

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

DISCUSSION PAPER

Proposed working group on botulinum toxin-producing *Clostridia* and vacuum packaging and associated processes

Introduction

1. In 1992, the ACMSF published a report on “Vacuum Packaging and Associated Processes”, which forms the main evidence base for subsequent FSA guidance on vacuum packaged (VP) and modified atmosphere packaged (MAP) chilled foods. Following this, FSA guidance in 2008 set the maximum shelf-life of these products to ten days, unless other controlling factors were in place.
2. In January 2020, an ACMSF subgroup on non-proteolytic *Clostridium botulinum* and VP/MAP foods produced a report reviewing evidence provided by the British Meat Processors’ Association and Meat Livestock Australia on the shelf-life of beef, pork and lamb with respect to *C. botulinum* risk. The ACMSF subgroup concluded that there was evidence that the shelf-life of VP/MAP fresh beef, pork and lamb could be extended to thirteen days. The subgroup also identified some broader area of future work including a recommendation that the ACMSF should consider reviewing its 1992 report on VP/MAP foods. The subgroup had discussed elements of the 1992 ACMSF report throughout the lifetime of the subgroup, although it was outside of the scope of the subgroup to review the document in full.
3. In October 2020, the Committee considered areas of work which might need to be addressed in a review of the 1992 report. Suggestions were made to include analysis of critical control points in the VP/MAP production process, and the “history of safe use” of products but ultimately structure the assessment around the risk of botulism rather than from a process or food perspective. There was emphasis on the usefulness of the 1992 report and subsequent guidance to businesses, and the need to build on that report rather than reinvent the wheel, by assessing the impact of new technologies.
4. The FSA risk management would like to request ACMSF advice on the safety and shelf-life of VP/MAP chilled foods in relation to the risk of non-proteolytic *Clostridium botulinum* based on current industry practices. This includes a consideration of the scientific evidence, technological developments, the use of modelling tools, the history of safe use of VP/MAP products, as well as an overview of all foodborne botulism cases and outbreaks in the UK and worldwide (including those linked to ambient-stable foods and home-produced foods). Consideration should also be given to the risk of botulism from toxin-producing *Clostridia* other than *C. botulinum*. Following the recent

- subgroup, a further review of chilled fresh beef, lamb and pork might not be necessary, unless new scientific evidence becomes available which would lead to different recommendations.
5. FSA risk management would also like to request ACMSF advice on the safety and shelf-life of VP/MAP low oxygen ambient-stable foods, as they are potential sources for cases of foodborne botulism. Furthermore, it would be useful if particular categories of chilled and ambient foods could be identified as having a higher, medium or lower inherent risk with respect to botulinum-toxin producing Clostridia.
 6. Since the 1992 ACMSF report, there have been technological advances that the ACMSF working group may wish to consider when reviewing this area. Some of these changes relate to packaging and a desire to make it more eco-friendly. This includes the introduction of recyclable plastic or bioplastics made from plant material. A drive to reduce the amount of plastic used in packaging has led to more lightweight packaging. Active packaging has also been introduced that can include oxygen and carbon dioxide scavengers or emitters, moisture absorbers incorporated within the polymer and other intrinsic characteristics of the polymer itself to control spoilage. There has also been greater use of VP of large quantities of food of 40 litres or more. It is unclear how these developments might have affected the risk of botulism, and whether there have been changes in processes that have affected the controlling factors such as cooking, pH, salt levels, water activity etc.
 7. Given the time that has passed since the publication of the 1992 ACMSF report, the additional scientific evidence available and the introduction of new technologies for VP/MAP foods, it is now appropriate to establish a working group to review this area. The FSA is inviting the ACMSF to discuss the risk assessment issues that are relevant for inclusion in a review of chilled and ambient VP/MAP foods. The following sections present the proposed draft terms of reference, the timescale envisaged, structure of meetings and the anticipated output from the working group.

Draft terms of reference

- Review the risk posed by botulinum toxin-producing Clostridia in vacuum and modified atmosphere packaged chilled foods.
- A preliminary assessment of the risk posed by botulinum toxin-producing Clostridia in vacuum and modified atmosphere packaged ambient-stable foods.
- Where appropriate, consider other risk-related evidence relevant to this topic during the lifetime of the group.

Proposed membership

8. Members will be drawn from existing membership of the ACMSF together with additional co-opted experts.

Timescale

9. It is envisaged that this should be an ad hoc group and would last for about 12 - 18 months meeting approximately 6 times. After this period a decision would be made about the future of the group. We would like to establish this group to begin work on the task as soon as possible. The secretariat would begin some background work to inform a first meeting in the summer of 2021.

Structure of the meetings and anticipated output

10. It is proposed that meetings of the new group would focus on delivering the terms of reference. It is envisaged that relevant stakeholders will have an opportunity to present evidence to the group which may be in the form of presentations and/or written evidence.
11. Plenary meetings of main committee will be provided with regular updates from the working group. It is envisaged that the main output of the group will be in the form of a report presented to the main committee probably in late 2022.
12. Members are asked to:
 - Indicate whether they are content to proceed with establishing a working group as outlined in this paper.
 - Identify the priority issues which the working group will need to address.
 - Comment on the draft terms of reference, approach and timescale envisaged for this task.

**Secretariat
April 2021**