# ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

## INFORMATION PAPER

## EPIDEMIOLOGY OF FOODBORNE INFECTIONS GROUP (EFIG)

1. The most recent meeting of this group was held on 19 October 2006.

### Review of animal data for January to June 2006

2. The number of *Salmonella* reports in January to June 2006 was nearly the same as in the same period last year and had decreased by 15% in comparison with the same period in 2004. Decreases were seen in chickens, sheep and pigs, whilst there were increases in ducks and cattle. This was against a background of an increase in submissions, mainly from birds in relation to avian influenza surveillance.

3. Reports of *Salmonella* Enteritidis increased by comparison with the previous year, the majority of incidents being reported in duck. Among the five chicken reports, three involved *Salmonella* Enteritidis PT1, with nalidixic acid resistance, in broiler breeder flocks. However, on investigation, only one of the supply flocks showed infection and it was concluded that there had been cross contamination of meconium samples in the hatchery. The organism had not been isolated subsequently from broiler flocks but the possibility of there being affected broilers could not be ruled out entirely. There were two reports of the *Salmonella* vaccine strain in layer flocks.

4. There was also an increase in reports of *Salmonella* Typhimurium, the majority of the increase being due to turkey, ducks and geese. There were only 3 reports in chickens. The number of reports from cattle, sheep and pigs decreased.

5. *Salmonella* Dublin remains the most common serotype isolated from cattle, as does *Salmonella enterica* subsp. *diarizonae* in sheep/goats and *Salmonella* Typhimurium in pigs. Whilst the total number of reports has increased in cattle, it has fallen in both sheep/goats and pigs. The occurrence of *Salmonella* Montevideo in chickens, in addition to its more usual association with sheep, was noted. Isolates associated with chocolate are more like the poultry strains than sheep strains.

6. Reports of *Salmonella* in chickens fell sharply in comparison with 2005 and the majority of isolates were neither *Salmonella* Enteritidis nor *Salmonella* Typhimurium.

## Review of human data

7. A new reporting tool, which contains laboratory reports and outbreak data, had been developed. This made it much easier to review the human data across the UK.

8. The main features were a flattening out of the downward trend in *Salmonella* and *Campylobacter*. *Listeria* figures appeared to have fallen slightly, at they did in 2004 and 2003, from the peak year in 2002 but it was commented that the figures were difficult to interpret at this stage of the year.

9. There had been an overall decrease in outbreaks, particularly of *Salmonella* Enteritidis and *Salmonella* Typhimurium.

## Other items

10. Members discussed a paper on **trends in VTEC O157 infection in England and Wales**. The incidence in both countries had fallen over the period 1999-2002. In England, it had subsequently increased so that the rate for 2005 was similar to the rate for 2000, whereas in Wales the incidence had continued to fall until 2003, and the increase had been seen between 2004 and 2005. This was the case even when outbreak cases were removed. However, when individual phage types were examined, the increase was not attributable to any particular phage types. The greatest increase had been seen in the 1-4 age group.

11. A discussion on the recording of contact information led to a question as to how much incidence was affected by contact screening policies. Up to a point, the wider the circle of contacts screened, the more clinically mild or asymptomatic carriers might be detected. This underlined the need for a structured survey from time to time to make sure that apparent trends were not an artefact.

12. Another issue is the extent to which sorbitol-fermenting *E. coli* O157 and non-O157 VTEC is being detected. HPA is planning a one day meeting to discuss these issues. In the meanwhile, HUS surveillance could provide a more robust indicator of trends. Since BPSU is not inclined to re-introduce HUS into its screening programme, the case for requiring notifications of bloody diarrhoea merits consideration.

13. Richard Elson presented a paper on the **CLASSP (Co-ordinated Local Authority Sentinel Surveillance of pathogens) study**, which involves simultaneous collection of data on *Salmonella* and *Campylobacter* from food and humans, in a routine and standardised way. The report focussed on data from the first year of human surveillance. Data were available on approximately 5000 cases, of which 80% were infected with Campylobacter. Differences between the pathogens were observed for age range, clinical illness and exposures. The initial analyses provide interesting observations, which need further analysis. However, caution is required in case-case comparisons.

14. HPA presented a paper on **trends in the most common subtypes of non travel-associated *Salmonella* Enteritidis.** Cumulative graphs for the main subtypes of *S*. Enteritidis reported overall in the last three years, or which were common last year, were presented. Cumulative regional incidence for 2006 to date was also presented as were trends in foreign travel to provide members with an insight into potential origins of those subtypes.

15. The data demonstrated that, for a number of subtypes associated with non-UK eggs in recent years (e.g. PT1 NxCp$_L$, PT14b, PT 6a A), incidence had remained low following the intervention in late 2004. However, the incidence in 2006 was higher in London and the Eastern region. Furthermore, a number of 'new' subtypes (PT8, PT21, PT14b NxCp$_L$) had emerged in 2006, especially in the above regions, which were traditionally associated with foreign travel but where the proportion of travel-associated cases had dropped dramatically in 2006. This pattern had been observed in the past for non-UK egg strains. Finally, the incidence of the traditional 'UK strains' (PT4, PT6) in 2006 was lower than, or comparable with previous years.

16. HPA presented a paper on **trends in *Salmonella* Typhimurium infection in England and Wales from 1991 to 2005.** Historically, incidence increased in the early 1950's associated with outbreaks of DT29 from imported products. Whilst incidence was lower in the 1960s, drug resistant DT29 strains emerged from 1964-68. An increase in the 1970's and 80's was due to DT204, and DT104 accounted for an increase in the 1990's.

17. Incidence in both England & in Wales showed a general decline from 1991 to 2005. Over the surveillance period, the proportion of travel-associated cases increased, suggesting that some of the decline was due to reductions in UK-acquired infections. *Salmonella* Typhimurium DT 104 dominated and the resistance pattern ACSSuSpT was most commonly observed, but the decline appeared to occur in most subtypes. Amongst the common subtypes the decline has occurred to a greater extent in some age groups and in certain regions. It was noted that the pattern of *S*. Typhimurium DT104 incidents in cattle is identical to the trend in human infection.

18. HPA presented an update on **Human Listeriosis in the UK.** The incidence in England & Wales in 2005 was lower than in 2004 but not significantly so. It was still significantly higher than it was prior to 2002. In recent years, there has been a clustering of infection in one or two regions and this year there has been an increase in non-pregnancy-associated cases in London. In Scotland the incidence in 2005 was significantly higher than in 2004 and higher than the period 1993-1999. Furthermore, the clinical picture was similar to England & Wales, with increased incidence in the elderly presenting with bacteraemia. An analysis of data from England & Wales suggested that the increase was not an artefact. A large number of different subtypes are involved. A case control study is being planned.

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