.

Materials and Methods

Data were collected from 10,910 calves entering 7 barns of a white veal farm, all locations of barns within Ontario, from January 1 to December 31, 2014. Data from calves entering all facilities was collected as part of routine monitoring by facility staff members. Calves were followed until death or marketing; no calves were culled during the year. Three explanatory models were built for the separate outcomes of total mortality, early mortality (<21 days) and late mortality (>21 days), and were offered the variables of weight on arrival, season of arrival, supplier, sex, barn, and standardized purchase price per pound.

Results

Significant associations ($P<0.05$) were identified between season, barn, supplier and weight and total mortality risk, with lighter-weight calves arriving in winter being at increased odds of mortality. Early mortality was significantly ($P<0.05$) associated with weight, season, barn, supplier and tended ($P<0.10$) to be associated with standardized price paid on arrival; lighter-weight calves arriving in winter at lower prices were at increased odds of mortality. Late mortality was significantly ($P<0.05$) associated with season of arrival, barn, and supplier.

Significance

While not a proxy for body condition, increased weight on arrival was protective of early mortality and likely somewhat reflected body condition, as it was presumed calves on arrival were generally no more than 1 week of age. Although failure of passive transfer is an important risk factor for mortality, the seasonal association we saw with mortality may suggest early life nutritional stress as opposed to seasonal variation in passive transfer. A further exploration of dairy farm of origin risk factors for veal calf mortality would potentially serve to improve the productivity and welfare of calves of both sexes born on dairy farms in Ontario.

Utility of an online learning module to teach cautery disbudding technique for dairy calves, including cornual nerve block application

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Introduction

Although disbudding or dehorning dairy heifers is necessary for the safety of humans and other cattle, it has been identified as a key animal welfare issue when done without appropriate analgesia. Three-quarters of all disbudding or dehorning is done by dairy producers or on-farm staff, while the remainder is done by a veterinarian or veterinary technician. Reported use of pain control for these procedures by dairy producers ranges from 15 to 60%. Cautery disbudding is the most commonly used method; best practices include administration of a non-steroidal anti-inflammatory drug (NSAID) as well as local anesthetic given as a cornual nerve block (CNB). While NSAID administration is uncomplicated, CNB application requires technical training, which may limit use. Teaching methods have traditionally focused on one-on-one training with a veterinarian, although online disbudding training videos exist. To our knowledge, neither method has been studied for efficacy. Our objective was to determine if an online, interactive module could teach naïve participants cautery disbudding technique, including CNB, as compared to hands-on training.

Materials and Methods

Thirty-four student volunteer participants were recruited and randomly assigned to either hands-on training or online training. Hands-on training was done with live animals, in small groups, by a registered veterinary technician (RVT) following an established protocol, while online training was self-directed and used an interactive training module. Assessments of competency were performed by a

blinded evaluator who examined knowledge, handling, CNB technique, disbudding technique, time taken, and confidence scoring (both pre- and post-evaluation). Success of CNB was based on lack of pain-related behaviors from an established disbudding ethogram during the first 5 seconds of disbudding iron application.

Results

The hands-on training group had no CNB failures. Online training was numerically less effective (25% CNB failures), but not statistically (P=0.13). Univariate analysis of outcomes was done by linear regression for time taken, and ordered logistic regression for rubric scores. Online learners tended to be more knowledgeable (P=0.06), but significantly less confident pre-evaluation (P<0.01), had poorer handling (P=0.02) and technical (P=0.05) skills, and took more time to perform all tasks (P=0.01). Post-evaluation confidence scores did not differ between groups; online learners tended to have a higher increase in confidence score post-evaluation as compared to pre-evaluation (P=0.06).

Significance

This trial shows hands-on training is a highly effective method of teaching CNB and cautery disbudding technique, even when done with very limited practice opportunities for participants. Online learning may be suitable for use as an adjunct to hands-on training, or as a resource to refresh skills of those who may not perform this task routinely. While online training is not recommended as a sole method of instruction, it may be useful for hard-to-reach producers in the absence of hands-on training.

Prevalence of lung lesions using thoracic ultrasonography in pre-weaned calves from dairy herds in Québec, Canada

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Introduction

Thoracic ultrasonography and observation of lung ultrasonographic consolidation has been recently developed as a fast and non-invasive way to assess bronchopneumonia-associated lung lesions. The objective of this cross-sectional study was to assess the prevalence of lung consolidation in pre-weaned calves in dairy herds.

Materials and Methods

Thirty-nine dairy herds were randomly selected in the client list of the ambulatory clinic of the Université de Montréal to participate to this cross-sectional study conducted during the summer 2015. A questionnaire focusing on calf feeding and raising practices was completed with the producer on the day of the visit. Each calf (min 6 calves, max 12) was assessed using a complete thoracic ultrasound examination (7.5 MHz linear probe, I-scan, Draminski, PL) focusing on the maximal depth of consolidation observed. Two different cut-offs for defining a calf with consolidation were selected. A high sensitive definition of consolidation was to have at least 1 site with a consolidation depth ≥1cm (Cons1). A more specific definition was used defining a consolidated calf when at least 1 site with a consolidation depth ≥3cm was found (Cons3). Descriptive statistics were calculated.

Results

A total of 318 pre-weaned calves from 39 different herds were enrolled in this study. The median number of lactating cows in these herds was 80 (ranged from 55 to 280). The maximal quantity of milk replacer volume offered to calves during the pre-weaning period varied from 4 to 16L/day (median=8L). The herd-level prevalence of Cons1 varied from 0 to 80.0 % (median 16.7%; 25th percentile 10.4%; 75th percentile 41.2%; 90th percentile 60.0 %). The herd-level prevalence of Cons3 varied from 0 to 70% (median 8.3%; 25th percentile 0%; 75th percentile 20.8 %; 90th percentile 33.3%).

Significance

Despite the fact that this study was performed in a period with a relatively low anticipated incidence of enzootic pneumonia (ie, summertime), ultrasonographic evidences of lung lesions were commonly found in dairy herds. Interestingly, the prevalence of these lesions was highly variable between herds.