Antimicrobial resistant zoonotic bacteria that may cause disease in man became an issue of major concern. Since 1969 the Swann Report privileged antibiotics used for growth promotion as particularly responsible for the selection of antimicrobial resistant bacteria in food animals. It warned for the transmission of such bacteria to humans. Infections caused by pathogens resistant to antimicrobials are more difficult to treat.

Forty years later, a large number of studies have been done and have documented the transmission of pathogens between humans and animals. However number of controversial subjects appeared.

The most studied bacterial species were: Salmonellas, Campylobacters, Staphylococci, Escherichia coli. Their transmission was mostly food borne, transmission by direct contact may occur also, from animals to human and vice versa.

The public health problem is important nevertheless its magnitude remains often not assessed.

As the number of studies increased and the epidemiology was explored precisely with the new molecular tools the old simple model (where an antibiotic given to an animal select for a population of resistant bacteria consequently transmitted to a human host) became at least partly obsolete.

Other factors to be considered draw different scenarios:

- Cross and co resistance imply that selection for resistance and multiple resistance can be achieved by several antimicrobials including heavy metals and biocides.
- Environmental factors and transmission may account for the origin of resistant bacteria which may have emerged elsewhere.
- Horizontal transfer of the resistance genes from animal commensal bacteria may happen in human gut.
- Cross contamination between humans and animals as it occurs in large and prolonged outbreak ease changes of the resistance pattern of the strain.
- The load of bacteria resistant and susceptible transported by the meat vary along the food processing and preparation and influence the contamination.

The complexity of human and animal share of bacteria and their resistance genes will increase in the future. Integrated surveillance programmes are important and would help to establish a picture of the situation and to follow it. They should base and assess the management strategies taken in order: to keep the animal reservoir of resistant bacteria as low as possible, and to promote a better usage of antibiotics, which would lead to a decrease of the quantity of all chemicals involved in the selection, and emergence of resistant bacteria.