

Advice 08-2011 Exposure assessment to cephalosporin resistant *E. coli* through consumption of broiler meat (self-tasking initiative)

The acquired resistance of *E. coli* to cephalosporin antimicrobial drugs is becoming a major issue in intensive broiler farming. In Belgium, about 36% of the *E. coli* strains isolated from live poultry are resistant to cephalosporin antimicrobial drugs while 60% of the broilers are carrier of these cephalosporin resistant *E. coli*.

The risk of consuming chicken meat contaminated with cephalosporin resistant *E. coli* consists mainly of the possible transfer of resistance genes to other, potential pathogenic bacteria present in the human intestinal tract. Indeed, cephalosporin resistant *E. coli* strains from poultry only exceptionally cause infections in humans.

Therefore, from a food safety point of view, the Scientific Committee wants to gain insight into the degree of exposure of people to cephalosporin resistant *E. coli* through consumption of chicken meat. For this purpose a quantitative model aimed at estimating the exposure of the consumer to cephalosporin resistant *E. coli* by consumption of Belgian chicken meat was elaborated. The model consists of different modules that simulate the farm to fork chain starting from primary production, over slaughter, processing and distribution to storage, preparation and consumption of chicken meat.

The results indicate that about 1,5% of the meals with chicken meat contain more than 1000 colony forming units (cfu) of cephalosporin resistant *E. coli*. The risk of this exposure to human health cannot be estimated at this stage given a lack of understanding and quantitative data on the minimal infectious dose and on the factors influencing the transfer of cephalosporin antimicrobial resistance genes from *E. coli* to the intestinal bacterial flora of men.

The model shows that the majority of exposure is caused by cross contamination in the kitchen, which is again an argument to respect good hygiene measures during preparation of chicken meat. Furthermore the proportion of cephalosporin resistant *E. coli* (within the total number of *E. coli*) in primary production and the overall contamination of chicken carcasses or chicken parts with *E. coli* are of significant influence on the risk of consumer exposure to cephalosporin resistant *E. coli*. This means that a sound antibiotic drug policy in primary production and respect of good hygiene practices in the slaughterhouse and cutting plant could reduce significantly the risk of exposure to cephalosporin resistant *E. coli* during consumption of chicken meat.

Finally, the Scientific Committee recommends the more closely surveillance of antibiotic resistance and the encouragement of the responsible use of antibiotics in animal production.

The full text is available on this website in dutch and in french, respectively under the section "Wetenschappelijk Comité/Adviezen" and "Comité scientifique/Avis".