



Presentation at BVA Congress

27-29 September 2007
Belfast, North of Ireland

PLEASE NOTE:

While this presentation may be quoted from it cannot be reprinted in full without the permission of the author and the BVA

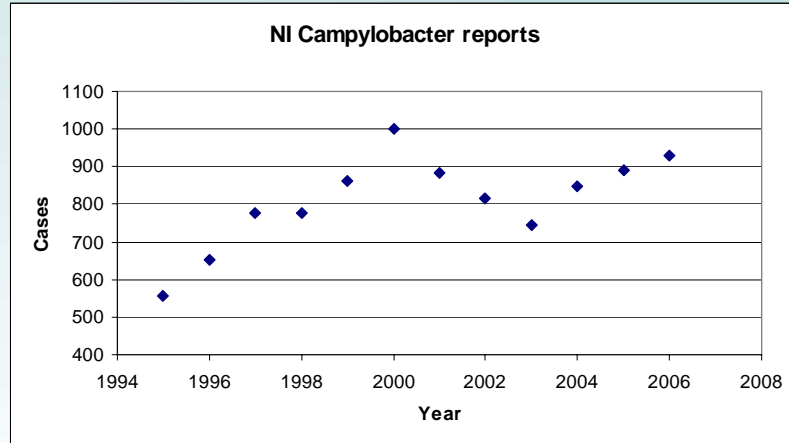


Campylobacter spp. in foods and man

Bob Madden*, C. Kelly, L. Moran and P. Scates.

Food Microbiology Branch, Agri-Food and Biosciences Institute, Newforge Lane, Belfast BT9 5PX.

*Also Queen's University of Belfast



From Sentinel study 1:6.8 reporting ratio, 11d duration.
 Hence 85 800 days of illness. 235 person years.

Isolation and identification of *Campylobacter* spp.

Media and methodologies developed in '80s and '90s

Preston broth, developed by F. Bolton et al initially used.

Now Bolton broth, developed in Preston.

Atmosphere crucial. **Must** be microaerobic i.e.

5% O₂, 10% CO₂, balance N₂ but H₂ advisable.

Recoveries best if enrichment and selection under microaerobic atmosphere.

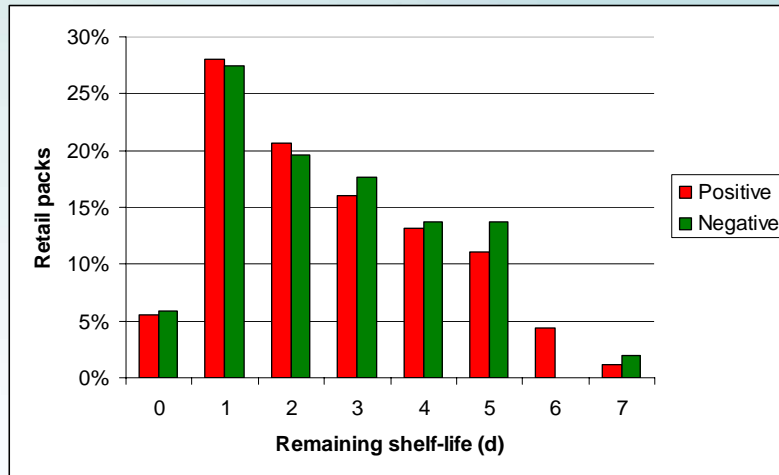
Campylobacter spp. from retail poultry

Bolton medium in a microaerobic atmosphere: 67% of samples (raw chicken) positive, but air incubation 52% positive.

Enrichment medium	MULTIPLEX PCR SPECIATION			
	<i>C. jejuni</i>	<i>C. coli</i>	Both <i>coli</i> and <i>jejuni</i>	Genus only positive
Preston broth (n=48)	88%	0%	8%	4%
Bolton broth (n=58)	63%	38%	6%	12%

Moran, L., Scates, P.J. and Madden, R.H. (2007). Optimisation of isolation procedures for obtaining *Campylobacter* spp. from retail packs of raw poultry. *Fleischwirtschaft International*, **22**:65-66.

Campylobacter spp. from retail poultry, n=430



Genotyping of *Campylobacter* spp.

Work ongoing over 17 years **but:**

Campylobacter ≠ *Salmonella*

RAPD

PCR-RFLP of *fla A*

PFGE

REP-ERIC

AFLP

MLST

Hence outbreaks difficult to observe.

Genotyping of *Campylobacter* spp.

Amplified fragment length polymorphism PCR: AFLP.

Digest DNA with restriction enzymes:

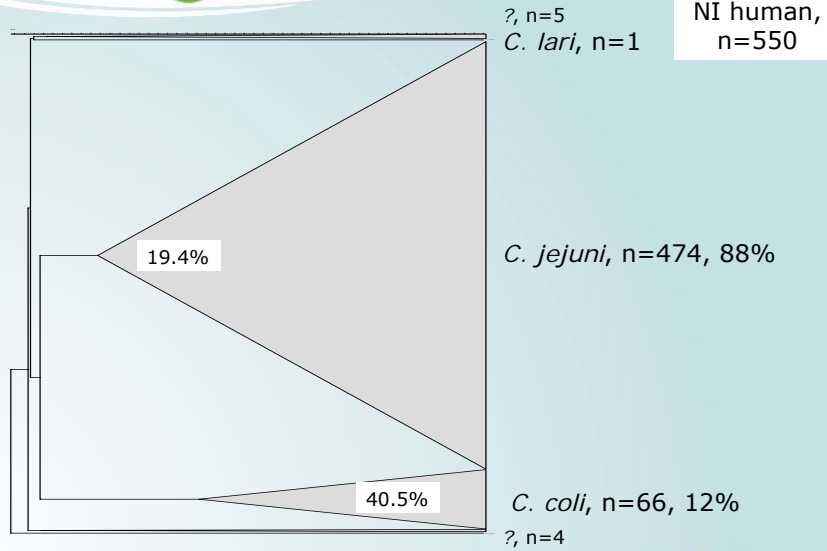
*Bgl*II AGATCT

Csp 6I GTAC

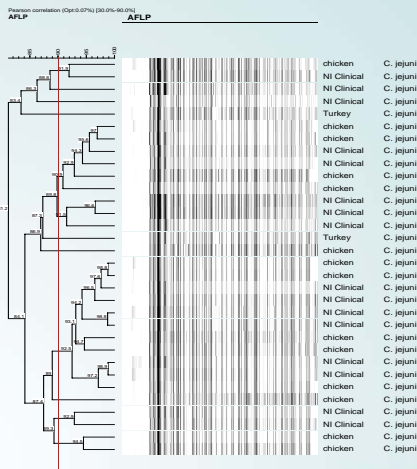
Ligate then PCR amplify fragments with different ends+dye label

Separate on capillary DNA sequencer to size

Import results into BioNumerics for analysis



C. jejuni cluster at 80% similarity



C. coli clusters at 80% similarity

No. of profiles in cluster	Number of clusters				No. of isolates in mixed clusters		
	Total	Clinical only	Poultry only	Mixed	Clinical	Poultry	Total
2	6	1	3	2	2	2	4
3	2		1	1	2	1	3
4	1		1				
5	1		1				
6	1			1	5	1	6
30	1			1	16	14	30
31	1			1	7	24	31
55	1			1	24	31	55
Totals	14	1	6	7	56	73	129

85% 38%

C. jejuni clusters at 80% similarity

No. of profiles in cluster	Number of clusters				No. of isolates in mixed clusters		
	Total	Clinical only	Poultry only	Mixed	Clinical	Poultry	Total
Totals	76	26 (19%)	8 (9%)	42	345	190	535

73% 43%

Genotyping Conclusions

Most *Campylobacter* isolates from man show significant similarity with genotypes from retail poultry.

In poultry recurrent genotypes are seen. Re-infection from?

Timescale of recurrence varies from 2-18 months

In man recurrence also seen