

TITLE: RESERVOIRS, INFECTION SOURCES AND RISK PERCEPTION OF SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* IN TIERRA DEL FUEGO

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ABSTRACT:

Among the pathovars of *Escherichia coli* with an impact on childhood, Shiga toxin-producer *E. coli* (STEC) stands out for its endemic presentation in Argentina. Bovines have been documented as the main reservoir, and the contamination of their meat during the slaughter procedures as the most frequent source of infection. In Tierra del Fuego (TDF), the rate of HUS and diarrhea is the highest. TDF, located in the southern end of the American continent, constitutes a different model with native bovine population and no import of live animals for sanitary reasons, restrictions on the entry of continental meat, and no studies of STEC carriers or reservoirs.

A total of 194 swabs collected from bovines at slaughtering house (104 from feedlot cattle and 90 from grazing cattle) and 194 samples of ground meat from all the butcheries in the island were analyzed, using standard protocols: TSB with and without inhibitors, IMS, PCR screening, isolation and strains characterization. Risk assessment was evaluated through 250 KAP surveys (knowledge, attitudes and perception) conducted in the community.

Within feedlot cattle samples from Rio Grande, 13/104 were identified as positive; their virulence profiles were 1/13 *stx1*, 7/13 *stx2*, and 5/13 *stx1/stx2*; while 4/104 were suspicious. Among Rio Grande grazing cattle samples, 3/20 were positive samples, 1/3 *stx2* and 2/3 *stx1/stx2*. For Ushuaia (grazing cattle), 4/70 were positive samples, all of them *stx2*, and 5/70 were suspects. There were no significant differences in the detection of STEC strains considering the type of production and the slaughtering procedures. The carrying of STEC varied from 5.7 to 15% depending on the origin, a smaller proportion than that was reported in the rest of the country. All meat samples were STEC-negative. O157 STEC strain was undetected. Two samples proportion test was used to compare the perceptions. There were significant differences between TDF and Buenos Aires communities ($p < 0,05$), regarding loss of cold chain in raw and cooked foods in households, and microbiologically inappropriate practices.

Although TDF has low ambient temperatures throughout the year, household temperatures are higher and more constant throughout the year, which can lead to alterations in food and produce FBD.

To justify the epidemiological dynamics of the region, it is important to consider whether the isolated strains generate additional virulence factors, presence of other reservoirs, or additional sources of infection.