

# Survey of *Salmonella* and *Campylobacter* in whole raw chickens on retail sale in Wales and Northern Ireland 2001-2006

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## Overview

Overview of project

*Salmonella* rates

*Campylobacter* rates

Comparison of retailers/butchers

Comparison of fresh/frozen

*Salmonella* isolates

*Campylobacter* isolates

Outcomes

## Overview of project

Main objective was to measure the baseline levels of *Campylobacter* and *Salmonella* in whole, raw, retail chicken in order to assess the microbiological hazard associated with this product

The project started in Wales in November 2001. Northern Ireland joined in January 2004. The project ended in December 2006.

All samples were examined for *Salmonella* and *Campylobacter* species using a carcass rinse method and selective enrichment for pathogens

3403 samples taken in Wales since November 2001

842 samples taken in Northern Ireland since January 2004

Overall baseline rate measurement, comparison of fresh/frozen  
and comparison of retailers/butchers was carried out

Target to type all *Salmonellas* and speciate 25% of  
*Campylobacter* isolates-all isolates sent to HPA for typing work

## Overall

	Total number of samples	Number of <i>Salmonella</i> positive (%)
2001/02	739	62 (8.4)
2003	736	42 (5.7)
2004	1033	40 (3.9)
2005	877	35 (4.0)
2006	860	31 (3.6)

## Samples taken in Wales

	Total number of samples	Number of <i>Salmonella</i> positive (%)
2001/02	739	62 (8.4)
2003	736	42 (5.7)
2004	753	37 (4.9)
2005	588	30 (5.1)
2006	587	24 (4.1)

## Samples taken in Northern Ireland

	Total number of samples	Number of <i>Salmonella</i> positive (%)
2004	280	3 (1.1)
2005	289	5 (1.7)
2006	273	7 (2.6)

## Overall

	Total number of samples	Number of <i>Campylobacter</i> positive (%)
2001/02	739	523 (70.8)
2003	736	538 (73.1)
2004	1033	719 (69.6)
2005	877	616 (70.2)
2006	860	542 (63.0)



## Samples taken in Wales

	Total number of samples	Number of <i>Campylobacter</i> positive (%)
2001/02	739	523 (70.8)
2003	736	538 (73.1)
2004	753	517 (68.6)
2005	588	367 (62.4)
2006	587	338 (57.6)

## Samples taken in Northern Ireland

	Total number of samples	Number of <i>Campylobacter</i> positive (%)
2004	280	202 (72.1)
2005	289	249 (86.2)
2006	273	204 (74.7)

## Samples from retailers and butchers

Year	<i>Campylobacter</i> positive rate (%)		p value
	Retailers	Butchers	
2001/02	70.9	70.4	0.902
2003	73.6	71.3	0.555
2004	68.8	72.6	0.265
2005	70.5	69.2	0.725
2006	64.6	57.8	0.079

Year	<i>Salmonella</i> positive rate (%)		p value
	Retailers	Butchers	
2001/02	9.1	6.8	0.316
2003	6.9	1.8	<b>0.011</b>
2004	4.2	2.7	0.301
2005	4.5	2.2	0.152
2006	4.1	2.0	0.149

## Fresh and frozen samples

Year	<i>Campylobacter</i> positive rate (%)		p value
	Fresh	Frozen	
2001/02	70.2	72.6	0.530
2003	73.5	71.9	0.657
2004	73.4	55.6	<b>&lt;0.001</b>
2005	72.4	60.0	<b>0.0026</b>
2006	63.7	59.9	0.366

Year	<i>Salmonella</i> positive rate (%)		p value
	Fresh	Frozen	
2001/02	8.0	9.7	0.464
2003	4.4	9.4	<b>0.01</b>
2004	3.6	5.0	0.340
2005	4.0	4.0	0.990
2006	2.6	8.3	<b>&lt;0.001</b>

## *Salmonella* isolates

The most numerous isolates per year:

2003	S. Derby and S. Kentucky (n=6)
2004	S. Kentucky (n=6)
2005	S. Indiana (n=6)
2006	S. Ohio (n=9)
Overall	S. Ohio (n=21)

## *Campylobacter* isolates

Year	Number of isolates submitted	<i>C jejuni</i> (%)	<i>C coli</i> (%)	<i>C lari</i> (%)
2004	182	115 (63.2)	66 (36.3)	1 (0.5)
2005	157	86 (54.8)	71 (45.2)	0 (0.0)
2006	90	57 (63.3)	33 (36.7)	0 (0.0)



## Outcomes

- The project has measured the baseline rate of *Salmonella* and *Campylobacter* in whole retail raw chickens for five consecutive years
- It can be concluded that the overall *Campylobacter* rate has not changed over the duration of the project
- The *Salmonella* rate has decreased during the project
- The project has produced five peer-reviewed papers and three conference presentations
- *Campylobacter* isolates from these projects have been used for further work (FSA project B15011-Oxford University/HPA)