

**ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY
OF FOOD**

CURRENT OUTBREAKS OF *SALMONELLA* IN ENGLAND AND WALES

Background

1. This paper summarises the current state of *Salmonella* Enteritidis outbreaks in England and Wales since June 2003. These include a widespread increase in cases of *S. Enteritidis* PT14b, a large localised outbreak of *S. Enteritidis* PT 56 and a number of localised outbreaks, caused by a range of phage types.
2. This paper also summarises the widespread outbreak of *Salmonella* Bareilly that affected at least 186 people during the summer of 2003.
3. Unlike the *S. Enteritidis* outbreaks last year, microbiological evidence pinpointing the source of these outbreaks has been difficult to establish. Investigation of premises associated with outbreaks has also shown that existing advice to food businesses on the safe use and handling of raw shell eggs is not always being followed.
4. Some of the outbreaks have been short-lived and others have been controlled by public health measures such as advice to stop using raw shell eggs in uncooked products.

Action required

4. This paper is presented for information.

Secretariat

November 2003

BRIEFING NOTE FOR ACMSF MEMBERS : OUTBREAKS OF *SALMONELLA* IN ENGLAND AND WALES

Introduction

1. The purpose of this paper is to brief members about a series of outbreaks of *Salmonella* and action taken by the Food Standards Agency to protect public health.

Increase of *Salmonella* Enteritidis Outbreaks

2. Since 1 June 2003, 34 outbreaks of *Salmonella* Enteritidis in England and Wales have been reported to the Health Protection Agency (HPA)'s Communicable Disease Surveillance Centre (CDSC), with 828 laboratory-confirmed cases. A further 8 local outbreaks have been reported in the context of a national outbreak of *S. Enteritidis* PT14b.
3. Many of the outbreaks have been localised. The number of outbreaks per month appears to be falling. Whilst there were 8 outbreaks in July and 9 in August, 4 outbreaks were reported in September and only 2 in October.
4. The majority of the outbreaks have been in catering settings. Sixteen of the outbreaks have been linked to Chinese restaurants, 2 to bakeries and 5 to nursing homes.
5. The HPA initiated an outbreak-related public health investigation in response to the dramatic change in the epidemiology of *S. Enteritidis*. As part of the investigation of any *S. Enteritidis* related outbreaks, raw shell eggs were sampled in addition to other foods taken for microbiological examination. In 2003, a total of 4,104 eggs have been tested to date. Of the 684 pooled samples of eggs examined, 21 have been positive for *Salmonella*, although in

only one case was this of the same phage type as the outbreak strain. This is in contrast to the situation last year where outbreak strains were more frequently found in shell eggs.

6. Investigation of premises associated with outbreaks has also shown that existing advice to food businesses on the safe use and handling of raw shell eggs is not always being followed. In the outbreaks linked to bakeries, raw shell eggs were used in products that would not receive further cooking. This practice has now ceased on the premises in question.

***Salmonella* Enteritidis PT 14b**

7. There has been a national increase of *S. Enteritidis* PT14b since June with 354 cases reported to date and involving eight local outbreaks. Five of the local outbreaks involved Chinese restaurants and 5 of the outlets involved in local outbreaks obtained their eggs from the same importer. However, none of the shell eggs tested during investigations have been positive for PT14b. Two samples of raw egg mix on premises were found to be positive for PT14b but in at least one case, the sample was taken after raw chicken had been dipped into it. In both cases the country of origin of the eggs could not be ascertained. The HPA's CDSC is undertaking a case control study of *S. Enteritidis* PT14b and expects to have the study completed before Christmas.

***Salmonella* Enteritidis PT 56**

8. A large outbreak of *S. Enteritidis* PT56 in Bradford was reported in November. Over 300 cases have now been identified, most of those affected being from the South Asian community. Over 60 people have required hospital admission although, in most cases, this was of very short duration. No deaths have been reported.
9. The dates of onset of the cases are clustered between 1 and 4 November and possible links with a restaurant are being investigated.

***Salmonella* Bareilly**

10. In late August the HPA's Laboratory of Enteric Pathogens (LEP) for England and Wales, and the Scottish *Salmonella* Reference Laboratory (SSRL) became aware of an increase in *Salmonella* Bareilly infection. Identification of the strain by plasmid analysis performed by the SSRL and the LEP showed that the outbreak strain was characterised by a 2.9 kb plasmid. One hundred and eighty-six cases were identified : 160 from England and Wales and 26 from Scotland. Cases ranged in age from under 1 year to 93 years. Dates of onset of illness ranged from 29 July to 6 September.

11. An outbreak control team consisting of representatives from the Scottish Centre for Infection and Environmental Health (SCIEH), the Scottish *Salmonella* Reference Laboratory, Scottish NHS Boards, the HPA and the FSA, was convened to co-ordinate investigations. Following hypothesis-generating interviews with 31 cases during the last week of August 2003, a matched case-control study was conducted between 30 August and 17 September to determine the vehicle(s) of transmission.

12. The study team, based at the HPA and SCIEH, conducted telephone interviews with 79 eligible cases and 132 eligible controls. In the statistical analysis, illness was independently associated with the consumption of egg and cress sandwiches bought in plastic packs (Matched Odds Ratio (MOR) 21.75; 95% Confidence interval (CI) 4.08-115.95; $P < 0.001$), consumption of egg and mayonnaise sandwiches bought in plastic packs (MOR 20.05; 95% CI 1.71-234.49; $P = 0.017$), consumption of mayonnaise (MOR 2.66; 95% CI 1.13-6.25; $P = 0.025$) and buying food from shops in chain Z (MOR 3.86; 95% CI 1.53-9.73; $P = 0.004$). A total of 23/27 (85%) cases who reported consumption of pre-packed egg and cress sandwiches and 5/13 (38%) of cases who reported consumption of egg and mayonnaise sandwiches had bought their sandwiches from shops in chain Z.

13. Although the descriptive epidemiology and case-control study have identified these variables as important (although not necessarily exclusive) risk factors, microbiological investigations have not confirmed a food source and neither environmental nor microbiological investigations have been able to pinpoint a potential source of contamination.

Agency action

14. When a link between eggs from Spain and outbreaks of *S. Enteritidis* was seen last year, the Food Standards Agency advised all egg importers and wholesalers that they should send all eggs from Spain for commercial heat treatment. This advice is still in place and was reissued by the Egg Marketing Inspectorate in August of this year.

15. A study looking at management risk factors in the catering trade led by the University of Wales College of Medicine and funded by the FSA is currently underway and is to include all outbreaks up to December 2003. Chinese restaurants that have been involved in the current wave of outbreaks will be included in this study and the results analysed at the first possible opportunity.

16. Ways of communicating good hygiene practices and food safety measures to specific catering groups are under consideration.

Microbiological Safety Division
Food Standards Agency
24 November 2003
cm7471

TABLE OF OUTBREAKS

Phage Type	Location	Cases confirmed (No ill)	Month of Onset	Venue/Possible food vehicle
8	Yorkshire & Humberside	1	May*	Community- cold cooked pork joint
56	North East	160	May*	Chinese Restaurant – unknown food vehicle
4	Swansea	7	?	Chinese Restaurant – unknown food vehicle
21	Cheshire	5	?	Chinese Restaurant – food vehicle Crispy duck
3	West Yorkshire	6	June	Unknown
1	Cambridge/ Peterborough	1 (3 ill)	June	Buffet
6	Gloucestershire	22	June	Bakery – Custard tart
6a	Berkshire	2 (8 ill)	June	Chinese Restaurant – unknown food vehicle
14b	National	354	June	8 local outbreaks (5 Chinese restaurants, 1 nursing home, 1 café, 1 restaurant)
1	Berkshire	24	July	School – tuna mayonnaise/ turkey joint suspected
24	Tees	10 (20 ill)	July	Restaurant – unknown food vehicle
8	Suffolk	12 (20 ill)	July	Long stay hospital – possible cross contamination with hand blender used to mix egg mix and milk drinks
4	East Midlands	1 (2 ill)	July	Nursing home – unknown food vehicle
4	Cornwall	12 (14 ill)	July	College – Rice salad/coleslaw
6	Humber	11 (12 ill)	July	Bakery – vanilla slice
6	Guildford	5 (11 ill)	July	Hostel – Undercooked eggs
4	Great Yarmouth	6	July	Pub – unknown food vehicle
53	Rotherham	5	August	Chinese Restaurant – unknown food vehicle
12	North Staffs	10	August	Community – unknown food vehicle
1	Bedfordshire	6 (9 ill)	August	Chinese Restaurant – egg fried rice
21	Sheffield	12 (15 ill)	August	Chinese Restaurant – unknown food vehicle

Phage Type	Location	Cases confirmed (No ill)	Month of Onset	Venue/Possible food vehicle
4	Hampshire	5 (7 ill)	August	Chinese Restaurant – unknown food vehicle
1	Flintshire	4	August	Chinese Restaurant – unknown food vehicle
4	Eastbourne	5 (12 ill)	August	Nursing home – unknown food vehicle
4	Leeds	7 (12 ill)	August	Nursing home – soft eggs served
4	Staines	6 (9 ill)	August	Restaurant – unknown food vehicle
6	Wetherby	6	September	Nursing home – soft eggs served
1	Durham	3	September	Chinese Restaurant – unknown food vehicle
8	Sunderland	4	September	Family celebration – home-made quiche
1	Hastings	2	September	Course buffet – unknown food vehicle
8	Rhyl	4	October	Chinese Restaurant – unknown food vehicle
4	Bedfordshire	5	October	Nursery – unknown food vehicle
56	Bradford	103 (320 ill)	November	Restaurant – possibly chicken kebab. 64 cases hospitalised.
12	Swindon	2	?	Nursing Home – unknown food vehicle

* - Outbreak reported to CDSC in June