

M134 The use of integrated data to identify first-lactation cows at high risk of clinical mastitis. H. Delgado, L. Fadul-Pachecho, and V. E. Cabrera*, *University of Wisconsin, Madison, WI.*

The presence of clinical mastitis (CM) in first lactation cows could result in lifetime negative consequences. Therefore, constant monitoring of these cows and rapid intervention is an important management task. With the integrated information obtained from different data

streams such as genomic, management and laboratory results, we used different analytical techniques to identify cows with a higher risk of contracting CM. Records from 6,218 1st lactation genomically tested cows from 2 Wisconsin herds between years 2014 and 2018 were used for the analysis. From the total, 1,179 cows presented at least one case of CM between the 1st and 10th test day (10 and 320 DIM). Different production and wellness traits were fit into a logistic regression model. Genomic Total Performance Index (GTPI) and Mastitis (Mast) traits were associated with the presence of CM. Animals with GTPI scores < 1,745 had 2.5 times higher risk of developing CM than animals with GTPI scores > 2,000 ($P < 0.0001$). Animals with Mast scores < 96 had 5.3 times higher chances to develop CM than animals with Mast scores > 104 ($P < 0.0001$). We calculated SCC (cells/mL) least squares means for the previous test day to the onset of CM using mixed model analysis and compared with control. For cows with GTPI < 1,745 the result was $273,000 \pm 28$ cells/mL, while for cows with GTPI > 2,000 it was $149,000 \pm 43$ cells/mL. In comparison, the SCC for animals that remained free from CM during 1st lactation the SCC was 80.38 ± 23 for GTPI < 1,745 and 38.62 ± 40 for GTPI > 2,000. Although cows under < 200,000 SCC are still under the normal threshold, our analyses indicate that farmers should be concerned with cows with SCC as low as 115,000 cells/mL if these cows have a high GTPI score. Better decisions to detect, prevent, or quickly treat CM are possible by integrating real-time data. One of such initiatives is the "Dairy Brain" project at the University of Wisconsin-Madison that allows to explore trends and associations in data that otherwise would remain unseen. Availability of real-time integrated data contributes not only to monitor CM but other health events of negative economic impact.

Key Words: data integration, Dairy Brain, dairy management