

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

DISCUSSION PAPER

FIRST DRAFT of the report of the *Ad Hoc* group on *Campylobacter*

1. In June 2015, the FSA and ACMSF agreed that as it was 10 years since the Committee issued its last report on *Campylobacter* in the food chain, an expert subgroup should be set up to revisit this area and provide a more up to date picture, given that reducing *Campylobacter* in chicken was a key strategic priority for the Agency in recent years.
2. The ACMSF *Ad Hoc* Group on *Campylobacter* consisting of ACMSF members and members co-opted for their expertise met for the first time in May 2016 and has met eight times in total.
3. The group is now in a position to share the first draft of its report and recommendations with the Committee for consideration and comments. This draft is still work in progress and for members use only, a subsequent draft for public consultation will be prepared and published following discussion with the ACMSF. Members are asked to focus their comments and discussions ONLY on content and provide an indication whether the draft has covered key areas. Editorial amendments and further refining of the text will be addressed in a subsequent draft to be published in the near future and are not intended to be the focus of Committee discussions at this meeting.
4. The contents section is attached as Annex A.

Some key points from the draft report*Epidemiology*

5. *Campylobacter* remains the most common confirmed bacterial cause of acute gastroenteritis in the UK. Only a small fraction of *Campylobacter* cases are reported (1 in 9). Routine surveillance remains key to understanding trends.
6. The food vehicles implicated in *Campylobacter* outbreaks in the UK are summarised in the report. Poultry predominates (N=83/125 outbreaks). There have been a number of outbreaks of *Campylobacter* associated with chicken liver pâté/parfait since the last ACMSF report. This is associated with chefs' preferences and recipes stipulating light cooking of the livers.

7. Contaminated poultry remains the greatest risk to humans but avoidable infections are also re-emerging in the UK associated with consuming raw (unpasteurised) milk.
8. Most *Campylobacter* cases are unrelated to outbreaks. Eating contaminated poultry in one form or another continues to dominate the epidemiology of sporadic cases. Newly identified food-related risk factors for sporadic infection include contact with garden soil (*C. jejuni* and *C. coli*), consuming beef (*C. coli* only), and eating cantaloupe and queso fresco (Mexican cheese).
9. Cross contamination from raw poultry to other foods and invasive *Campylobacter* in poultry flesh are both determinants of human campylobacteriosis. Birds that are most heavily contaminated cause the greatest risk.
10. Produce can be contaminated on farm (eg by faeces or irrigation water) or by cross contamination in the kitchen and as such acts as a vehicle of *Campylobacter* infection for humans. This combined with the large amount of uncooked produce consumed makes it the second highest risk factor for *Campylobacter* infection after poultry. Person to person transmission of *Campylobacter* is very low.
11. Red meat presents a low risk for food-borne transmission of pathogenic *Campylobacter* spp. to consumers.
12. Pigs predominantly excrete *C. coli* and many of the sequence types are either not (or rarely) found in humans and hence pigs have a very low source attribution.
13. All UK countries reported fewer cases in 2016 than in 2015 but the largest fall in reported rates occurred in Scotland. However, in 2017 (at the time of writing in week 47) laboratory-reported cases of *Campylobacter* in England and Wales had risen again from 48,835 in 2016 to 51,538 in 2017.
14. It is recommended that the Food Standards Agency and its equivalents in the devolved administrations continue to work closely with their counterpart health protection organisations to maintain routine surveillance for gastrointestinal pathogens in general and *Campylobacter* in particular.

Campylobacter biology and genomics

15. Not all *Campylobacter* strains are the same. The behaviour of *Campylobacter* in chickens is strain dependent. There are *Campylobacter* multi-locus sequence types that are host associated and others that are generalists. Some *Campylobacter* strains are not as frail as originally thought (e.g. when attached to chicken show higher levels of heat resistance and are capable of long term survival at chill temperatures).

16. Nucleotide sequence analyses have enabled substantial advances to be made in the biology of *C. jejuni* and *C. coli* over the preceding twenty years. Robust methodologies have been established, which enable: (i) precise isolate characterisation; (ii) high-resolution outbreak investigations; (iii) the establishment of the population structure of *C. jejuni* and *C. coli*; (iv) investigations into *Campylobacter* evolution; and (v) improved understanding of the pathways of human infection through attribution analyses. In the immediate future, improved and even more cost-effective means of conducting these analyses can be anticipated, although it is likely that the most dramatic reductions of cost occurred in the 2000-2017.

Long term sequelae

17. *Campylobacter* infection has been implicated in the subsequent development of: reactive arthritis, Guillain-Barré syndrome and Miller Fisher syndrome, haemolytic uraemic syndrome, inflammatory bowel disease and functional gastrointestinal disorders.

18. Reducing campylobacteriosis in the human population reduces the incidence of Guillain-Barré syndrome.

Behavioural aspects

19. The behaviour of washing raw chicken, seen as a risk factor for human campylobacteriosis because of potential cross-contamination, has improved somewhat but is still quite widespread.

20. The continued presence of *Campylobacter* spp. on chicken necessitates the ongoing education of the consumer in cooking and cross contamination controls.

21. Poultry liver consumption has been identified as a risk factor for human campylobacteriosis, as has eating raw or rare chicken. The current culinary trend of serving poultry liver 'pink' (meaning that *Campylobacter* will not have been destroyed) may pose a particular risk when people are eating out in restaurants (it is thought that only very small numbers of people prepare/eat pink poultry livers at home).

The Committee is invited to:

- Indicate whether key areas have been addressed in the report.

**Secretariat
January 2018**

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