

The intensified control programme for *Salmonella* at Danish swine slaughterhouses

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Summary: In Denmark, an ongoing surveillance of *Salmonella* in pork has been implemented since 1993. The surveillance has been optimised and extended in order to further reduce the *Salmonella* prevalence in pork. The pork industry has made an agreement with the Danish authorities, that by the end of 2006 the *Salmonella* prevalence in pork must be reduced with 27% compared to the prevalence by the end of 2001. The intensified Control programme for *Salmonella* at Danish slaughterhouses is based upon carcass swabs. The results of the samples are evaluated for each slaughterhouse every month including the results for the last twelve months. Slaughterhouses with a *Salmonella* prevalence of 2.3% or more on individual carcasses are noted, and if a slaughterhouse is noted 4 times during a 6 months period, it is obliged to start an intensified *Salmonella* control programme.

Keywords: pigs, pork, swab samples, *Salmonella* prevalence

Materials and Methods: In Denmark an ongoing surveillance of *Salmonella* in pork has been implemented since 1993. By the 1st of January 2001 the surveillance was revised and is now based upon carcass swabs taken after 12 hours of cooling. From each carcass three areas of 100 cm² are sampled, yielding a total of 300 cm². The areas sampled are 100 cm² on the hind leg near the tail, 100 cm² near the sternum and 100 cm² on the jowl. These sampling areas are the same as the ones described by FSIS, USA, for slaughterhouses, who want to export to the USA. From each slaughterhouse, slaughtering more than 200 pigs daily, 5 carcasses are sampled every day, and the 5 swab samples are analysed as one pooled sample. The results are evaluated for the latest 11 days of slaughter, and if more than one sample is positive actions must be taken. This surveillance will reveal acute *Salmonella* problems.

By the 1st of May 2002 an intensified control programme for *Salmonella* at the slaughterhouses was introduced. The aim of this programme is to identify slaughterhouses that have an increased prevalence of *Salmonella* over a period of time. The intensified control programme is based upon the same samples as described above, but here the results are evaluated monthly including results for the latest 12 months. This period will provide a sufficient number of samples to ensure statistical confidence, when a slaughterhouse is noted. Slaughterhouses with a *Salmonella* prevalence of 2.3% or more on individual carcasses are noted and if a slaughterhouse is noted 4 times during a 6 months period it is obliged to start an intensified control programme.

When an intensified control programme is started, the slaughterhouse has one month to take samples to:

- Identify the cause for the *Salmonella* contamination if possible
- Work out an intervention plan
- Implement the necessary initiatives

Within the following 6 months the slaughterhouse must document a lasting effect of the initiatives taken. This can be done in two ways: either the *Salmonella* prevalence is again below 2.3% or the slaughterhouse has none or only one positive sample monthly in four months out of the 6 months. If the time limit is not kept the authorities can demand further initiatives taken.

Discussion: The pork industry has made an agreement with the Danish authorities, that by the end of 2006 the *Salmonella* prevalence in pork must be reduced with 27% compared to the prevalence by the end of 2001.

For the Danish Bacon and Meat Council the first year of experience with the intensified controlled programme has shown, that as soon as a slaughterhouse is noted for the first time, a major programme is started at the slaughterhouse in order to locate the source of *Salmonella* contamination. With a sporadic prevalence with 2 or 3 positive samples a month, this work can be very difficult and requires many samples taken over a period of time. This sampling often includes samples from both the unclean and the clean part of the slaughter line.

An increased prevalence of *Salmonella* may also be caused by introduction of automatic equipment or by education of new staff on the slaughter line, but these circumstances seldom influence the slaughter hygiene for more than one or two months.

The initiatives taken to reduce the *Salmonella* prevalence are highly individual and vary from slaughterhouse to slaughterhouse. Some are improvements or changes in routines that can be implemented immediately. Other initiatives are long term investments, that takes time to implement.

During the first 14 months after implementation five slaughterhouses out of 19 slaughterhouses members of the Danish Bacon and Meat Council had to start an intensified control programme. Four of these slaughterhouses are out of the intensified programme again and one is still working on it within the time limit. So far, all the slaughterhouses have been able to reduce their *Salmonella* prevalence on the carcasses within the time limit.

The *Salmonella* prevalence in pork from slaughterhouses members of The Danish Bacon and Meat Council was 1.7% by the end of 2001. By the end of 2002 the prevalence was reduced to 1.5%. Furthermore the number of Danes with salmonellosis caused by pork was reduced from 166 cases in 2001 to 78 cases in 2002 (Anonymous, 2003).

References:

Anonymous, 2003. Annual Report on Zoonoses in Denmark 2002. 31 pp.

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EXPOSURE ASSESSMENT OF FOODBORNE PATHOGENS IN PORK IN BELGIUM

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Summary: The aim of this study was to assess the exposure of the most incident foodborne pathogens in the Belgian meat production chain. The prevalence of *Salmonella*, *Campylobacter* and *Listeria monocytogenes* were evaluated in carcasses (swabs), retail cuts, minced meat and meat products of pork. The investigation was made each year since 1997, using official methods from the Ministry of Public Health for *Salmonella* and *Campylobacter* and the Vidas *Listeria monocytogenes* method. More than 10 % of each matrix were contaminated with *Salmonella*. For minced meat and meat products, the contamination rate were respectively round 20 % and 3 – 6 % for *Listeria monocytogenes*. Under 5 % of minced meat samples were positive for *Campylobacter*. For minced meat, the contamination has also been assessed according to the location of sampling (agreed, low capacity establishments or retail level). The characterisation of bacterial species allows the comparison between meat and human isolates.