ACM/619

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

FOOD STANDARDS AGENCY *CAMPYLOBACTER* STRATEGY

1. At the 46th meeting of the ACMSF, held on 5 December 2002, the Food Standards Agency outlined its initial thoughts on how control of *Campylobacter* in chickens could be achieved. In the following few months, these thoughts have been further developed and a strategy is being finalised. The attached paper summarises the proposed strategy, setting out the various aspects of work which need to be undertaken.

2. In order to help in finalising the strategy, the Agency would be grateful for general comments from the Committee, and specifically for views on the following questions :-

   - Bearing in mind the strategies in some other European countries, is it appropriate for the main focus of the UK strategy to be on improving biosecurity on the broiler farm ?

   - Is there a need to improve general biosecurity measures first before promoting those measures that can be considered more *Campylobacter* specific ?

   - Is there merit in undertaking a rolling survey on *Campylobacter* levels in retail product as opposed to short-term surveys at regular periods ?

   - How important is it have information on UK flock prevalence for *Campylobacter* ?

Secretariat
March 2003

PROPOSED FOOD STANDARDS AGENCY STRATEGY FOR THE CONTROL OF *CAMPYLOBACTER* IN CHICKENS

Background

1. The Food Standards Agency (FSA) has set itself a target to reduce the incidence of foodborne disease by 20% by April 2006. *Campylobacter* is the greatest challenge as far as this target is concerned as it causes a large number of cases of Infectious Intestinal Disease, particularly those severe enough to result in a visit to a GP. While it appears that the number of cases identified through laboratory reports is starting to reduce, there are still more than 50,000 reports a year.

2. A large proportion of *Campylobacter* cases are thought to be foodborne, and although it is accepted that there may be a number of routes by which humans are exposed to this organism there is strong evidence that the most significant foodstuff is chicken. To reduce the risk from chicken, measures could be taken at all parts of the food chain, and indeed other Agency work, such as the on-going Food Hygiene Campaign and the promotion of HACCP, will be expected to reduce the number of cases of illness. However, in view of the large proportion of contaminated chickens (50% plus), the numbers of organisms per bird (often 10,000 per chicken or greater), and the low infectious dose of *Campylobacter*, it is clear that action is also required at earlier stages of the food chain to reduce the burden entering the kitchen.

Developing the Strategy

3. The Agency's strategy for the control of *Campylobacter* in chicken therefore focuses on measures that can be taken at the farm and slaughterhouse. The overall objective of the strategy is to **significantly reduce the presence of *Campylobacter* in UK produced chicken on retail sale**. This takes account of the ACMSF's view, with which the Agency concurs, that measures are available that will reduce *Campylobacter* in broiler chickens.

4. At this time, the Agency does not feel it is appropriate to define the level of reduction or to set target dates. There is still uncertainty about how best to control *Campylobacter* in chickens and, while analogies could be made with the time scale over which *Salmonella* was tackled (some 10 to 15 years), a wider range of measures were available to control this organism (e.g. control in the breeding and feed sectors). However, if the control measures outlined in this strategy are implemented, it is believed the levels of *Campylobacter* will start to fall within the next 3 years. This should have an effect on cases of illness as, with the UK industry producing some 800,000,000 plus chickens a year, even a relatively small reduction in contamination levels, say 5%, would prevent some 40 million *Campylobacter* positive birds entering the kitchen.

5. In developing the strategy, account has been taken of previous ACMSF reports, recent ACMSF advice, historical and on-going research, the experiences of other countries, and discussion with stakeholders. The latter has taken place predominantly through a Consultative Group set up by the Agency that includes all the key organisations with an interest in the UK poultry industry, as well as consumers. As the broad thrust of the strategy is already in the public domain, the Agency does not expect that its content should be a surprise to anyone. Indeed, it is to be hoped that many of the aspects identified are already actively being considered by the industry.

Overview of the Strategy

6. The main objectives for the first 3 year period of the strategy (2003 to 2006) are :-

   - To improve biosecurity on intensive chicken farms (housed birds), with particular attention to those measures that may have a specific effect on *Campylobacter;*

   - Where necessary, provide guidance to help farmers achieve this improvement;

   - To put in place a mechanism by which information on biosecurity and *Campylobacter* control can be quickly and efficiently disseminated to the industry (especially farmers);

   - To set up a system by which the effectiveness of the strategy can be evaluated (i.e. surveillance of *Campylobacter* in flocks and retail product).

7. The intention is that this initial 3 year period will set the foundations for progressive control of *Campylobacter*. By ensuring that all farms achieve a suitable level of biosecurity, it is expected that there will be a reduction in the number of *Campylobacter* positive flocks. In addition to potentially having an impact on the numbers of contaminated birds leaving the slaughterhouse, this will also open up other options for improving control in the future. For example, it might increase the feasibility of testing and scheduling of flocks or directing positive flocks for heat treatment or freezing.

Biosecurity Campaign

8. Information on biosecurity is readily available and much of this has been brought together in the Defra *Code of Practice for the Prevention and Control of Salmonella in Broiler Flocks on Farm.* Although this is aimed at *Salmonella*, many of the measures can be considered general good practice and will be equally applicable to providing the foundation for the control of *Campylobacter*.

9. The Agency's work to date indicates that there is a high level of awareness of the Defra Code, and a number of the measures contained within it are also included in the relevant sections of the Assured Chicken Production (ACP) scheme. However, this work has also highlighted that awareness does not necessarily translate into practice, with deficiencies in biosecurity having been identified on some farms.

10. This is of concern as, although evidence would suggest that current biosecurity measures on most farms are operated to a standard that is seemingly effective against *Salmonella*, they may not be at a level which is effective against *Campylobacter*. The reasons for this are not fully understood, although they are likely to relate to the fact that *Campylobacter* can best be considered as an environmental contaminant, with there being numerous opportunities during the life of a flock for the birds to be exposed to the organism.

11. The initial focus of the Agency's strategy will therefore be **a campaign to promote biosecurity on the broiler farm**. To be effective, this will need to get across the correct messages in a way that they will be understood and actioned by the farmer. To ensure this happens, there have already been discussions with stakeholders, and the Agency will use these as a basis for developing the campaign.

Campaign - Phase 1

12. Phase 1 is scheduled for Autumn 2003 and will highlight to farmers the most important biosecurity measures, and will also act as a general introduction to the campaign. The measures, and the mechanism for disseminating them, will be developed over the summer and will draw heavily on the Defra Code, the results of research, and *ad hoc* discussions with experts. During this period, the Agency will seek to establish lines of communication with all UK poultry farms (of which it is believed there are some 2,000).

Campaign – Phase 2

13. Phase 2 is likely to begin in Spring 2004 and will focus on the provision of more detailed advice on improving biosecurity on the farm, building on the measures identified in phase 1. Currently, the view is that this will best be achieved through the use of technical workshops held on a regional or local basis, backed up by relevant documentation. Work on developing phase 2 will start in the Autumn and will involve identifying the areas where additional guidance is required, producing appropriate material and finalising the approach to be taken for disseminating the material.

Campaign – Phase 3

14. Phase 3 is likely to take a similar approach to phase 2, but will focus on *Campylobacter* specific measures. It is anticipated that this phase will begin in Autumn 2004, but there is the possibility that certain aspects

could be brought forward should the required information be available, i.e. if best practice is identified and can be adapted into guidance.

Controlling *Campylobacter*

15. As already noted, there is still uncertainty as to the best way to control *Campylobacter* in chickens. However, information is starting to become available on those measures that are likely to be of most importance, and these will be considered for inclusion in phase 3 of the campaign. For some of these measures, there is probably enough known to be able to start considering guidance whilst for others, some further work needs to be undertaken first.

Hygiene barriers

16. There is some evidence to support a link between the use of hygiene barriers[1] and minimising the likelihood of obtaining a *Campylobacter* positive flock. In addition, the construction of a physical barrier that has to be stepped over will reinforce to the farmer (and any visitor) the need to take precautions to prevent any potentially *Campylobacter*-contaminated material (mud, faeces, etc.) from entering the area where the birds are housed. In view of what is currently known, the Agency considers that hygiene barriers should be in place on all chicken farms. Any guidance package is likely to include information on the design of hygiene barriers as well as their use.

Thinning

17. Thinning is common practice throughout the UK poultry industry, allowing farmers to maximise the use of space for rearing birds, while meeting the necessary welfare requirements for stocking density and consumer demands for birds of different sizes. However, by its nature, the removal of a portion of the flock prior to depopulation is a breach of biosecurity and, as such, a major risk factor for introducing *Campylobacter* into a flock. Although recognising that economic considerations and consumer demand militate against abolition of the practice, the Agency believes that thinning can and should be carried out in a manner which minimises the risks associated with the process. Research is being commissioned to examine this in detail, part of the output of which will be guidance on best practice for the industry.

Crate Washing

18. It has been recognised for some time that systems used to wash transport crates at slaughterhouses may not be effective in ensuring they are free of

[1] The term 'hygiene barrier' in this context relates to a physical barrier separating the anteroom from the area housing the birds, thus separating clean and dirty areas.

Campylobacter. As such, they are a potential source of contamination when they are returned to the farms. Agency work has shown that part of the problem could be that these systems are not being used to their full potential, e.g. manufacturers' instructions are not followed, and further work has been commissioned to produce guidance on optimisation. However, it is likely that such guidance will not solve the problem completely, and work is also underway to assess whether a redesign of current systems will help to achieve *Campylobacter*-free crates.

Farm management practices

19. Agency funded research, and work in other countries, has shown that certain farmers seem able to consistently produce *Campylobacter* negative flocks, whereas other farmers produce flocks which are almost always positive. The reasons for this are not fully understood, although a preliminary investigation of data has shown there may be a relationship between *Campylobacter* status and the levels of hock burn, pad burn, rejects at slaughter and mortality. The Agency would expect all farmers to apply proper animal health and welfare procedures as a matter of course. However, if a link between farm management practice and *Campylobacter* status could be proved, this would provide an additional incentive for good practice.

20. Therefore, the Agency is continuing to fund work to explore this possible link. This is hampered to some extent by a lack of historical information on the *Campylobacter* status of UK flocks. However, a proposed collaboration with researchers in Denmark and Norway will allow the hypothesis to be tested against substantial data sets.

Controls at the Slaughterhouse

21. Although the strategy is focused predominantly on the broiler farm, the importance of control at the slaughterhouse is not being overlooked, particularly as a reduction in flock prevalence could open the door for control options at this stage of the food chain. Ways in which this could work can be seen with the strategies adopted in some Scandinavian countries. For example, in Norway, all flocks are tested prior to slaughter, and those found to be positive are scheduled for slaughter at the end of the day and must be further processed (by freezing or heat treatment) before being placed on the market.

22. In Denmark, companies actually label product as *'Campylobacter* free chicken'. Flocks thought to be *Campylobacter* free (through testing at the farm) are put through the slaughterhouse at the start of the day, where they also undergo extensive testing for the organism. The birds are then frozen and held in storage till the test results are available and, should the results be negative, the birds can be released to the market. While currently only being applied to frozen chickens, the use of a rapid detection method may also extend this labelling to fresh product.

23. The effect of freezing on the levels of *Campylobacter* on the birds is seen by the Danish Government as being a very good option for reducing cases of illness due to this organism in chicken. Indeed, while accepting the importance of control on the farm, it is felt that a much greater effect can be had by a 100-fold reduction in the numbers of *Campylobacter* on the birds (this information coming from a risk assessment). Compulsory treatment of positive flocks is being considered, either by freezing or by some other mechanism of achieving the 100-fold reduction (a hot water wash is being tested).

24. At this time, the strategies being used in Scandinavia are not considered suitable for use in the UK. Apart from the high number of positive flocks, it is important to recognise that there are fundamental differences between the UK and Scandinavian industry. The former is larger and, more importantly, is very much based on the fresh meat market. Hence a move towards freezing or heat treating chickens from positive flocks is unlikely to be considered a practical proposition. In addition, there is currently no mechanism in place in the UK for testing flocks for their *Campylobacter* status prior to slaughter.

25. The Agency will, however, watch with interest the work being undertaken in Denmark on the hot water wash. Reducing illness is very much a case of reducing exposure to *Campylobacter* and this can potentially be achieved in two ways, by lowering the number of positive birds entering the kitchen or by lowering the actual numbers on each bird. To this end, the Agency is also funding work on 'crust freezing' of chickens in the slaughterhouse. It is hoped that this technique will have the same effect as normal freezing in reducing the number of *Campylobacter*, whilst avoiding the need to freeze the whole bird.

Evaluation

26. In taking forward the strategy, it will be important for there to be an effective means by which progress can be evaluated. The recently published Agency survey of *Salmonella* and *Campylobacter* in chickens at retail provides baseline information by which any future reductions in the proportion of UK-produced chicken contaminated with *Campylobacter* can be judged. However, it is important to recognise that there is evidence of seasonality in flock prevalence in the UK, and that this could well manifest itself in the retail product. Consequently, the intention is that the Agency will set up a 'rolling retail survey' which, over time, will provide data on whether overall levels are falling and whether there is indeed seasonality in the retail product.

27. Although data from a retail survey will allow the overall success of the strategy to be assessed, it does not directly relate to the effectiveness of the on-farm biosecurity campaign. Not only would it be useful to have this information as an evaluation measure, it will be essential to have this if consideration is to given in the future to testing and scheduling of *Campylobacter* flocks. Further, detailed information on flock prevalence

would enable better assessments to be made of the effectiveness of various intervention strategies.

28. In view of these points, the Agency would like to see a system in place for measuring the prevalence of *Campylobacter* in the UK flock. This would need to be taken forward in discussion with Defra. However, as a first step, the Agency is in the process of commissioning work to assess the most appropriate methods for sampling and testing for *Campylobacter* in poultry flocks.

Other Issues

29. In taking forward the strategy there will be a number of issues that the Agency will need to bear in mind. It is not possible to cover all of these in detail in this paper. However brief comments on some of them are provided below.

Industry Co-operation

30. There is currently no legal basis for the majority of the measures that the Agency would like the industry to put in place. Therefore, the success of the strategy will rely very much on voluntary implementation and, in view of this, it is fortunate that there seems to be a willingness within the industry to tackle the problem of *Campylobacter*. The Agency is aware, however, that some may take the view that action should not be taken until there is definitive evidence on the effectiveness regarding the various measures proposed in the strategy. While taking note of this concern, the Agency believes that this should not prevent the industry acting now, not least as it is only through putting in place the strategy that some of the definitive evidence will be obtained.

Industry Assurance Schemes

31. The Assured Chicken Production (ACP) scheme covers some 85% of the chickens produced in the UK. The scheme has been in place since 2000, with the objective of setting nutrition, welfare, food safety and environmental standards and verifying producers' compliance with them. While some of the aspects of biosecurity that the Agency would like to see implemented on broiler farms are already covered in the scheme, it is clear that there would be benefits if some of the other measures outlined in the strategy could also be incorporated, not least as there is an audit mechanism within the ACP scheme. The Agency has already had informal discussions with those who manage the scheme and these will continue as the strategy develops.

Economics

32. The main purpose of this strategy is to improve public health, and it is important not to lose sight of this aim. However, the Agency recognises that, with a global market in chickens, the UK poultry industry needs to

remain financially competitive and that there will be concern about the financial implications of *Campylobacter* control measures. Although economic issues will have to be considered as the strategy evolves, it should be noted that a number of the measures that have been identified are relatively simple and could be introduced with minimal cost.

Extensive Production

33. The main focus of the strategy is intensively-produced chickens, i.e. housed birds. This reflects the fact that the majority of chickens in the UK are produced in this way, and also that control in extensively produced birds (free range and organic) will be a lot harder to achieve because their exposure to the environment cannot be controlled. However, although a relatively small proportion of the UK flock (less than 5%) are reared in this way, it still equates to a significant number of chickens, and it is important that possible control measures are considered. Therefore, the Agency is considering funding research in this area and has asked for Expressions of Interest outlining possible ways in which this could be achieved.

Research

34. There has been a significant amount of research undertaken on *Campylobacter* in poultry, both nationally and internationally. The Agency will add to this by funding work to meet specific needs identified in the strategy, and will maintain a watching brief on other work being undertaken in the UK and abroad. Within the next 18 months, the Agency will formally review its programme of work on poultry.

Microbiological Safety Division
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