

## 2005 French "Salmonella" Network data on antimicrobial resistance in the swine channels

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### Abstract

The "Salmonella" Network is gathering, on a voluntary participation scheme, from approximately 150 public and private laboratories disseminated throughout France, *Salmonella* strains and/or epidemiological information. Those non-human *Salmonella* strains are isolated either from animal health and production or food, feed and the Environment sectors.

Thus, in 2005, a total of 527 isolations from the swine channels were reported. The top 5 prevalent serotypes were : Typhimurium, Derby, Manhattan, Infantis and Kedougou. Two-hundred and ninety five strains were received at the laboratory and, after double clearance, 185 strains were tested for their antimicrobial resistance against 16 antibiotics by the disk diffusion method. Twenty-one strains were associated to the animal health and production sector and 164 to the food sector.

No noticeable differences in antimicrobial resistance phenotype has been detected between the two sectors. No wild type (fully susceptible) strain has been detected. The rate of beta-lactamase detection (ampicillin resistant strains) was under 25% and no resistance to third generation cephalosporin has been detected. Fluoroquinolone resistance was approximately of 2%. The ASCTSu phenotype (resistance to ampicillin, streptomycin, chloramphenicol, tetracycline and sulphonamides) has been detected in 14% of the *Salmonella* spp strains; 24 out of those 26 strains were identified as *S. Typhimurium*.

All those figures are stable if compared to 2004 data. Those data should now be combined with the one of other food animal channels and human origin in a perspective of risk assessment studies for public health management.

### Introduction

The "Salmonella" network is now 10 years old. Over those past years, it has been collecting either strains or epidemiological data of *Salmonella* isolates from non-human sources throughout France. "Non-human" wording gathers 4 sectors : animal health and production, food, feed and the Environment. This collection is based on a voluntary participation scheme.

For the year 2005, the Network has gathered a total amount of 13673 data. After double clearance 3041 strains have been tested for their antimicrobial resistance phenotypes.

Concerning the swine channels for the year 2005, a total of 527 isolations were reported. The top 5 prevalent serotypes were : Typhimurium, Derby, Manhattan, Infantis and Kedougou. Two-hundred and ninety five strains were received at the laboratory and, after double clearance, 185 strains were tested for their antimicrobial resistance phenotype.

Twenty-one strains were associated to the animal health and production sector and 164 to the food sector.

### Material and Methods

**Strain selection** : double clearance has been performed on the collection as follows : all salmonella strains of the same serotype, isolated from the same product type, in the same department, by the same laboratory and provided in the same parcel were considered as doubles. In this case, only one strain was taken into account.

**Antimicrobial susceptibility tests** have been performed by the disc diffusion method as recommended by the Antibiogram Comity of the French Society for Microbiology (<http://www.sfm.asso.fr/>). 16 antimicrobials have been tested : Ampicillin, Amoxicillin + clavulanic acid, cephalothin, cefotaxime, ceftazidime, chloramphenicol, tetracycline, streptomycin, kanamycin, gentamicin, sulfamides, cotrimoxazole, nalidixic acid, ofloxacin, enrofloxacin, colistin. Automatic reading have been performed by OSIRIS system (BioRad).

## Results

No noticeable differences in antimicrobial resistance phenotype has been detected between the animal health and production sector and the food sector. No wild type (fully susceptible) strain has been detected.

The rate of beta-lactamase detection (ampicillin resistant strains) was under 25% and no resistance to third generation cephalosporin has been detected. Fluoroquinolone resistance was approximately of 2%.

The ASCTSu phenotype (resistance to ampicillin, streptomycin, chloramphenicol, tetracycline and sulphonamides, characteristic of *S. Typhimurium* DT104) has been detected in 14% of the *Salmonella* spp strains; 24 out of those 26 strains were identified as *S. Typhimurium*.

## Conclusion and Discussion

All those figures are stable if compared to 2004 data.

Those data should now be combined with the one of other food animal channels and human origin in a perspective of risk assessment studies for public health management.