Dissemination of clonal Salmonella enterica serovar Typhimurium isolates causing salmonellosis in Mauritius - DTU Orbit (17/10/2019)

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Salmonella enterica serotype Typhimurium is one of the leading causes of salmonellosis in Mauritius, where it has also been associated with outbreaks of foodborne illness. However, little is known about its molecular epidemiology in the country. This study was therefore undertaken to investigate the clonality and source of Salmonella Typhimurium in Mauritius by studying human, food, and poultry isolates by pulsed-field gel electrophoresis (PFGE) and antibiotic minimum inhibitory concentration determination. Forty-nine isolates collected between 2008 and 2011 were analyzed, including 25 stool isolates from foodborne illness outbreaks and sporadic gastroenteritis cases, four blood isolates, one postmortem colon isolate, 14 food isolates, and five poultry isolates. All isolates were pansusceptible to the 16 antibiotics tested, except for two isolates that were resistant to sulfamethoxazole and trimethoprim. Overall characterization of the isolates by PFGE digested with XbaI and BlnI resulted in eight different patterns. The largest of the clusters in the composite dataset consisted of 20 isolates, including two raw chicken isolates, four poultry isolates, and nine human stool isolates from two outbreaks. A second cluster consisted of 18 isolates, of which 12 originated from human blood and stool samples from both sporadic and outbreak cases. Six food isolates were also found in this cluster, including isolates from raw and grilled chicken, marlin mousse, and cooked pork. One poultry isolate had a closely related PFGE pattern. The results indicate that one clone of Salmonella Typhimurium found in poultry has been causing outbreaks of foodborne illness in Mauritius and another clone that has caused many cases of gastrointestinal illness and bacteremia in humans could also be linked to poultry. Thus, poultry appears to be a major reservoir for Salmonella Typhimurium in Mauritius. Initiating on-farm control strategies and measures against future dissemination may substantially reduce the number of cases of salmonellosis in the country.

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