Effects of repeated cases of clinical mastitis due to different pathogens on milk yield in New York Holstein cows

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The objective of this study was to estimate, within a lactation, the effects of repeated cases of clinical mastitis (CM) due to different pathogens on milk yield in 17,265 primiparous and 27,666 multiparous lactations in 5 New York Holstein herds. Separate mixed linear models for primipara and multipara were fitted. The outcome was mean daily milk yield within a particular week of lactation. Herd was a random effect. Week within lactation was a repeated effect. In both models, fixed effects included week within lactation, calving season, retained placenta, displaced abomasum, and CM due to *Streptococcus* spp., *Staphylococcus aureus*, *Staphylococcus* spp., *Escherichia coli*, *Klebsiella* spp., and 'no important growth'. For primipara, they also included metritis and ketosis. For multipara, they also included parity and CM due to *Arcanobacterium pyogenes*. Up to 3 CM cases were modeled per lactation. A separate index for each CM type was created, denoting when milk weights were measured in relation to occurrence of that type and case number (first, second, third) of CM: free of CM; ≥3 weeks before first CM; 2 wk before first CM; one week before first CM; week of first CM; 2 wk after first CM; 3 wk after first CM; …8 wk after first CM; ≥9 wk after first CM; and the same intervals for a second or third case. Cows with CM produced more milk before onset than did non-CM cows. Patterns of milk loss varied by pathogen and case number. In primipara, milk loss was generally greatest following a third case. *E. coli* was associated with the greatest milk loss overall; *Staphylococcus* spp. was associated with a gain. In multipara, milk loss was generally greatest following a second case. Arcanobacterium pyogenes was associated with the greatest milk loss overall. The study findings will help dairy farmers to better assess the impact of CM cases on milk yield.