

**Título: ANTIMICROBIAL RESISTANCE OF NONTYPHOIDAL *Salmonella* SEROVARS FROM POULTRY AND HUMAN SAMPLES IN BRAZIL: A 20-YEAR META-ANALYSIS**

**Autores** Voss-Rech, D.<sup>1,2</sup>, Pötter, L.<sup>1</sup>, Vaz, C.L.S.<sup>2</sup>, Vargas, A.P.C.<sup>1</sup>, Botton, S.A.<sup>1</sup>

**Instituição** <sup>1</sup>UFMS – Universidade Federal de Santa Maria (Avenida Roraima, 1000, Camobi, 97105-900, Santa Maria, RS, Brasil); <sup>2</sup>Embrapa Suínos e Aves (BR 153, Km 110, 89700-000, Concórdia, SC, Brasil).

**Resumo:**

Nontyphoidal *Salmonella enterica* serovars are among the most important pathogens associated with food-borne diseases worldwide. Most human infections are ascribed to the consumption of contaminated animal-source foods, such as eggs and chicken. Therefore, monitoring the evolution of resistance to antimicrobials allows identifying therapeutic alternatives and predicting any limitation in treatment of severe salmonellosis cases. In this context, a meta-analysis was conducted to evaluate the temporal effect of antimicrobial resistance of nontyphoidal *Salmonella* serovars isolated from human and poultry-derived samples between 1994 and 2014. Papers published in the databases Web of Science, PubMed, Scielo, and Science Direct were screened using the keywords ‘antimicrobial resistance’ OR ‘microbial resistance’ OR ‘bacterial resistance’ OR ‘resistance pattern’ OR resistance OR susceptibility AND *Salmonella* AND (Brazil OR Brasil). A total of 441 articles were retrieved, and after the initial screening, 88 relevant manuscripts to the scope of the study were examined under the following inclusion criteria: (a) strains isolated from poultry-derived products or humans; (b) results presented separately by source; (c) reporting of number of isolates and year of sampling; (d) no investigation of multi-resistance. Twenty nine studies were included in the meta-analysis, with 294 observations limited to the antimicrobials most often tested: ampicillin, nalidixic acid, cephalothin, chloramphenicol, ciprofloxacin, enrofloxacin, gentamicin, norfloxacin, streptomycin, sulfonamide, trimethoprim-sulfamethoxazole, and tetracycline. In poultry-derived isolates, the highest antimicrobial resistance values were observed for sulfonamide (44.31%), nalidixic acid (43.35%), and tetracycline (34.25%). A quadratic trend in resistance to streptomycin was noticed. For human isolates, resistance was detected mostly to sulfonamide (46.42%), tetracycline (36.90%), and ampicillin (23.61%), and resistance to nalidixic acid was shown to increase over time. No temporal resistance effect was observed for the other antimicrobials investigated, independently of source. The results show that resistance of nontyphoidal *Salmonella* serovars to antimicrobials has been rising historically, highlighting the importance of caution in the use of these drugs both in human and animal health scenarios in order to contain the evolution of drug resistance and conserve the existing arsenal of antimicrobials.

**Palavras-chaves:** temporal effect; salmonellosis; systematic review; food safety.

**Agência Fomento:** Embrapa