

Randomized controlled field trial comparing quarter and cow level selective dry cow treatment using the California Mastitis Test.

Swinkels, J. M.¹, K. A. Leach², J. E. Breen^{2,3}, B. Payne², V. White², M. J. Green³ and A. J. Bradley^{2,3}

INTRODUCTION

Selective use of antibiotic dry cow treatment can be implemented at the cow or quarter level, with the latter having the potential to further reduce antibiotic use.

OBJECTIVE

Our objective was to compare these 2 approaches in 6 herds in the United Kingdom in which environmental mastitis predominated.

MATERIALS AND METHODS

Eight hundred and seven cows from six commercial dairy herds were recruited to a study to investigate quarter level approaches to dry cow therapy.

All quarters of all cows received an internal teat sealant (ITS) (Cephalock™, MSD Animal Health). Antibiotic dry cow therapy (ADCT) (CEFA-SAFE®, MSD Animal Health) was allocated at the quarter level based on the use of the California Mastitis Test (CMT).

Infection status was assessed using bacteriology at drying off and post calving. The impact of cow and quarter level approaches on cure and new infection, somatic cell count (SCC) and clinical mastitis in early lactation were compared using univariable and multivariable statistics.

On well-managed low SCC dairy farms, with a low prevalence of major pathogens and a predominant environmental mastitis etiology, selective dry off at quarter level using CMT could be a useful approach to further support reduction in antimicrobial use.



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RESULTS

No significant differences in clinical mastitis incidence were identified between treatment groups within either of the infection categories. In the high SCC cow category, compared to cows in the H-SCLT group (received AB in all quarters), SCCs were significantly higher at the 1st test day in cows in the H-SQLT2 group (only receiving AB in quarters with a CMT ≥ 2). In the low SCC cow category compared to the L-SCLT group (receiving no AB), SCCs were significantly lower in the L-SQLT1 group (only receiving AB in quarters with a CMT ≥ 1).

Models failed to reveal any significant impact of quarter level application of AB dry cow treatment on milk yield in early lactation.

In the high SCC category, compared to the H-SCLT group, the quarter level odds of being infected with a major or minor mastitis pathogen was not impacted by selection of AB. Similarly, in the low SCC category, the odds of being infected by a major pathogen did not differ between treatment groups.

AUTHORS' AFFILIATION

- MSD Animal Health, P.O. Box 31, 5830 AA Boxmeer, The Netherlands.
- Quality Milk Management Services Ltd., Cedar Barn, Easton Hill, Easton, Wells, Somerset, BA5 1DU, UK.
- School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington Campus, Sutton Bonington, LE12 5RD, UK.

FIGURE 1. Overview of the study design and overall allocation of cows to treatment groups.

1 = High SCC cows: any of the last 3 monthly individual cow SCC $\geq 200,000$ cells/mL, before DO, or any clinical mastitis case occurring in the time period from the day of the third monthly individual cow SCC test before DO, to the day of DO.

2 = Low SCC cows: all of the last 3 monthly individual cow SCC $< 200,000$ cells/mL, before DO, and no clinical mastitis occurred from the day of the third monthly individual cow SCC test before DO to the day of DO.

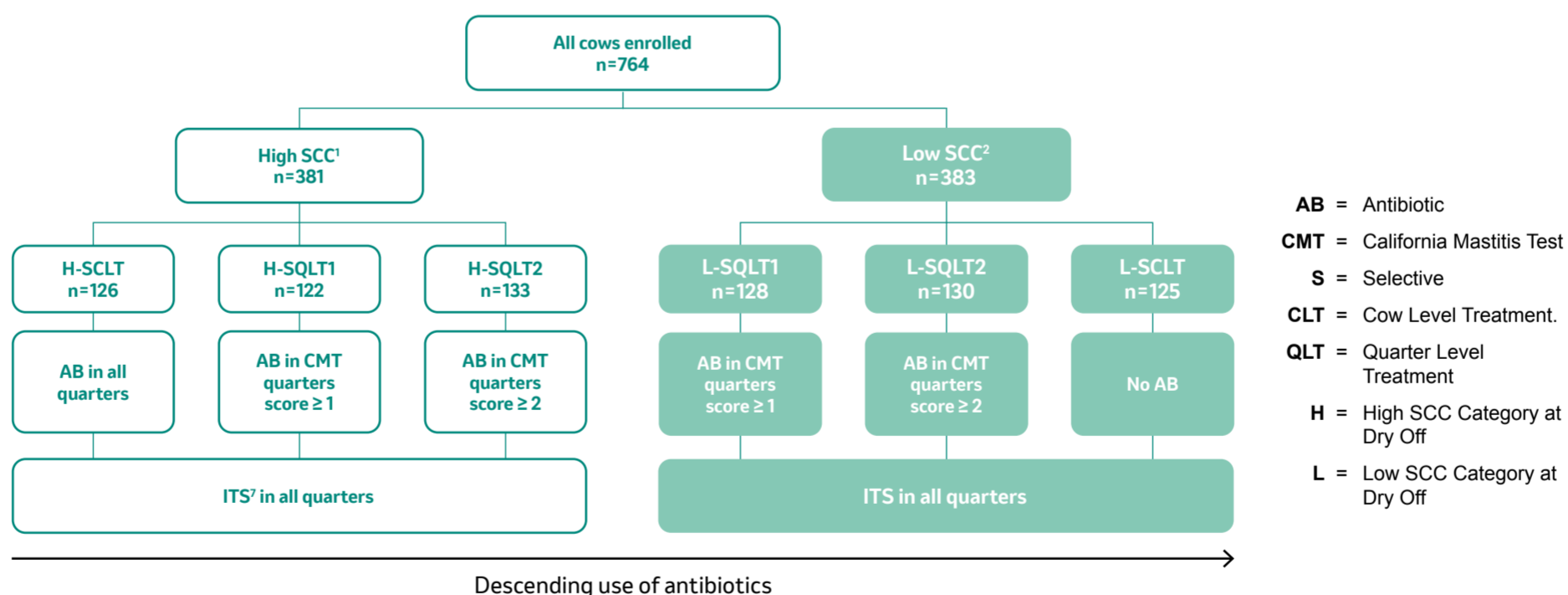


FIGURE 2. Illustration of the proportion of quarters receiving antibiotic intramammary treatment at drying off and the associated major pathogen cure rate and the major and minor pathogen new infection rate, in each of the treatment groups within SCC category at drying off, in descending use of antibiotic from left to right, from a study in the UK comparing selective dry cow treatment at cow level to selective dry cow treatment at quarter level in dairy cows.

