

# Microbial colonization and antimicrobial resistance dynamics in a new pork processing plant

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## Video Byte

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## Abstract

The microorganisms that inhabit our food processing facilities influence the safety of our food. Overuse of antibiotics while raising food animals can lead to an accumulation of antimicrobial resistance genes in their gut microbiomes, which may jump to resident microbes at the processing plant. This means meat processing facilities may act as reservoirs of antimicrobial-resistant microbes. To test this, researchers monitored microbial communities and their resistance genes for one and a half years in a new pork processing plant. Early on, the plant harbored few bacterial families, but over time, the diversity increased, and the communities on different surfaces diverged. At the same time, the overall abundance and diversity of antimicrobial resistance genes rose. The sharing of resistance genes between microbes was primarily detected in the facility's drains late in the observation period. There was a sharp increase in resistance genes when cutting activities started, suggesting they originated from the pigs and the types of resistance genes detected were specific to the antimicrobials in common use on regional pig farms. This study is the first to longitudinally characterize the microbiome of a newly opened food processing plant and it identified several potential reservoirs for antimicrobial-resistant microbes in the facility.