* *https://els-jbs-prod-cdn.jbs.elsevierhealth.com/pb/assets/raw/Health%20Advance /journals/jods/JDS\_Instruct\_for\_Contributors\_SF.pdf*
* *Dairy production; “Health, Behavior, and Well-being,” “Full-length research paper”*
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* *The observed significance level (e.g., P = 0.03) should be presented rather than merely P < 0.05 or P < 0.01, thereby allowing the reader to decide what to reject. Do not report P-values to more than 2 or 3 places after the decimal (2 significant digits are usually sufficient).*
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* *Present only meaningful digits. A practical rule is to round values so that the change caused by rounding is less than one-tenth of the standard error. In most cases, 2 or 3 significant digits (not decimal places) are sufficient*
* *All microorganisms must be named by genus and species. The name of the genus must appear in full the first time that the microorganism is cited in the abstract, in the body of the paper, and in each table and figure legend. Thereafter, the genus can be abbreviated by its first initial unless it will be confused with other microorganisms cited in the paper, in which case each genus should be abbreviated to use enough letters to avoid confusion (e.g., Strep. vs. Staph.). The formal, binomial names of all microorganisms should be in italics*
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* *Numerals should be used for all numbers except in idiomatic phrases such as “one or the other,” or “on the one hand.” Measures must be in the metric (SI) system*
* *The authors must state explicitly that institutional animal care and use (IACUC) or equivalent approval was obtained before commencement of the study*

**Interpretive summary**

**Graphical abstract**

**Running head:**

**Working title**

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**Abstract**

*Staphylococcus aureus* is a multihost pathogen that causes significant human and livestock

**Keywords:** Mastitis, Antimicrobial resistance, Multi Locus sequence typing, beta-lactam, zoonotic transmission

**Introduction**

*Staphylococcus aureus* is a common bacterium found in the anterior nares of 20–60% of healthy humans

profile and with potential host transmission events occurring on the enrolled dairy farms.

**Materials and methods**

In this pilot study, 19 Vermont dairy farms that produce farmstead cheese or milk for artisan cheese

The samples included human nasal and hand swabs, quarter milk (CQM) from lactating cows, and

were transported on ice to the laboratory and stored at -20 ºC up to 90 days prior to processing.

**Results**

This study included 41 human participants (1-4) from 19 farms and 589 cows (3 to 204 per herd) from 17 participating herds, BTM samples from all 19 farms, and 13 dogs from 9 farms. A total of 1628 isolates were collected, of which 1260 were gram-positive, catalase-positive cocci (GPCPC). Out of 352 human hand isolates and 365 nasal isolates, 166 were GPCPC and 69 were

**Discussion**

**Conclusion**

In conclusion, this study provides insights into the prevalence and clonal diversity of *S. aureus* strains among dairy workers and dairy cows in cheesemaking farms in Vermont. The study found that human carriers had a higher likelihood of carrying penicillin-resistant *S. aureus* strains, possibly because of the increased use of antibiotics in human medicine. Similarly, humans working on organic dairy farms may be the main source of resistant isolates because of the widespread use of β-lactam antibiotics in human medicine. Further research, specifically focusing on organic dairy farms, could help further understand the dynamics of antibiotic-resistant gene transfer. Additionally, the study hints at potential spillover events of *S. aureus* sequence types between hosts. These findings support the importance of the "One Health Initiative" for continued monitoring of *S. aureus* at the human-animal interface.

**References**

**Figures**

**Tables**

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**Conflict of Interest**

The authors declare no conflicts of interest.

**Author Contributions**

Ashma: Lab work, data collection & analysis, manuscript writing

Chrsitine: Field sample collection

Ariela: Field sample collection, Lab work

Robert: Sample collection, lab work, data collection & analysis

Amanda: sample collection, lab work

John: Study design, field sample collection, lab work, data collection & analysis, manuscript preparation