

Abstract Title:

Regional Cluster of *Salmonella* Sandiego: Linking Pediatric Illness to Feral Backyard Chickens, Maui County, Hawaii—2017 to 2022

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Background. Salmonellosis causes approximately 1.35 million illnesses, 26,500 hospitalizations, and 420 deaths annually in the United States. A 2022 investigation into 13 multi-state *Salmonella* outbreaks found backyard poultry caused 1,230 illnesses, 225 hospitalizations, and 2 deaths. Recent Maui salmonellosis cases were investigated for links to feral and backyard chickens, commonly found on Maui.

Methods. A case was defined as a Maui resident presenting with clinical symptoms (such as diarrhea, abdominal pain, nausea, and vomiting) from 2017–2022 and from which a clinical specimen yielded *Salmonella* serotype Sandiego. Cases with laboratory confirmed Salmonellosis were assigned a public health investigator to complete standardized questionnaires, review medical records, and to identify plausible sources of infection to guide environmental sampling. Clinical and environmental *Salmonella* isolates recovered by conventional microbiological culture methods were typed to query isolates within 10 alleles and whole genome sequenced (WGS) for relation to case cluster.

Results. WGS showed that *Salmonella* Sandiego caused illness in 44 residents from 2017–2022. Cases were geographically distributed in Kihei (n=31, 71%), Lahaina (n=8, 18%), and Central Maui (n=5, 11%). Twenty-five cases (57%) were aged 0–18 years; of those, 21 (84%) were aged 0–5 years. Five (11%) cases were hospitalized; no deaths were reported. The 2017–2020 cases were limited to two adjacent coastline towns, Kihei (n=22, 92%) and Lahaina (n=2, 8%). The Lahaina cases identified contact with feral and backyard chickens via egg consumption or “chicken fighting.” In 2022, 7 (88%) of Lahaina cases reported contact with chickens prior to illness. Three (7%) of cases had coinfection with *Campylobacter*, *Giardia*, and mites, which supported a probable zoonosis. Cases in 2021–2022 (n=20) included non-coastal communities. Nineteen (95%) cases completed questionnaires revealing probable sources: chicken contact (n=15, 75%), household members with chicken contact (n=3, 15%), consuming feral backyard chicken eggs (n=1, 5%). Among pediatric cases (n=14, 70%), 12 (86%) reported handling feral chickens,

playing in environments inhabited by chickens, collecting feathers, or ingesting feces or contaminated items. Feral chicken feces collected from the backyard of a pediatric case yielded *Salmonella* Sandiego; WGS results were consistent with case.

Conclusion. Maui's *Salmonella* Sandiego cluster was linked to feral and backyard chickens. The high proportion of pediatric cases was attributed to handling live feral chickens and playing in environments with chicken feces. A One Health approach assessing community risks was used to determine the source of these cases. Focused community education around zoonosis, feral chicken control, and environmental surveillance could prevent future infections.