

To: Interested Parties

Date: 17 June 2003

Reference: MSF 270

CONSULTATION

Food Standards Agency Strategy for the Control of Campylobacter in Chickens

Dear Sir / Madam

This letter seeks your views and comments in writing on the Food Standards Agency Strategy for the Control of Campylobacter in Chickens. The consultation covers England, Scotland and Wales. Recipients will not receive further documentation from FSA Scotland or Wales and should provide responses to the contact provided in this letter. FSA Northern Ireland will issue a separate consultation.

Responses are required by 8 September 2003.

All comments and views should be sent to:

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Food Standards Agency
Room 816c Aviation House
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London
WC2B 6NH

Tel: 020 7276 8975

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Or by email to: ian.smith@foodstandards.gsi.gov.uk

The Agency has developed, and is beginning to implement, a strategy to control Campylobacter in UK produced chickens reared for meat (broilers). This consultation aims to distribute the strategy widely to all stakeholders in the poultry production chain and seek views to assist in its implementation and further development.

The FSA has 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. 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.

Measures could be taken at any stage in the food chain to reduce the risk from chicken and Agency initiatives to improve hygiene in the commercial and domestic kitchen and to promote HACCP will be expected to reduce the number of cases of illness. However, it is clear that action is also required at earlier stages of the food chain to reduce the burden entering the kitchen and reduce the risks for the consumer. The Agency has therefore developed a strategy to significantly reduce *Campylobacter* in UK produced chicken on retail sale, considering potential control measures that could be implemented on the farm or in the processing plant.

The strategy mainly covers intensively produced, housed chickens, although control in other production systems (organic and free range) is also addressed. All the major stakeholders in the chicken production chain have been involved at various stages in the development of the strategy.

Your comments

I would be grateful for your comments and views no later than **8 September 2003** – please include details of the organisation you represent in your response. In addition to general comments on the strategy the Agency would appreciate any information on:

- The costs associated with implementing general biosecurity measures and measures aimed specifically at controlling *Campylobacter*.
- Monitoring data, and potential costs of acquiring such data, that may help determine the prevalence of *Campylobacter* in UK broiler flocks.
- The results of any intervention studies evaluating measures for controlling *Campylobacter* in retail chicken.

The Agency has limited information in these areas, and although data is being collected through current research, additional information will be valuable in helping the work to progress.

Enquiries relating to the contents of this letter can be sent or emailed to the address given at the head of this letter or can be made by telephone. If any of the mailing information used to send you this letter has changed, please advise us direct.

Publication of personal data

All the views / comments received by the Agency will be made available for public examination. If you would prefer your comments NOT to be made publicly available, please indicate this by fully completing and returning the separate attachment together with your response.

Further information

A list of interested parties to whom this letter is being sent is available by request.

Please feel free to pass this document to any parties with an interest in the subject matter herein, or send us their full contact details and we will arrange for a copy to be sent to them direct. If you have received this consultation package on behalf of an organisation, we would be grateful if you could cascade the information to your members as appropriate.

A copy of this consultation letter / package is available on our website at www.food.gov.uk, where a summary of the responses received will be published in due course.

This consultation has been prepared in accordance with the Cabinet Office's Code of Practice on Written Consultation, available at www.cabinet-office.gov.uk. For details, please contact Ian Smith, Microbiological Safety Division, Food Standards Agency (020 7276 8975).

Thank you for participating in this written consultation.

Yours faithfully

Linden Jack

Microbiological Safety Division

Enclosed

Food Standards Agency Strategy for the Control of Campylobacter in Chickens

Publication of personal data



“ Please note that all responses will normally be made publicly available in full.

Publication of responses in full may include personal data (such as your contact / address details

Please say whether or not you agree to such personal data being published as part of the response and kindly return this form to indicate your intention.

- I Agree*
- I Do NOT Agree*

FULL NAME.....

FULL POSTAL ADDRESS:.....

.....

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If no objection is received, we will assume that you consent to full disclosure and the Agency may publish the details.

Please also note that the Agency may publish such details if necessary in pursuit of its functions.

If you have any Data Protection concerns, please contact Kay Wolf (FSA Records Manager) at Food Standards Agency, Aviation House (Room 115B), 125 Kingsway, London WC2B 6NH (Tel: 020 7276 8194) or via Email: kay.wolf@foodstandards.gsi.gov.uk.

For more general queries, please contact the Information Commissioner's Office at www.dataprotection.gov.uk (Tel: 01625 545745).”

FOOD STANDARDS AGENCY STRATEGY FOR THE CONTROL OF CAMPYLOBACTER IN CHICKENS

EXECUTIVE SUMMARY

The Food Standards Agency (FSA) must tackle *Campylobacter* if it is to achieve its target of reducing the incidence of foodborne disease by 20% by April 2006. There are over 50,000 cases of illness a year due to this organism and a large proportion of these are thought to be foodborne. There is strong evidence to suggest the most significant food source is chicken, and a reduction of the levels of *Campylobacter* on chicken would be expected to lead to a reduction in the number of human *Campylobacter* cases.

To reduce the risk from chicken, measures could be taken at all stages of the food chain, and indeed other Agency work, such as the on-going Food Hygiene Campaign and the promotion of HACCP in the food manufacturing sector, will be expected to reduce the number of cases of illness. However, as over 50% of chickens are contaminated, and *Campylobacter* has a low infectious dose, it is clear that action is also required at earlier stages of the food chain to reduce the burden entering the kitchen.

The overall objective of the strategy is to **significantly reduce the presence of *Campylobacter* in UK produced chicken on retail sale**. The main focus for the period 2003 to 2006 will be action on farms; activities being based around a campaign to improve biosecurity on intensive chicken farms (housed birds). Generic issues such as hand washing and access to houses will be covered and particular attention will be paid to those measures that may have a specific effect on *Campylobacter*. The campaign will also seek to establish effective ways of communicating with poultry farmers.

Action will also be taken at the slaughterhouse (processing plant), with the implementation and enforcement of procedures based on HACCP principles. Although it is recognised that no specific *Campylobacter* control measures currently exist for this part of the food chain, these are likely to become available in time and the Agency's work on the introduction of HACCP will provide the mechanism for ensuring that the industry takes account of these measures.

This initial 3-year period will set the foundations for progressive control of *Campylobacter*. By ensuring that all farms achieve an appropriate standard of biosecurity, it is expected that there will be a reduction in the number of *Campylobacter* positive flocks. This should have an impact on the numbers of contaminated birds leaving the slaughterhouse, and hence on the levels of *Campylobacter* related illness, and might also open up other options for improving control in the future that can be introduced via the HACCP route. For example, it might increase the feasibility of testing and scheduling of flocks, so that negative flocks can be slaughtered before positive ones, or directing positive flocks for heat treatment, freezing, or the use of other techniques which will reduce the level of *Campylobacter* contamination on poultry meat.

A further important aspect of the strategy will be evaluation and work will be undertaken to set up a system by which its effectiveness can be assessed.

1. INTRODUCTION

Background

1.1 *Campylobacter* is the greatest challenge for the Food Standards Agency (FSA) if it is to achieve the target it set itself of reducing the incidence of foodborne disease by 20% by April 2006. It is estimated that, in England and Wales in 2000, it accounted for 27% of all cases of indigenous foodborne disease and almost half of those cases resulted in a visit to the GP. While it appears that the number of *Campylobacter* cases identified through laboratory reports is starting to reduce, there are still more than 50,000 laboratory reports a year, accounting for over three-quarters of the reports on which progress in meeting the Agency's target is being judged. A large proportion of these cases are thought to be foodborne, and although a number of foods have been associated with *Campylobacter* infection there is strong evidence that the most significant food source is chicken. Estimates based on the reduction in cases associated with the Belgian dioxin crisis suggest that chicken may be the source of at least 40% of infections.

1.2 The need to control *Campylobacter* in chickens has been recognised for many years. The issue has been covered in two reports of the Advisory Committee on the Microbiological Safety of Food (ACMSF)¹ and has been the subject of a significant amount of Government funded research². Despite all of this, surveillance shows that more than 50% of chickens on retail sale in the UK contain *Campylobacter*³ and the limited information available from on-going Agency research suggests that at least 50% of flocks are contaminated.

¹ 1. Report on *Salmonella* in eggs (1993)

2. Report on poultry meat (1996)

http://archive.food.gov.uk/dept_health/archive/acmsf.htm

² http://www.food.gov.uk/science/research/research_archive/pubfund/microbiosafe/campylobacter.html

³ <http://www.food.gov.uk/multimedia/webpage/111802>

1.3 To reduce the risk from chicken, measures could be taken at all stages of the food chain, and indeed other Agency work, such as the on-going Food Hygiene Campaign and the promotion of HACCP in the food manufacturing sector, will be expected to reduce the number of cases of illness. However, as over 50% of chickens are contaminated, often with more than 10,000 organisms per bird, and *Campylobacter* has a low infectious dose, it is clear that action is also required at earlier stages of the food chain to reduce the burden entering the kitchen.

Objective of the Strategy

1.4 The Agency's strategy for the control of *Campylobacter* in chicken therefore focuses on measures that can be taken at the farm and at the slaughterhouse (processing plant). The overall objective being 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. It also recognises that with our current knowledge of the organism, we do not presently have the means to eliminate *Campylobacter* from chickens, although this might be an option for the future.

1.5 At this time, the Agency does not have a sound basis for setting a target for level of reduction or dates when this could be achieved. 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 more than 800,000,000 chickens a year (of which at least half will be contaminated), even a relatively small reduction in *Campylobacter* levels, say 5%, would prevent around 20 million positive birds entering the kitchen.

Developing the Strategy

1.6 The Agency has taken account of many sources of information in the development of the strategy. Of particular note is the advice on on-farm measures to control *Campylobacter* in chickens which the ACMSF submitted to the Agency in September 2002⁴. This confirmed the Agency's view that **control is a practical proposition in housed chickens**. This view is also supported by visits to Denmark and Norway to consider the strategies these countries are putting in place for controlling *Campylobacter* in chickens.

1.7 The Agency commissioned four reports⁵ on various aspects of poultry production covering both *Campylobacter* and *Salmonella* and these are also central to the strategy. The reports reviewed published and non-published work and provided an up to date assessment of current practices in the industry, especially in relation to on-farm hygiene measures, through structured interviews with poultry company representatives.

1.8 Discussion with stakeholders has also been instrumental in developing the strategy and has taken place predominantly through a Consultative Group set up by the Agency⁶. This includes the key organisations with an interest in the UK poultry industry, as well as consumers, and has proved an extremely effective mechanism for gathering information and for exchanging views on various aspects of the strategy.

⁴ <http://www.food.gov.uk/multimedia/pdfs/acm597.pdf>

⁵ 1. Testing and scheduling practices for *Salmonella* and *Campylobacter* (ZB00023)

2. Poultry transport crate hygiene (ZB00033)

3. *Campylobacter* biosecurity at the broiler farm (ZB00030)

4. Biosecurity on the broiler farm as an anti-*Salmonella* control measure (ZB00034).

Reports available via FSA Library: Contact Assistant Librarian, Food Standards Agency, 125 Kingsway, London WC2B 6NH, tel: 020 7276 8060.

Scope of the Strategy

1.9 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%) is 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.

1.10 The focus of the slaughterhouse work builds on the Meat (HACCP) Regulations 2002 which make it a legal requirement for all slaughterhouses to have procedures based on HACCP principles in place by 2003. *Campylobacter* should be identified as a hazard in poultry meat plants and although no specific control measures currently exist, the general improvement of hygiene expected with HACCP implementation should contribute to its control. In addition, regular HACCP review by the operator will provide the mechanism for feeding in new information as it emerges from ongoing research.

1.11 The Agency has no direct responsibility for non-UK produced chickens. However, the control measures identified in this strategy will be equally applicable to these birds and the Agency would expect those businesses involved in the production and sale of such chickens to seek, as far as possible, the same level of *Campylobacter* control as that being put in place in the UK.

⁶ <http://www.food.gov.uk/science/sciencetopics/microbiology/36970/>

Overview of the Strategy

1.12 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);**
- **Provide support and advice to the poultry slaughterhouse\ for the implementation and review of procedures based on HACCP principles in slaughterhouses;**
- **To make links with the Agency's wider activities through the food chain, enforcement and consumer awareness to reduce levels of *Campylobacter* infection.**
- **To set up a system by which the effectiveness of the strategy can be evaluated.**

1.13 This initial 3-year period will set the foundations for progressive control of *Campylobacter*. By ensuring that all farms achieve appropriate biosecurity standards, 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 processing plant, this will also open up other options for improving control in the future. For example, it might increase the feasibility for testing and scheduling of flocks, so that negative

flocks can be slaughtered before positive ones, or directing positive flocks for heat treatment, freezing, or the use of other techniques which will reduce the level of *Campylobacter*. Such options are for consideration in the longer term and, to a large extent, will be dependent on how effective the strategy has been in reducing flock prevalence and bringing about a corresponding reduction in the number of human cases. In addition, as research progresses other options for control may become available and these will also need to be considered when the time comes to consider objectives for 2006 onwards. Finally, the results of the measures put in place and any changes in the number of human cases may enable the Agency to assess the level of reduction that may be feasible and set a realistic timetable for achieving this.

2. PROMOTION OF GOOD BIOSECURITY

Introduction

2.1 Measures for controlling *Salmonella* in chicken are well established in the UK, and indeed have been very successful in reducing the level of *Salmonella* contaminated poultry on retail sale. Some of these measures, for example control in breeding flocks or in feed, are generally agreed to be less important for the control of *Campylobacter* (a view shared by the ACMSF), nor is there any immediate prospect of a vaccine being developed. Others will have an impact on both organisms, not least in the need to ensure that chicken farmers achieve appropriate standards of biosecurity⁷. This is a key challenge in controlling this organism on the farm as it is widespread in the environment, and available evidence suggests that once *Campylobacter* gets in to a chicken house it will spread through the flock in a matter of days.

2.2 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 Chickens Reared for Meat on Farm*⁸. 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*. Indeed, although the Code is voluntary, the Agency would expect the industry to use this as the basis for any biosecurity measures that are put in place on farm.

Biosecurity on UK Farms

2.3 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

⁷ Biosecurity is a term that includes all those measures (be they exclusion, eradication or control) that may be taken to prevent the introduction of unwanted organisms into the flock.

⁸http://www.defra.gov.uk/animalh/diseases/zoonoses/zoonoses_reports/salmonellainchick.pdf

Production (ACP) scheme⁹. However, this work has also highlighted that awareness does not necessarily translate into practice, with deficiencies in biosecurity often being identified on farms.

2.4 This is of concern as, while current practices have resulted in a substantial reduction in *Salmonella*, *Campylobacter* is proving more difficult to control. The reasons for this are not fully understood, but it is likely to reflect the fact that *Campylobacter* is widespread in the environment and tighter controls are required to exclude this organism from the poultry house.

2.5 These problems were highlighted in the 4 reports on industry practice (see paragraph 1.7) which gathered information from a number of the larger chicken producers and, whilst overall the implementation of biosecurity was good, deficiencies were noted at a number of farms. There were occasions when major problems were identified, however more often than not the problems were comparatively minor and indicated the need to tighten up current practice rather than implement wholesale changes. Further details can be found in the reports, however the following paragraphs summarise the findings.

Hand washing

2.6 Hand washing/sanitising on entry to the broiler house must be considered one of the most basic biosecurity measures for preventing birds being exposed to *Campylobacter*. It is also important that hand washing/sanitising facilities are properly maintained. There are still some houses that do not have hand-washing/sanitising facilities and on some farms those entering the house are not required to wash or sanitise their hands.

⁹ <http://www.assuredchicken.org.uk/Scheme/scheme.html>

Access to the broiler sheds

2.7 Whilst access to the broiler house is unavoidable, this should be minimised and when it does occur appropriate biosecurity precautions should be taken. All who enter, be they staff, visitors, or maintenance workers, should change their footwear (or put on overshoes). However, this was not found to be the case in all companies. There were also question marks over supervision of maintenance workers and visitors, with some companies failing to control their access and not providing appropriate supervision.

Transfer of equipment

2.8 Moving equipment between houses is an obvious potential route for spreading contamination between flocks. The reports indicated that it was not uncommon for weighing scales to be moved between houses. Ideally, house-dedicated equipment should be used, but if this is not possible, there must be a suitable level of cleaning and disinfection.

Pets and Livestock

2.9 Pets and livestock are known reservoirs of *Salmonella* and *Campylobacter* and should not be allowed free access to the area surrounding the broiler house. This still occurs on many farms and any faecal material deposited in the vicinity of the broiler house could obviously be transferred inside on equipment or footwear.

Biosecurity Campaign

2.10 As stated above, the Agency's studies have shown that improvements in biosecurity are required and there is a need to influence farm management practices and ensure biosecurity measures are implemented correctly. The Agency therefore plans to undertake a **campaign to improve biosecurity on the broiler farm**.

2.11 It became clear very early in the Agency's work that there was a real need to improve the dissemination of information between and within stakeholder groups. The Agency has therefore already started taking action to address this need and possible mechanisms have been discussed within the

Agency and with stakeholders to develop a campaign to improve biosecurity on the broiler farm. The campaign will help promote a culture in which the importance of good biosecurity in contributing to the control of *Campylobacter* is recognised and encourage farmers to think of the chickens as a food product as well as an animal.

The Campaign – Phase 1

2.12 Phase 1, scheduled for autumn 2003, will highlight to farmers the most important biosecurity measures, and will also act as a general introduction to the campaign. The campaign messages, 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 farms rearing chickens for meat (of which it is believed there are some 2,000). It is expected that it should be fairly simple to identify 80-90% of farmers, mainly through their involvement with industry assurance schemes. The remainder may prove more difficult, though links with farming trade associations may help to address the problem.

The Campaign – Phase 2

2.13 Phase 2 is likely to begin in spring 2004, will focus on the provision of more detailed advice on improving biosecurity on the farm, and build on the measures identified in phase 1. Initial discussions have confirmed that provision of information packs or other such literature is likely to have limited success unless it is linked with some face to face contact with the farmer. Options for initiating this contact include individual farm visits, study farms showing the biosecurity measures in practice and technical workshops. Previous experience suggests this will best be achieved through technical workshops held on a regional or local basis and supported by relevant literature. Further discussions with stakeholders and the focus groups used in phase 1 will confirm whether or not this is the best approach. Work on developing phase 2 will start in the autumn.

The Campaign – Phase 3

2.14 Phase 3 is likely to take a similar approach to phase 2, but will promote the introduction of *Campylobacter* specific measures such as hygiene barriers or additional biosecurity measures during thinning. 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.

Developing and Evaluating the Campaign

2.15 An effective campaign will result in increased awareness of the need for good biosecurity and changes in farmer's behaviour. On-going discussions with stakeholders (including focus groups if required) will help ensure appropriate approaches are adopted and the measures are presented in a manner that will catch the farmers' attention. The Agency intends to evaluate the campaign by monitoring levels of awareness and changes in practice. It is important to note that it is extremely difficult to monitor changes in behaviour and link these to the campaign. However, the Agency is considering appropriate indicators that may provide an indication of any changes in farm practice during and after the campaign.

2.16 The first phases of the campaign will provide a basis for improving the information flow to the broiler farmer. The Agency will build on this and must therefore consider longer-term options for maintaining the communication link and providing farmers with information on best practice. This could include updates to the literature provided in phase 2 (e.g. inserts for folders), newsletters, seminars on specific issues or fact sheets.

3. CONTROLLING CAMPYLOBACTER

Background

3.1 As already noted, information on the best way to control *Campylobacter* in chickens is still incomplete. However, measures that may contribute to the control of *Campylobacter* have now been identified, and these will be considered for inclusion in phase 3 of the campaign. For some of these measures, there is sufficient evidence to indicate that they will contribute to controlling *Campylobacter*, but for others, some further investigation is required.

Hygiene barriers

3.2 **The Agency believes that hygiene barriers¹⁰ must be operational in all poultry houses on all farms.** Human traffic into the broiler house is recognised as being one of the important risk factors for introducing *Campylobacter* contamination into the flock. A house will receive a substantial number of visits, even when these are minimised to essential visitors such as farm staff and veterinarians, and as such there is ample opportunity for biosecurity to be breached. There is no doubt that general good hygiene, such as washing hands and changing/cleaning boots, will minimise the risk of introducing *Campylobacter*. However, this needs to be supplemented by the use of hygiene barriers where workers and visitors step over the barrier and change from footwear worn outside the house to dedicated footwear and clothing that is kept on the inside of the barrier.

3.3 There is some evidence to support a link between the use of such barriers and the likelihood of obtaining a *Campylobacter* negative 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

¹⁰ 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.

prevent any potentially *Campylobacter*-contaminated material (mud, faeces, etc.) from being carried into the broiler house. The Agency is aware that some might consider the use of boot dips an adequate alternative to hygiene barriers. However, whilst often present on farms, it is debatable whether they are always used in practice and, when used, their effectiveness will be compromised by short immersion times, the presence of organic matter and inadequate disinfectant strength.

3.4 Obviously hygiene barriers will only be effective in preventing the introduction of *Campylobacter* if they are designed and used properly. Any guidance package will need to highlight these issues. In doing so, the need to change clothing as well as footwear on crossing the barrier will be addressed. Contamination could be transferred from house to house via clothing, however the practicalities of continually changing clothing on a multi-house site will need to be considered.

Thinning

3.5 Thinning is the removal of a portion of the flock prior to depopulation. It 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 thinning is a breach of biosecurity and, as such, a major risk factor for introducing *Campylobacter* into a flock.

3.6 The Agency recognises that economic considerations and consumer demand militate against abolition of the practice, but believes that thinning can and should be carried out in a manner that minimises the risks associated with the process. During a collection run, thinning personnel and equipment will move from house to house within a farm, and indeed from farm to farm, and it is easy to envisage how *Campylobacter* can be spread between flocks by, for example, dirty footwear or inadequately cleaned equipment.

3.7 The Agency is commissioning research to examine the thinning process in detail and produce guidance on best practice. Interim advice on the basic hygiene precautions that need to be taken by thinning crews should be available within a few months of the work starting. As it will be extremely difficult to fully ensure *Campylobacter* is not introduced to the flock during the thinning process, the research will also consider whether the risks associated with the process could be reduced by the introduction of more ‘novel’ solutions.

Crate Washing

3.8 It has been recognised for some time that systems used to wash transport crates and modules at processing plants may not be effective in ensuring they are not contaminated with *Campylobacter*. As such, they are a potential source of contamination when returned to the farm. Agency work has shown that these systems are not being used to their full potential, e.g. manufacturers’ instructions are not adequate or not followed. Further work has been commissioned to produce information on the best operation of current systems. However, it is likely that even when used under optimum conditions, current systems will not solve the problem completely, and work is also underway to assess whether a redesign of these systems will help to achieve crates that are not contaminated with *Campylobacter*. The Agency plans to produce guidance and information from the results of the research which will be communicated to processing plant operators.

Farm management practices

3.9 Research funded by the Agency, and 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, with low levels more likely to be associated with a *Campylobacter* negative flock. While low levels of hock burn, pad burn, rejects at slaughter and mortality can be associated with healthy flocks, variations in

these parameters are indicative of general flock health and a possible explanation of this relationship is that a healthy flock is more able to resist infection by *Campylobacter*. Alternatively, they may reflect good farm management and be indicative of increased attention to the implementation of biosecurity measures and hence less likelihood of *Campylobacter* being introduced into the flock.

3.10 While the Agency expects all farmers would pay attention to animal health and welfare procedures as a matter of course, it is clear that if a link between farm management practice and *Campylobacter* status could be proved, this would provide an additional incentive for good practice. Therefore the Agency is continuing to fund work in this area to further explore this possible relationship. This is hampered 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. Should a link be proved, then the need for good flock health and welfare will be promoted as part of the *Campylobacter* strategy and the need for any further action discussed with UK Agriculture Departments.

Other Issues

3.11 The areas outlined above are seen as being the most important *Campylobacter* specific biosecurity measures and they will be the focus of the Agency's work over the next couple of years. However, it is by no means a definitive list and is likely to be added to as information becomes available from research, the experiences of other countries, or from the industry.

3.12 One area for consideration will be the water supply in the broiler house, where there is continued debate as to whether water acts as a source of contamination or merely a vehicle of spread once *Campylobacter* has entered the flocks. The latter seems most likely as the majority of flocks in the UK are supplied with mains water, which should be *Campylobacter* free. However, experiences in other countries suggest the use of private water supplies may be a problem. Also there is the possibility of *Campylobacter* surviving in

biofilms in water distribution systems. Either way, intervention studies by the UK industry have shown that water treatment in the broiler house may significantly reduce the probability that a flock will become positive. It is the intention to investigate the role that water may play as part of the project examining the relationship between farm management practice and the *Campylobacter* status of flocks.

4. FUTURE MEASURES AND CONTROLS AT THE SLAUGHTERHOUSE

4.1 Although the strategy will initially be focused on the broiler farm, the importance of control at the slaughterhouse is not being overlooked. Not the least as a reduction in flock prevalence could open the door for control options at this stage of the food chain, with these being introduced via the HACCP route. 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.

4.2 In Denmark, companies can 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 until the test results are available and, should the results be negative, the birds can be released on 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.

4.3 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 and/or carcass. The effect of freezing on the levels of *Campylobacter* on the carcasses 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 carcasses (this information coming from a risk assessment). Compulsory treatment of positive flocks, either by freezing

or by some other mechanism of achieving the 100-fold reduction, such as a hot water wash, is being considered.

4.4 At this time, the strategies being used in Scandinavia are not considered suitable for the UK situation. The prevalence in the UK flock is too high and 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 not 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.

4.5 The Agency will, however, watch with interest the work being undertaken in Denmark on the hot water wash. The Agency is also funding work on physical decontamination methods including air drying, rapid steam treatment and ‘crust freezing’¹¹ of chickens in the slaughterhouse, all of which have the potential to reduce the number of *Campylobacter* on fresh meat without affecting the appearance and quality of the product.

¹¹ The term ‘crust freezing’ in this context relates to the freezing of skin but not muscle.

5. EVALUATION

Evaluation

5.1 The effectiveness of the measures included in the strategy must be evaluated as the work progresses. 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 Agency intends to establish a ‘rolling retail survey’ which, over time, will provide data on the overall level of contamination in the retail product and seasonal variations. This rolling survey will be informed by a Welsh Food Microbiological Forum survey of *Campylobacter* in chickens in which raw, whole fresh and frozen chickens were randomly sampled between November 2001 to February 2003 from a wide range of commercial outlets across Wales by 20 Local Authority Health Departments. This survey has recently been extended until December 2003 and in doing so will provide approximately two years’ worth of data on the levels of *Campylobacter* contamination in chickens in Wales.

5.2 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. It would be useful to have this information as an evaluation measure and it will be essential if consideration is to be given in the future to testing and scheduling of *Campylobacter* flocks or other slaughterhouse controls. Further, detailed information on flock prevalence would enable better assessments to be made of the effectiveness of various intervention strategies.

5.3 In view of these considerations, 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 UK Agriculture

Departments. However, as a first step, the Agency is commissioning work to assess the most appropriate methods for sampling and testing for *Campylobacter* in poultry flocks.

5.4 The Agency is also undertaking a study on microbiological sampling and testing of poultry carcasses in the slaughterhouse, with this work including *Campylobacter* detection and enumeration. Results from this work will provide information on the levels and trends of *Campylobacter* on freshly slaughtered birds, adding to the overall picture that the Agency hopes to obtain on this organism through the various stages of the poultry chain.

6. IMPLEMENTING THE STRATEGY

6.1 The Agency has developed this strategy for controlling *Campylobacter* in chickens, in conjunction with other stakeholders, and will play its part in implementing the strategy through the proposed biosecurity campaign, the promotion of HACCP in the slaughterhouse and through commissioning research. However, the responsibility for implementing the control measures will fall to the industry, focussing initially upon the farmers. Other parts of the industry will also have a role to play, particularly if they are able to exert an influence on farm practices. For example, poultry processors and retailers may lay down specific biosecurity requirements that farmers have to meet and help them make the necessary changes on farm. When they do this the Agency would expect them to take account of the measures outlined in the strategy and that such requirements would apply to all their suppliers in a global market.

6.2 The involvement of other stakeholders is also seen as being important in implementing the strategy. Various trade and professional organisations, the State Veterinary Service and the Meat Hygiene Service will all interact with the poultry industry and, where appropriate, can promote the various *Campylobacter* control measures. To this end, while the biosecurity campaign will be aimed at farmers and the HACCP work at poultry meat plant operators, it is the intention that the messages and guidance material produced will be distributed widely.

Industry Co-operation

6.3 There is currently no legal basis for the majority of the measures the Agency would like the industry to put in place on the farm and therefore the success of the strategy will rely very much on voluntary implementation. In contrast HACCP in slaughterhouses is enforceable under the Poultry Meat Hygiene Regulations. Discussions with stakeholders as the strategy developed have demonstrated willingness within the industry to tackle the problem of *Campylobacter*. This is most apparent in the Agency's

Campylobacter poultry research, much of which could not have taken place without the industry allowing access to slaughterhouses and farms.

6.4 The Agency is aware, however, that some may take the view that action to control *Campylobacter* should not be taken until there is definitive evidence that the various measures proposed in the strategy will be effective. While taking note of this concern, the Agency believes that the available evidence warrants action being taken 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

6.5 Pending agreement of the Zoonoses Directive¹², there is currently no formal framework by which the Agency can implement the strategy. The nearest to such a framework would be an industry assurance scheme, of which the Assured Chicken Production (ACP) scheme (which covers some 85% of the chickens produced in the UK) is the most relevant. 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 aspects of biosecurity covered in the strategy are already included 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 because of the 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 and is implemented.

¹² Under the proposed new EU Zoonoses Directive there is provision for a target to be set to reduce *Campylobacter* at primary production. In the current proposal, however, the setting of targets is limited to reducing *Salmonella* of public health significance for the time being. The current and proposed Directives require Member States to report data on specified Zoonoses, including *Campylobacter*.

Cost of Implementation

6.6 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 is felt that a number of the measures that have been identified are relatively simple and could be introduced with minimal cost, especially those relating to good basic biosecurity (which the industry should already be working towards). As such, phases 1 and 2 of the biosecurity campaign would not be expected to have a significant financial impact on the poultry industry.

6.7 Phase 3 of the campaign will promote the introduction of *Campylobacter* specific measures, such as hygiene barriers or additional biosecurity measures during thinning, and it is clear that these will have cost implications. As the strategy develops, information on the costs will be provided to inform discussions of the *Campylobacter*-specific control measures under consideration. However, the extent of these will not become known until these measures have been further developed as the strategy is taken forward.

Assessing Implementation

6.8 Information on the extent to which the various aspects of the strategy are being put in place should become available from the evaluation of the phases of the biosecurity campaign. Discussion with the industry, predominantly through the Consultative Group, will also provide feedback on how successful the campaign has been. As well as highlighting the positive aspects of the strategy, this interaction with the industry should also identify where problems are occurring. It will also be important to monitor the costs of implementing the strategy and the measures it includes and assess these against the expected and achieved benefits.

Research

6.9 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.