Ministry for Primary Industries
Manatū Ahu Matua

Discussion Paper: Review of the Poultry NMD Programme's *Campylobacter* Performance Target (CPT) Limit(s)

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Prepared for Regulation and Assurance
by the *Campylobacter* Risk Management Strategy Working Group

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Discussion paper: Review of the Poultry NMD Programme's *Campylobacter* Performance Target (CPT) Limit(s)

This discussion paper provides options following a review of the *Campylobacter* Performance Target limits established in the poultry National Microbiological Database programme. The current requirements for the verification of *Campylobacter* control in chickens are specified in Animal Products (National Microbiological Database Specifications) Notices 2012.

The Ministry for Primary Industries (MPI) emphasises that the views and recommendations outlined in the paper are preliminary and are provided as a basis for consultation with stakeholders. MPI will analyse submissions and if appropriate amend the National Microbiological Database specification for further comment or feedback. Once finalised it will be issued by MPI and posted on the MPI website. Hard copies will be available on request.

SUBMISSIONS

MPI welcomes written submissions on the proposals contained in this document. All submissions must be received by MPI no later than Friday May 8th.

Written submissions should be sent directly to:
Executive Coordinator / Support Officer
Branch Planning, Systems & Support | Regulation & Assurance
Ministry for Primary Industries | Pastoral House 25 The Terrace
PO Box 2526 Wellington 6011
or emailed to animal.products@mpi.govt.nz

RELEASE OF SUBMISSIONS

MPI expects to release all submissions. If you have specific reasons for wanting to have your submission or personal details withheld, please set out your reasons in the submission. All submissions are also subject to the Official Information Act 1982 and can be released (along with the personal details of the submitter) under the Act. MPI will consider those reasons when making any assessment under the Act.

1 Executive Summary

The Ministry for Primary Industries (MPI) has a current regulatory *Campylobacter* testing programme within the National Microbiological Database (NMD) for poultry (currently defined as broiler chicken) which provides information for MPI and the poultry industry. In particular, the *Campylobacter* testing programme:

- verifies the effectiveness of the industry's control measures for *Campylobacter* during slaughter and dressing,
- enables MPI to explore if further control measures could achieve further reductions in human foodborne illness rates, and
- identifies and reviews the overall performance of the risk management options to address the present known risks and anticipated future risks from poultry under MPI's *Campylobacter* Risk Management Strategy.

The Animal Products (National Microbiological Database Specifications) Notice 2012 introduced a *Campylobacter* Detection Limit in addition to the established Enumeration Limit under its poultry NMD testing programme. At the time MPI made a commitment to the poultry industry to review the limit after twelve months of data was collected. This paper summarises the review which considered the need for any change to the current limits used for the *Campylobacter* performance targets.

In conjunction with the review of data, MPI has met with poultry industry representatives in December 2014 and has taken into consideration feedback to develop and assess options for change to the regulatory testing programme. These options are presented in this paper for consultation.

MPI's preferred position is to keep the current Moving Window Enumeration Limit and Detection Limit, while considering additional measures to improve the performance of premises who more frequently do not meet the target and to assist new businesses. MPI will analyse all the submissions received in response to this consultation and if appropriate amend the National Microbiological Database specification.

2 Background

2.1 LEGAL REQUIREMENTS

The current legal requirements for the poultry *Campylobacter* regulatory testing programme are found in the Animal Products (National Microbiological Database Specifications) Notice 2012 and its associated Schedule. Refer to http://www.foodsafety.govt.nz/elibrary/industry/animal-products-national-nmd/nmd-notice-amended-includes-schedule-2012.pdf

2.2 PURPOSE OF THE CPT

The *Campylobacter* performance target (CPT) was introduced by MPI (then NZFSA) to verify the effectiveness of control measures in reducing levels of *Campylobacter* contamination during the slaughter and dressing of broiler chickens. The effectiveness of this target was re-evaluated in 2012; the Enumeration Limit was retained and a Detection Limit was introduced which came into effect from 7th January 2013.

2.3 MPI'S POSITION

An unacceptably-high rate of foodborne campylobacteriosis was seen in New Zealand in 2006. Attribution studies estimated that more than 50% of human cases were attributed to the consumption of poultry meat. This led to the implementation of a risk management strategy for *Campylobacter* in broiler chicken meat with a target of 50% reduction in New Zealand human foodborne cases of campylobacteriosis over a five year period, 2008 -2012. Control measures were applied by the poultry industry to primary production and processing, and the target was achieved over this period and this level of public health protection has been maintained throughout 2012-2014.

The results of NMD testing show that the New Zealand poultry industry has made significant improvements in control of *Campylobacter* since the programme began. Trend analysis of the broiler chicken carcass rinsate results and human cases have shown a strong association between the introduction of the CPT and a significant reduction in human foodborne campylobacteriosis in New Zealand.

Recently completed attribution studies (2013) show that poultry is still a major contributor to foodborne campylobacteriosis. MPI therefore needs to ensure that the *Campylobacter* levels on broiler chicken meat continue to decrease.

2.4 NZ POULTRY INDUSTRY'S POSITION

The New Zealand poultry industry has indicated at joint MPI/industry meetings that it remains committed to the control of *Campylobacter* throughout production and processing, and they believe that slaughter and dressing provides the best opportunity to implement controls.

The industry has stated that they are continuing to seek further opportunities to improve controls to reduce the levels of *Campylobacter* during primary processing. They have noted that there is a difference in the performance achieved between operators as determined by the microbiological results in the NMD programme for chicken meat, with some operators who are more frequently non-compliant for *Campylobacter*. The industry has indicated that they would like to see a focus on these 'poor' performers.

3 Review of Data

3.1 REVIEW PROCESS

The 2012 Discussion Paper: Review of the Poultry NMD Programme's *E. coli* testing and *Campylobacter* Performance Target (CPT) Limits[1] provides an analysis of data for the amendment of the CPT and introduction of a detection limit. A number of options were considered which are relevant to the review and options analysis sections of this paper: http://www.foodsafety.govt.nz/elibrary/industry/draft-poultry-nmd/discussion-paper-e-coli-campylobacter.pdf

3.1.1 Risk management questions

The risk management questions to be answered by the scientific evaluation were:

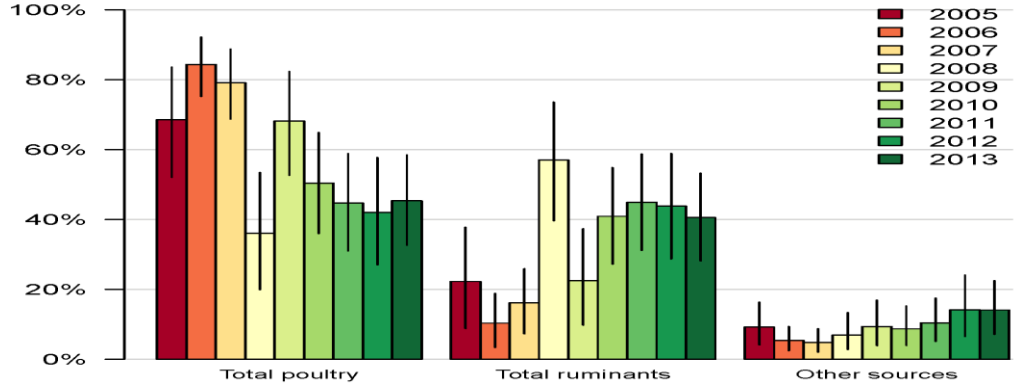
- What trends in microbiological control for *Campylobacter* are evident from the rinsate data?
- What is the contribution of the Moving Window *Campylobacter* Detection Limit to meeting the required level of microbiological control as determined by the *Campylobacter* Strategy?
- How much *Campylobacter* reduction can industry reasonably and practically achieve?
- Are consistent reductions possible across the industry or are there consistently poor performers?
- Would changes to either of the current targets result in industry achieving improved public health outcomes?

3.2 CURRENT SITUATION

3.2.1 Attribution estimates

Source attribution studies have been conducted in the Manawatu from 2005 to 2013 to provide an indication of the source of human cases of campylobacteriosis. The poultry, ruminant and other source attribution estimates are presented in Figure 1. This figure demonstrates estimations for source only, not pathways of *Campylobacter* infection. Besides poultry, potential pathways for *Campylobacter* from sources such as ruminants and raw milk continue to be investigated by MPI, but this is outside the scope of this paper.

Figure 1: Source Attribution Estimates 2005 – 2013



Research provided by: French *et al*, Massey University April 2014

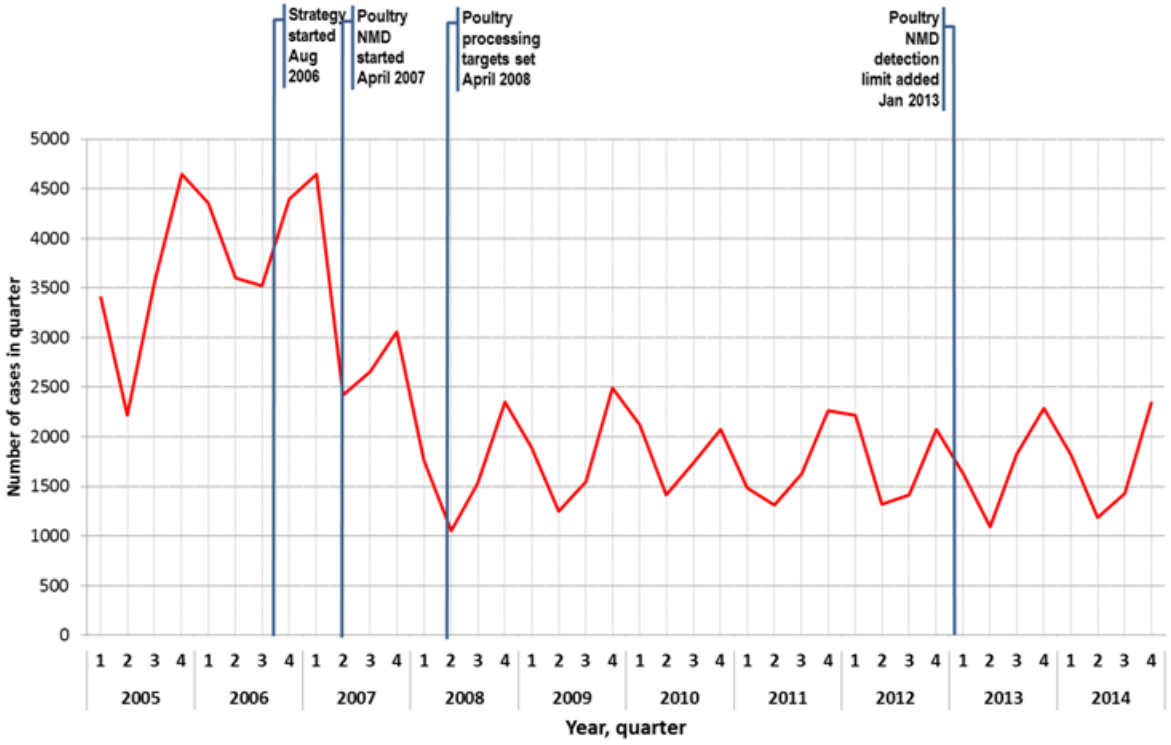
[1] MPI Discussion Document No: 2012/19 (2012). Discussion Paper: Review of the Poultry NMD Programme's E. coli testing and Campylobacter Performance Target (CPT) Limits. ISBN No: 978-0-478-40092-2 (online); 978-0-478-40091-5 (printed). ISSN No: 2253-3907(online); 2253-3893 (printed).

3.3 TRENDS IN HUMAN NOTIFICATIONS AND CARCASS RINSATE DATA

3.3.1 Human notifications and associations with NMD carcass rinsate data

Figure 2 shows the trend in human cases of campylobacteriosis[2] reported in New Zealand over the last ten years. This data covers all human cases, not just those estimated to be from food. Note that little improvement has occurred in the number of laboratory confirmed human notifications since 2009; the most recent of which is a rate of 154 (158.6)[3]/100,000 human cases in 2013 (ESR, June 2014). Whilst data for 2014 has been included in Figure 2 this remains preliminary until confirmed later in 2015.

Figure 2: Quarterly reported total number of human cases of campylobacteriosis in New Zealand (2005-2014)



3.4 EVALUATION OF CARCASS RINSATE DATA

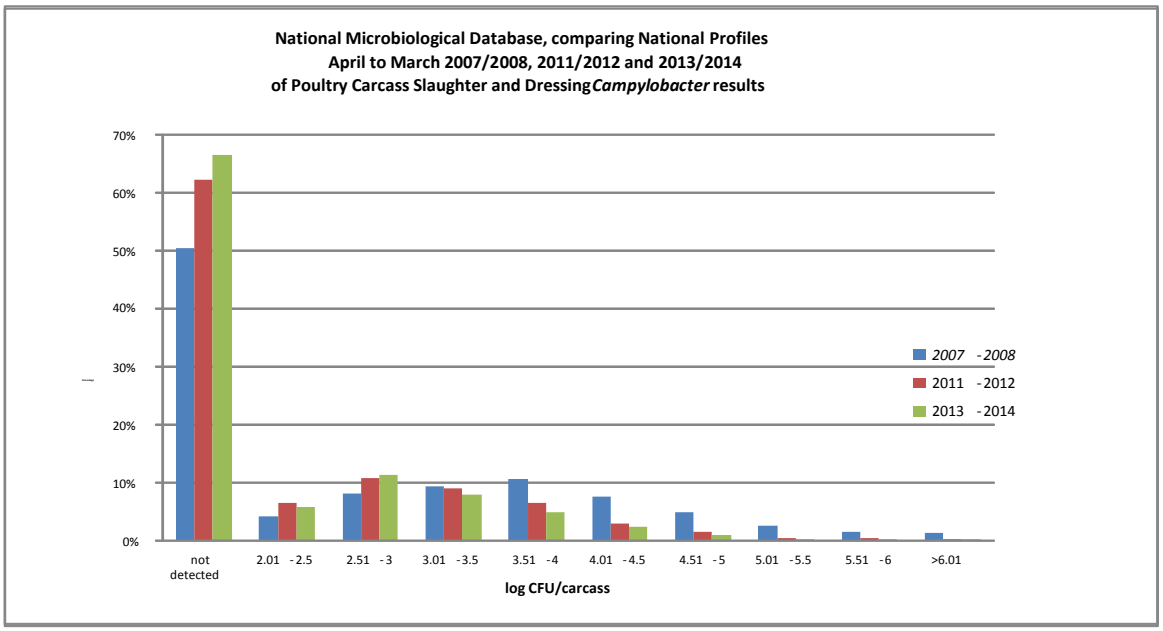
3.4.1 Overall

The overall improvement of the counts of *Campylobacter* on broiler carcasses from all participating poultry premises from the beginning of the *Campylobacter* NMD (April 2007 – March 2008) to the equivalent last period (April 2013 – March 2014) is shown in Figure 3.

Note that where the number of *Campylobacter* is below the limit of detection for the specified method, a result of 'Not Detected' is reported. The lower limit of detection for *Campylobacter* count is 2.30 $\log_{10}$ CFU /carcass. This result does not necessarily mean that the carcass was free of *Campylobacter*. Figure 3 shows a high percentage of 'Not Detected' results, a significant shift in the percentage of samples with low numbers of *Campylobacter*, and a decrease in the samples with high counts, over time.

[2] All cases reported in New Zealand, including those estimated to be foodborne, from overseas travel and other pathways.
[3] 2012 data for comparison

Figure 3: Comparison of the *Campylobacter* counts in NMD samples between two years (2007/2008 and 2013/2014)

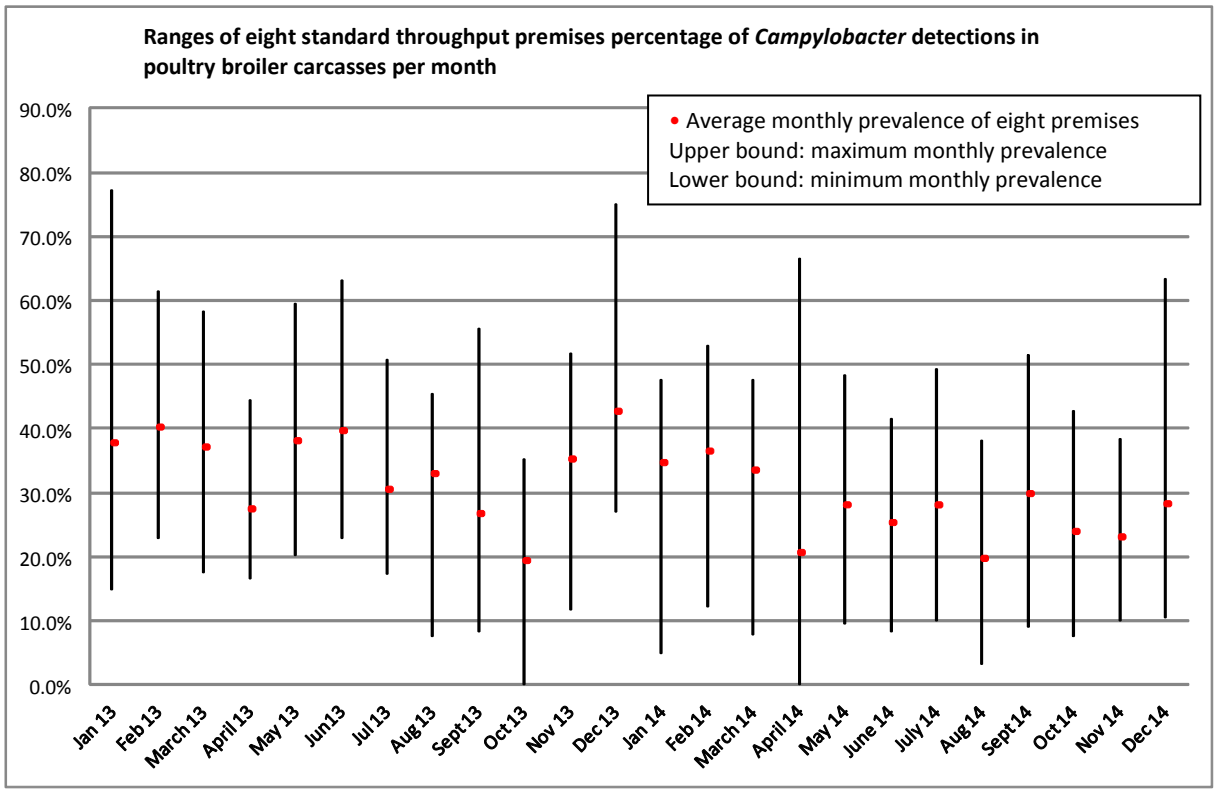


3.4.2 Evaluation of the Detection Limit for *Campylobacter* and variation between premises

From January 2013 to October 2014, there were 130 occasions where a premises did not meet either the Detection Limit or the Enumeration Limit. Of these, 65 were related to the Detection Limit and 65 were related to Enumeration Limits. On 39 of these occasions the processors did not meet the Detection Limit but did meet the Enumeration Limit. This means that there were 39 additional alerts for the industry due to the Detection limit (approximately 2 a month). There was one processor who did not meet the Detection Limit 4 times and passed the Enumeration Limit in this time period. Conversely there were 4 processors who did not meet the Enumeration Limit but passed the Detection Limit. The other processors did not meet both, but often not at the same time. This clearly shows that the Detection Limit is placing additional pressure on the industry to comply, compared to just the Enumeration Limit.

The average prevalence of *Campylobacter* per month for individual premises was calculated for the standard throughput premises. The average of these monthly values with the maximum and minimum premises prevalence for the month indicates the range of variation in premises performance on a monthly basis. This is represented in Figure 4.

Figure 4: *Campylobacter* prevalence range of poultry broiler carcass samples for eight standard throughput premises from January 2013 – December 2014



The Detection Limit was introduced in January 2013. The maxima and minima indicate the broad range of prevalence occurring across the eight premises per month. A cyclical pattern is evident. The wide range in the prevalence of *Campylobacter* on carcasses may be indicative of considerable variation in both the level of *Campylobacter* on birds presented for slaughter and the level during processing.

3.4.3 Evaluation of the Enumeration Limit and the Detection Limit

The two components of the CPT (Detection and Enumeration Limits) were designed to inform the processors and the regulator of an insufficient level of process control at the premises level. CPT data from 2012 to 2014 was evaluated.

Table 1 shows the percentage positive samples (Detection Limit) and the percentage samples > 3.78 $\log_{10}$CFU (Enumeration Limit) for 2012 to 2014, there has been improvement during 2014 and the percentage of positive samples is lower than the level established before the Detection Limit was introduced to the NMD. This result corresponds with the percentage of samples that have exceeded the Enumeration Limit (> 3.78 $\log_{10}$CFU).

Table 1: Combined results for percentage positive samples and the percentage samples > 3.78 $\log_{10}$CFU for 2012 to 2014

Year	Monthly %												Total %
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Percentage positive samples (Detection Limit)													
2012	44.5	36.8	30.8	31.5	31.1	24.6	26.4	29.1	26.1	37.3	37.4	36.3	**32.6**
2013*	40.5	40.6	39.7	29.4	38.8	40.4	31.1	33.3	28.4	20.1	35.7	43.1	**34.7**
2014	34.0	37.3	33.5	26.9	28.6	25.0	30.4	21.6	31.0	26.5	23.3	28.3	**28.8**
Percentage samples > 3.78 $\log_{10}$ CFU (Enumeration Limit)													
2012	10.8	6.6	5.3	6.8	6.8	5.1	4.5	5.5	4.9	7.7	8.4	7.2	**6.6**
2013*	7.4	6.4	6.1	6.0	5.8	4.2	4.5	4.3	5.2	4.7	5.8	6.6	**5.5**
2014	6.3	7.5	7.2	3.1	3.8	3.0	5.4	3.8	4.8	3.7	2.5	4.7	**4.7**

* The *Campylobacter* Detection Limit came into effect on 7th January 2013.

Figure 5 shows that for all premises contributing to the NMD, the average counts of *Campylobacter* on positive carcasses have stayed relatively constant since 2009. The cause of the variation in the quarterly percentage of positive samples remains unknown although there is an obvious seasonal pattern.

Figure 5: Quarterly data for *Campylobacter* prevalence and enumeration

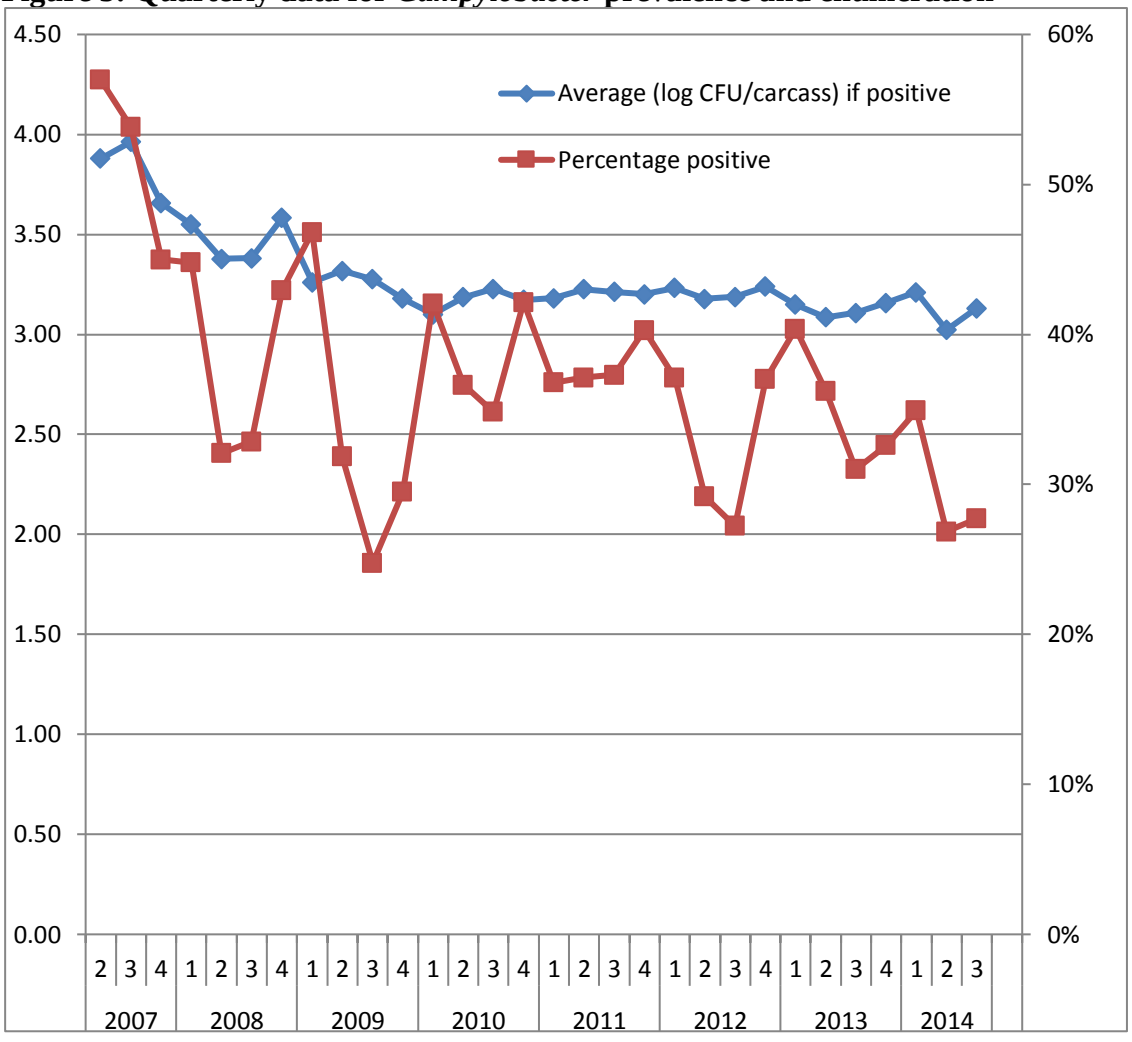


Table 2 shows the number of non-compliant windows at standard throughput premises that were alerted over the period 1 January 2013 – 2 October 2014. The third column shows the maximum non-compliant window reached during each separate alert. Considerable differences can be seen between the premises in terms of the total number of non-compliant windows alerted, the number of occasions that an alert was initiated and also maximum non-compliant window reached during each of the alert(s).

Table 2: The number of non-compliant windows alerted at standard throughput premises (January 2013 –October 2014)

Premises	Total number of non-compliant windows alerted	Maximum non-compliant window reached during each alert
A	0	0
B	0	0
C	3	3
D	3	1, 1, 1
E	4	1, 1, 2
F	6	3, 3
G	11	2, 2, 5, 2
H	15	1, 3, 5, 1, 2, 3

It is not possible to present a similar table (to Table 3) for very low throughput premises because of the limited number participating.

3.5 Discussion of the scientific review

Despite the considerable improvements that have occurred by the poultry industry since the introduction of the CPT, chicken meat remains an important source of human campylobacteriosis.

There has been a decrease from 2013 of the percentage of broiler chickens with counts greater than 3.78 $\log_{10}$CFU *Campylobacter* which is encouraging. It is also pleasing that the percentage of carcass samples that exceeded the Detection Limit has been reduced to levels lower than that observed in 2012.

Whilst it was anticipated that the introduction of the Detection Limit would help to further reduce the number of reported human cases of campylobacteriosis as had been the situation following the introduction of the Enumeration Limit (Figure 2), the number of human campylobacteriosis cases has remained relatively static.[4]

There has been an increase in the number of free range chickens processed over the last few years[5] (NMD demographic data 2013-2014). As free range chicken carcasses are more likely to be positive for *Campylobacter* than carcasses from barn raised broilers, it shows that premises are putting in place measures to cope with the increased *Campylobacter* loading. If this trend in consumption of free range chicken meat continues, processors may find it increasingly difficult to meet the targets.

The CPT is an outcome based requirement enabling flexibility within an individual premises process, provided the requirement is achieved. However there have been differences between the performance of the various processors as measured by the NMD in terms of number of

[4] As reported in Annual reports to MPI on foodborne disease in New Zealand

[5] The overall percentage of free-range chicken meat has increased to approximately 10.6% from 2-3% of the overall chicken market in 2011 (PIANZ, personal communication 2014).

non-compliant windows and average prevalence of *Campylobacter* reported per month (Table 2 and Figure 5**)**. These variations suggest that further analysis of individual premises processes might be beneficial. This may be especially so for those processors who are seeking to improve and optimise their performance.

4 Option Identification and Assessment

MPI have identified the following options:

- Option 1 Maintain status quo for the limits
- Option 2 Require tighter Enumeration and/or Detection Limits
- Option 3 Require poor performers to take additional measures
- Option 4 Require additional measures for start-up premises.

These options which may not be mutually exclusive, are described briefly below with pros and cons for each option.

4.1 OPTION 1 = MAINTAIN STATUS QUO FOR THE LIMITS

Currently two limits are in place: the Enumeration and the Detection Limits. For details of these limits see section 6.8 in the following document:
http://www.foodsafety.govt.nz/elibrary/industry/animal-products-national-nmd/nmd-notice-amended-includes-schedule-2012.pdf

During each processing week a standard throughput processor is allowed to have a maximum of 29 out of 45 rinsates in which *Campylobacter* is detected and 6 out of these 45 rinsates in which more than 3.78 $\log_{10}$CFU *Campylobacter* CFUs are enumerated. There is a similar system in place for Very Low Throughput premises (maximum of 5/9 detections and 1/9 with more than 3.78 $\log_{10}$CFU *Campylobacter* CFUs).

Under this option there would be no change to the existing Detection or Enumeration Limits that are currently used in the NMD Specification.

Pros:

- Maintaining the status quo is likely to have little effect on the number of broiler-derived human campylobacteriosis notifications.
- There is an incentive to try to improve dressing procedures if more free range broilers are going to be processed.
- Industry knows what it is doing and would not need to change.
- A review of existing data from the NMD programme by individual companies encourages improvements.

Cons:

- There may not be any reduction in the notification of the human campylobacteriosis cases.
- The premises may not be driven to look for improvements in their processes.
- Some premises may continue to not meet the limits which would require them to take enough corrective action to come back into compliance. This means some of them would be non-complying quite regularly.

4.2 OPTION 2 = REQUIRE TIGHTER ENUMERATION AND / OR DETECTION LIMITS

The Discussion Paper issued in 2012 prior to introduction of the Detection Limit contains a discussion on developing and tightening the limits to various degrees. A tightening of the limits would result in more alerts. An increase in the number of non-compliant windows would alert the processors to increase their efforts to reduce *Campylobacter* on their product. If successful this should result in less *Campylobacter* on product and fewer people becoming ill.

Pro:

- Tightening either of the limits would serve as an incentive for the industry and in particular the poor performers to improve their slaughter and dressing procedures.

Cons:

- There may be difficulties for some processors to consistently achieve improvements to meet a tighter limit especially with the increasing numbers of free-range chickens processed.
- A decrease in the number of broiler-derived human campylobacteriosis may not eventuate.
- It might lead to an increased number of non-compliant windows alerted and some operators maybe unable to improve their performance.
- The tightening of either of the limits may result in a greater cost and resource burden for the processors.

4.3 OPTION 3 = REQUIRE POOR PERFORMERS TO TAKE ADDITIONAL MEASURES

The industry has indicated at recent meetings with MPI that it would prefer the limits to remain the same with more rigorous follow up of those with a poor performance record; those with a greater number of non-compliant windows alerted. This would result in changes to the current responses required when an operator is alerted to a non-compliant window which are summarised in Appendix 1.

Firstly poor performance would need to be defined, and there would need to be a simple way of identifying this in real time. MPI has discussed the following possible definition with the poultry industry:

- Reaching response 4 on the current system (which indicates that any corrective action taken after the first failure has not been successful), or
- Repeated non-compliance against the target within a specified time period (e.g. 3 or more individual responses in a rolling 6 month period).

Examples of measures that poor performers may be required to undertake include:

- being subject to additional reporting and verification,
- taking appropriate corrective actions,
- seeking independent advice from competent persons to help make improvements, either through PIANZ, or independent consultant, etc.
- determining the extent of *Campylobacter* loading on the flocks prior to processing for a pre-determined time to see if there are any unexpected changes to the levels of *Campylobacter* detected that are not brought about by seasonal variation or husbandry practices.

- biomapping their process to help identify where improvements can be made, and
- managing contaminated product to minimise risk to consumers.

These measures are discussed more fully below.

Additional reporting and verification:

Currently operators are required to report each non-compliant window against the CPT and the associated corrective actions taken to their verifier. It may be useful for this to be reported to MPI's national verification team so that assistance can be provided to the verifier where necessary. This would allow for a closer verification involvement and additional assistance could be provided to premises before other measures are considered.

Appropriate corrective actions:

This is already required under the current response system. There would be an expectation that timing of corrective actions would be agreed with the verifier.

Seek independent advice from competent persons to help make improvements, either through PIANZ, or independent consultants,

Processors should seek independent advice from competent persons to assess their respective slaughter and dressing processes. The assessment would be to identify areas where additional control measures could be implemented as part of the corrective and preventative actions taken. Competent persons must be independent of the processing site; they may be recommended by PIANZ, or be part of a poultry industry task force. A written report detailing the findings and recommendations should be provided to the MPI verifier.

Determine pre-processing *Campylobacter* loading:

An assessment of the *Campylobacter* loading on the incoming broiler chickens for a pre-determined length of time may help to determine whether the slaughter and dressing processes should be adjusted to accommodate a higher loading.

- The information gathered on the *Campylobacter* loading entering primary processing can be used to help determine whether the existing systems can cope with higher *Campylobacter* loads on the incoming broiler chickens or whether any additional measures should be put in place.
- This approach could be adjusted in the event that operators have routine monitoring of the incoming *Campylobacter* loading in place and respond to the fluctuations through making adjustments to the process.

Process biomapping:

Samples would be taken after major processing steps, e.g. post-pluck, post evisceration and post inside-outside wash and enumerated for *Campylobacter*. This would help to establish where additional control measures would be most effective for that processor. Sampling and testing details would need to be agreed with MPI with the aim of maximising information gathered whilst minimising costs. Results would be reported to MPI and would be used to identify specific process improvements and consequentially to help populate risk models to assist other operators.

Management of contaminated product to minimise risk to consumers:

MPI is concerned that if non-complying product is being placed on the market for sustained periods of time, that it may result in an increased public health burden. MPI believes that a product disposition plan should be developed by all processors to be implemented at response 4 rather than the current requirement at Response 6 (Appendix 1).

Pros:

- As for Option 1
- This targets poor performers and provides them with a systematic approach to establish where in the process there is opportunity for improvement.
- Costs would be borne by those processors with a poor performance record against the CPT.
- Less substandard product would go out to the market (although the impact of this may be low for very small processors supplying small volumes).
- Data reported to MPI would help to populate processing models which would become a useful resource for identification of process improvements.
- This option recognises the expertise that exists in the New Zealand poultry industry and the willingness to assist other processors to improve performance and address non-compliance against the CPT.

Cons:

- Processors with a poor performance record against the CPT would be subject to extra costs which may impact on their business viability (especially for smaller processors).
- Additional product disposition requirements may be difficult to implement and provide a greater cost burden for very low throughput processors who may have limited distribution channels.

4.4 OPTION 4 = REQUIRE ADDITIONAL MEASURES FOR START-UP PREMISES

New (start-up) poultry premises generally struggle to meet the CPT limits initially. The current system allows them to fail before any action is taken. A more proactive approach should be used to manage this scenario in future.

Currently small processors only have to sample once a week no matter how many days they process. MPI proposes that all new broiler chicken processors (irrespective of size) be required to sample every processing day until they have demonstrated they are capable of processing to the required standard by achieving a compliant moving window. This also would provide more data earlier to identify problems and assist with decision-making.

MPI proposes that a *Campylobacter* expert visits new processors following registration of the RMP to check their understanding of good hygienic practice for primary processing, *Campylobacter* control measures, and sampling, testing and reporting requirements.

Pros:

- New processors would better understand the requirements and learn how to meet those requirements more quickly.
- The probability that substantial amounts of substandard product are produced for human consumption is lessened.

Cons:

- Testing costs would initially be higher than under the current system.
- MPI would need to make experts available at the correct time to assist new processors.

4.5 OTHER CONSIDERATIONS

MPI also considered retention of the Enumeration Limit and the introduction of a new Detection Limit using real time quantitative Polymerase Chain Reaction (rt-qPCR) testing. This option was not pursued at this stage due to the complexity it presented.

5 Recommendations for Further Science

MPI recommends that it continues to work with industry to agree research priorities. This could include the:

- effect of weather and geography on infection status of birds.
- farm-associated factors affecting the infection status of flocks.
- performance of various pieces of dressing equipment and evaluation of factors that affect their performance. Comparison between NZ processors, comparisons with overseas processors.
- evaluation of the performance of individual processors by using statistical approaches to identify possible trends that can trigger further action. An example would be through the use of statistical process control, the use of cusum, or the mean and standard deviation of results to show whether those results are acceptable over time. This work could be used to develop norms for process control, and identify trending towards loss of control.

Some of the possible research projects might result in an improved understanding of the limitations of hygienic processing and also why some processors are better than others. This type of information would be useful for both the industry and MPI in determining whether further improvement is feasible.

6 Next Steps

This document was developed by MPI with input from industry. Public consultation will take place over a six week period. A final position will then be determined and any proposed changes incorporated into an amendment to the Animal Products (National Microbiological Database Specifications) Notice.

MPI will continue to review the NMD results, human foodborne campylobacteriosis data and available science on an ongoing basis. MPI may revise its position on the CPT in the light of this data. The poultry industry will be fully consulted in the normal manner should this occur.

Appendix 1: Summary of Current Required Responses by number of consecutive non-compliant windows:

Responses Required – for consecutive non-compliant windows	
1	NMD Controller must notify Operator and MPI-verifier, who will inform MPI nominated managers/technical persons: The Operator must initiate corrective actions to restore control.
2	NMD Controller must notify the Operator. The Operator must document the investigations, corrective actions taken and planned, and report to MPI- verifier, who will inform nominated MPI persons. The MPI-verifier must review the actions and if necessary visit the premises and report any concerns to nominated MPI persons. If MPI person is not satisfied that the actions are appropriate they may notify an MPI Director who may require an immediate response 7.
3 -5	As for non-compliance 2.
6	As for non-compliance 5 and the operator must document any product disposition options they could implement in order to minimise the risk of contaminated product reaching the consumer. The product disposition options must be provided to the MPI- verifier.
7	A *Campylobacter* Response Team (CRT) visit may be required. The CRT will include the following representatives: an MPI employee who is appointed as the CRT Leader, one or more MPI-nominated experts in relevant fields and may include an industry nominated Technical expert/adviser. If a CRT visit is not required the operator must proceed as per noncompliance 6. If a CRT visit is authorised by the MPI Director, the CRT Leader must notify the Operator of the intended visit, and visit premises at first opportunity to: – review all actions to date and recommend to the Operator corrective actions necessary to bring the premises into compliance, and – where the CRT Leader considers appropriate (in his or her discretion), recommend to the Director General the application of sanctions as per non-compliance 8 under Section 89 of the Animal Products Act 1999 to protect the consumer. If a CRT recommends corrective actions the Operator must implement them, and/or provide other evidence to MPI demonstrating compliance. The MPI- verifier must review the Operator's actions and report on effectiveness.
8	MPI may apply sanctions which remain in place until revoked by an Animal Products Officer. They may include, but are not limited to the following: – Visit(s) by the CRT and implementation of any actions / recommendations of the CRT – Increased verification / Full-time supervision of processing – Introduction of further interventions – Product disposition – Further sampling and research initiatives and – Premises closure.