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The surveillance programme for *Campylobacter* spp. in broiler flocks in Norway 2025

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Content

Summary

Surveillance in 2025 showed that 99 flocks (4.9%) tested positive for *Campylobacter* spp. among all broiler flocks slaughtered before 51 days of age between 1 May and 31 October. In total, 2,014 flocks from 492 farms were tested. Among the farms included, 75 (15.2%) had at least one positive flock. Of these, 13 farms had two positive flocks, four farms had three, and one farm recorded four positive flocks. As in 2024, but in contrast to earlier years, most positive flocks originated from farms with only a single positive flock. These farms represented 11.5% (57/492) of all farms tested and accounted for 57.6% (57/99) of all positive flocks identified in 2025. Carcasses from positive flocks were either heat-treated or frozen for a minimum of three weeks before being placed on the market. This year's prevalence of 4.9% falls within the range observed in previous years and is considered low. The prevalence is also very low compared to most other European countries.

Introduction

Campylobacteriosis is currently the most prevalent foodborne human bacterial zoonosis in Norway (FHI MSIS statistikkbank). Consumption of poultry meat purchased raw has been identified as a significant risk factor in addition to drinking non-disinfected water, eating at barbecues, occupational exposure to animals, and eating undercooked pork (1). In 2025, the number of cases has been slightly increasing. The total number of human campylobacteriosis infections in 2025 was 3 309; 1 198 were acquired in Norway, 1 362 acquired abroad and 749 had unknown origin (MSIS). After the drop in total registered human campylobacteriosis infections in 2021 (2055 registered in MSIS), probably due to the covid pandemic restrictions, this number has been steadily increasing. The 2025 prevalence remains below the highest number of human campylobacteriosis cases reported in MSIS during the period 2002–2025, which peaked at 4,155 cases in 2019.

The action plan for *Campylobacter* spp. in Norwegian broilers has been running since spring 2001 (2). The action plan is a joint effort involving several stakeholder groups from "stable-to-table". It is funded by The Norwegian Food Safety Authority (NFSA) and Animalia. The Norwegian Veterinary Institute (NVI) has the project leader role and coordinates the programme, performs the laboratory investigations, analyses the data and communicates the results. The farmers perform the sampling in close collaboration with their respective abattoirs. Preventive actions are applied on the *Campylobacter* spp. positive flocks detected in the surveillance program, and the carcasses from positive flocks are either frozen for a minimum of three weeks or heat treated before entering the market.

The action plan is updated regularly, and the action plan for 2025 together with reports and plans from previous years can be found at https://www.vetinst.no/overvaking/campylobacter-fjorfe.

Aims

The objective is to reduce the human exposure to thermophilic *Campylobacter* spp. from raw Norwegian broiler meat products.

Materials and Methods

All Norwegian broiler flocks slaughtered before 51 days of age during the period 1st May – 31st October were sampled by the owner or the keeper on the farm. One flock is defined as broilers within the same house, at the same time, and slaughtered with no more than one day difference. The sampling was performed four to six days before slaughter. Following sampling instructions, one sample consisted of ten pooled swabs from fresh faecal/caecal droppings. The samples were analysed by real-time PCR for detection of *Campylobacter* spp. at the NVI (3). In general, the results were available for the Norwegian Food Safety Authority (NFSA) and industry

partners in a shared database within one working day after receival of samples. All positive test results are also reported individually to the NFSA, the slaughterhouse and the farmer.

In case of undetermined *Campylobacter* spp. status for a flock at the time of slaughter, caeca from ten broilers per flock were sampled at the slaughterhouse for cultivation at NVI. This is to ensure correct follow up of the flock.

The carcasses from all *Campylobacter* positive flocks are either frozen for a minimum of three weeks or heat treated before entering the market.

Results and Discussion

In 2025, a total of 2 014 flock samples from 492 farms were analysed for Campylobacter spp. Overall, 99 flocks (4.9%) were found to be positive for *Campylobacter* spp. Seven of the 2 014 flocks were sampled for cultivation at the slaughterhouse due to unknown *Campylobacter* spp. status at the time of slaughter, and none of these samples tested positive. The reasons for unknown *Campylobacter* spp. status at the time of slaughter can be delay in the postal services, the need to re-run the analysis in the laboratory, lack of sampling at the farm or the sample is taken more than six days before time of slaughter.

The positive flocks originated from 75 (15.2%) of the farms. Thirteen farms had two positive flocks, four farms had three positive flocks, and one farm had four positive flocks. Farms with only one positive flock accounted for 57.6% of all positive flocks, which is similar to the situation in 2024. This contrasts with earlier years, when a smaller number of farms contributed a disproportionately large share of the total positive flocks. Repeated detection of positive flocks at the same farm often triggers targeted preventive measures against *Campylobacter* spp. The data from 2024 and 2025, when most positive findings originated from farms with only one positive flock during the season, may indicate a shift towards more sporadic introductions of *Campylobacter* spp. rather than a consistent biosecurity deficiency at specific farms. A recent case control study also indicated that there is high genetic diversity of *C. jejuni* strains in Norwegian broilers and limited persistence of the same strains at farms across years (4).

The annual percentage of *Campylobacter spp.* positive flocks has varied from 3.3 -7.7% since the action plan was launched (Figure 1 and Figure 2). This year's level of 4.9% positive flocks falls within the range of positive flocks detected previous years.

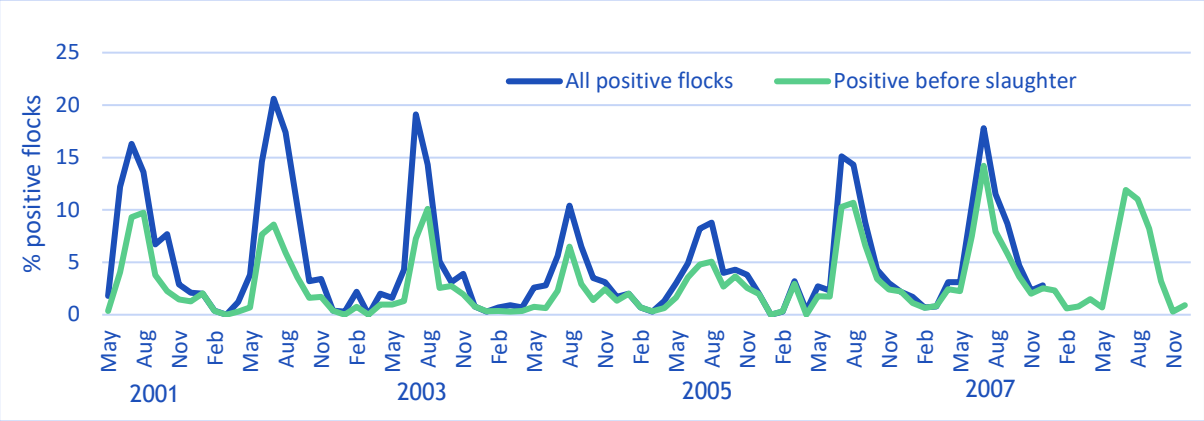

Figure 1. Monthly incidence of *Campylobacter* spp. in slaughtered Norwegian broiler flocks from May 2001 throughout 2008. The blue line represents flocks positive for *Campylobacter* spp., based on two test results; before slaughter and at slaughter. The green line represents flocks tested positive for *Campylobacter* spp. at the on-farm sampling before slaughter (from 2005 onwards: sampling approx. four days prior to slaughter).

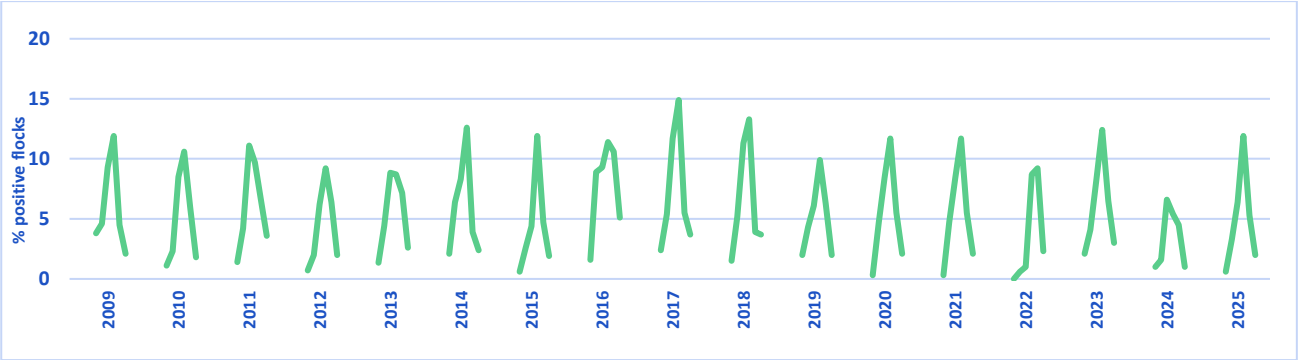

Figure 2. Monthly incidence of *Campylobacter* spp. in Norwegian broiler flocks from May throughout October 2009 - 2025. The green line represents flocks positive for *Campylobacter* spp. when sampled on-farm prior to slaughter.

The results for 2002–2007, when all flocks were sampled twice, are presented in Table 1 together with the results for 2008, where sampling was conducted year-round but only once, close to slaughter. Until February 2005, pre-slaughter samples were collected approximately eight days before slaughter. During this period, around 50% of the positive flocks were detected only through sampling at slaughter. From 1 March 2005 onwards, all flocks were sampled no more than four days prior to slaughter, and in 2005, 31.8% of the positive flocks were detected only at slaughter. This proportion decreased to 25.3% in 2006 and 24.5% in 2007. These findings highlight the importance of collecting samples close to the slaughter date for effective detection of *Campylobacter*-positive flocks.

From 2008 onwards, sampling at slaughter was terminated, and more recent data needed to estimate the number of *Campylobacter* spp. positive flocks entering the market without being frozen or heat treated are therefore lacking. Calculations was instead made assuming that 2008 - 2015 situation equals 2007 with respect to the proportion of positive flocks being identified before slaughter (approx. 75%), the seasonal distribution (approx. 80% of positive flocks are slaughtered during the six summer months) and that the number of samples equals/corresponds to the number of flocks (Table 1 and Table 2).

Table 1. Results from the Action Plan against *Campylobacter* spp. in broilers in the period 2002 - 2008.

Year	Number of sampled flocks	Number (%) of positive flocks	Number of positive flocks discovered at slaughter only[1]
2002	3 627	228 (6.3)	127
2003	3 550	175 (4.9)	85
2004	3 626	118 (3.3)	58
2005	3 652	132 (3.6)	42
2006	3 908	190 (4.9)	48
2007	4 145	237 (5.7)	58
2008	4 675	193 (4.1)	64[2]

[1] This is the maximum number of flocks positive for *Campylobacter* spp. which had the possibility to reach the market without previous freezing or heat treatment.

[2] For 2008 this is the estimated maximum number of flocks positive for *Campylobacter* spp. which had the possibility to reach the market without previous freezing or heat treatment.

Table 2. Results and estimated results from the Action Plan against *Campylobacter* spp. in broilers in the period 2009 - 2025.

Year	Number. of tested / positive (%) samples[1]	Estimated number of flocks the whole year[2]	Estimated number (%) of positive flocks per year	Estimated number of not identified positive flocks[3]
2009	1 924 / 117 (6.1)	4 000	195 (4.9)	78
2010	2 170 / 110 (5.1)	4 400	184 (4.2)	74
2011	2 282 / 139 (6.1)	4 560	232 (5.1)	93
2012	2 417 / 106 (4.4)	4 830	177 (3.7)	71
2013	2 710 / 149 (5.5)	5 420	248 (4.6)	99
2014	2 685 / 160 (6.0)	5 370	267 (5.0)	107
2015	2 133 / 93 (4.4)	4 260	155 (3.6)	62
2016	2 262 / 175 (7.7)	ND	ND	ND
2017	1 919 / 136 (7.1)	ND	ND	ND
2018	1 986 / 126 (6.3)	ND	ND	ND
2019	2 018 / 103 (5.1)	ND	ND	ND
2020	1 893 / 115 (6.1)	ND	ND	ND
2021	1 891 / 110 (5.8)	ND	ND	ND
2022	2 189 / 106 (4.8)	ND	ND	ND
2023	2 100 / 128 (6.1)	ND	ND	ND
2024	2 071 / 70 (3.4)	ND	ND	ND
2025	2 014 / 99 (4.9)	ND	ND	ND

[1] Equals approximately the number of slaughtered / positive flocks.
[2] In 2009 - 2015, the estimate for the whole year is based upon number of slaughtered flocks in May – October.
[3] The estimated maximum number of flocks positive for *Campylobacter* spp. which had the possibility to reach the market without previous freezing or heat treatment.
ND: Not determined.

Estimates of the annual flock prevalence and the number of flocks positive for *Campylobacter* spp. reaching the market without freezing or heat treatment, have not been estimated since 2015 because no sampling has been carried out in the action plan during the six “winter months” November – April since 2008 (Figure 1). Estimates would probably be hampered with too many uncertainties to be of much value. Also, the fact that the sampling since 2016 was performed a maximum of six days before slaughter, not four days as previous years, adds to the uncertainty of such estimates.

The 2025 surveillance result of 4.9% *Campylobacter*-positive flocks falls within the range observed in previous years and is considered low (Tables 1 and 2). The prevalence is also very low compared to most other European countries (5).

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