



NZ Food Safety

LECTURE SERIES



**“Impact of food-borne illness for New Zealand –
not just an upset stomach”**

Fiona Thomson-Carter
Director Food Science & Risk Assessment

NZFS Food Science and Risk Assessment

- ▶ • Team of approximately 30 scientists with expertise in microbiology, chemistry, toxicology and food science (nutrition and dietetics).
- Provide evidence-based advice to New Zealand Food Safety (NZFS), Ministry for Primary Industries (MPI), across government, stakeholders and beyond.
- Assess and describe risk associated with food consumption – microbiological, chemical, radiological and physical.
- Use international science and knowledge, NZ-specific information and increasingly and mātauranga Māori to inform our advice.
- *New Zealand food can be trusted by everyone, everywhere*

Impact of food-borne illness – not just an upset stomach

- Microbiological emphasis rather than chemical as data are more robust.
- Infectious diseases are still a major public health issue world-wide, even with the increasing burden of non-communicable diseases such as diabetes and cardiovascular disease.
- Their impact is under-estimated due to gaps in surveillance.
- Increasing AMR and emergence of new bacteria and viruses present new challenges.
- NZFS strategy – we want to reduce and mitigate the impact of these diseases by enhancing food safety across the whole system.
- Infectious diseases have not gone away and could have greater impact with climate change e.g. *Vibrio* in New Zealand shellfish.

November 24, 1996 No. 4755 — 8⁺

The SUNDAY POST

Price 55p

**Coca-Cola
Cup final
preview**

Pages 46 & 47



**Win tickets
to see
Boyzone**

Page 24



**Will the Budget
put £s in your
pocket?**

Page 6



Killer bug puts 30 in hospital



New Zealand Food Safety
Ministry for Primary Industries
Manatū Ahu Matua



NZ Food Safety
LECTURE SERIES

Central Scotland outbreak of *E. coli* O157 infection

- First positive Carlisle - 21/11/96
- 3 cases linked to butcher's shop - 22/11/96?
- Butcher's premises visited - 23/11/96
- First outbreak-associated specimens received Aberdeen - 26/11/96
- Last outbreak-associated specimens received Aberdeen - 20/05/97



2 SCOTTISH

Press and Journal

MONDAY NOVEMBER 25 1996

Royal Mail issues return-to-work plea

THE Royal Mail has issued a plea for strikers to return to work as an illegal strike in Scotland and Fife continues today.

Further talks will be held this afternoon in a bid to resolve the situation which began when Edinburgh workers walked out last Thursday, claiming Royal Mail would not agree to an agreement on improving its services without the knowledge of the Communications Workers Union.

Problems in Dorchester and Kirkcaldy have also not helped in support of their colleagues, taking the

total number of strikers to 2,200. Tom Murray, Royal Mail's director of operations for Scotland and Northern Ireland, last night claimed employees had been misled by senior officials, whom he accused of lying.

"We have requested a meeting for today and I hope we can have that a way forward to resolve what is an unnecessary dispute."

"I also urge the CMTU to return their strikers to work. I think they should be back to work."

Mr Murray claimed the strike occurred after Royal Mail refused to

temporarily shut its previously signed contracts to ensure services were maintained.

"This morning there is actually about a third of our workforce who are not in so far as postal work goes and we need to reach that high for Royal Mail and our customers to be satisfied."

The Royal Mail's chief of relations, John Lindsay, also said yesterday the Scottish Workers had published "bad news" saying there were 100,000 Royal Mail jobs at risk.

But David Gault, Royal Mail sec-

retary of the CMTU, he said, warning Royal Mail of being the "industrial enemy".

Scottish Workers has nothing to do with the CMTU and vice versa.

"Ministry has to be the only of the union. We are trying to negotiate a return to work under industrial relations procedures."

And he dismissed Royal Mail's claims that staffing problems forced them to take in casual workers.

"There are no shortage problems and the Royal Mail has never introduced casuals in this kind of

year before that I am confident of a negotiated solution to this strike action."

Royal Mail is advising customers to post their mail at post offices, rather than at home, to ensure that parcels are not affected by the strike.

It is Royal Mail spokesman said yesterday that while he has hopes of an agreement in the South and in Scotland, in the North, and in the Midlands, the situation is bleak. "The union is going to make sure we're using other means to make sure the mail gets to the South," he added.

Ewing attacks defence claims

SCOTTISH National Party MP Margaret Ewing yesterday attacked a Foreign Secretary's claim that the UK's defence budget would be cut by 10 per cent.

She said the claim was "a gross distortion of the truth" and that the UK's defence budget would be cut by 10 per cent over the next 10 years, not 10 per cent in the next 10 years.

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Town in fear as food poisoning toll hits 35

By Jackie Brown

A SCOTTISH town rocked by a serious food poisoning outbreak was in a state of panic last night when it was told that 35 people were already in hospital and more were being treated by local health authorities.

The outbreak, which began in Strathclyde, has spread to other parts of the region, with the number of people affected rising to 35.

The outbreak has been linked to a meal served at the town's main restaurant, which has since closed.



The premises of Scottish baker of the year John M Don & Son which has been linked to an outbreak of food poisoning in Strathclyde.

25 years and 100 years around the globe. In September, he was awarded the title of Scottish Baker of the Year.

John M Don & Son, a family-run business, has been producing bread and cakes for over 100 years.

The bakery has been producing bread and cakes for over 100 years.



Margaret Ewing "need to improve"

She said Ewing, speaking to the Scottish Parliament, said the UK's defence budget would be cut by 10 per cent over the next 10 years, not 10 per cent in the next 10 years.

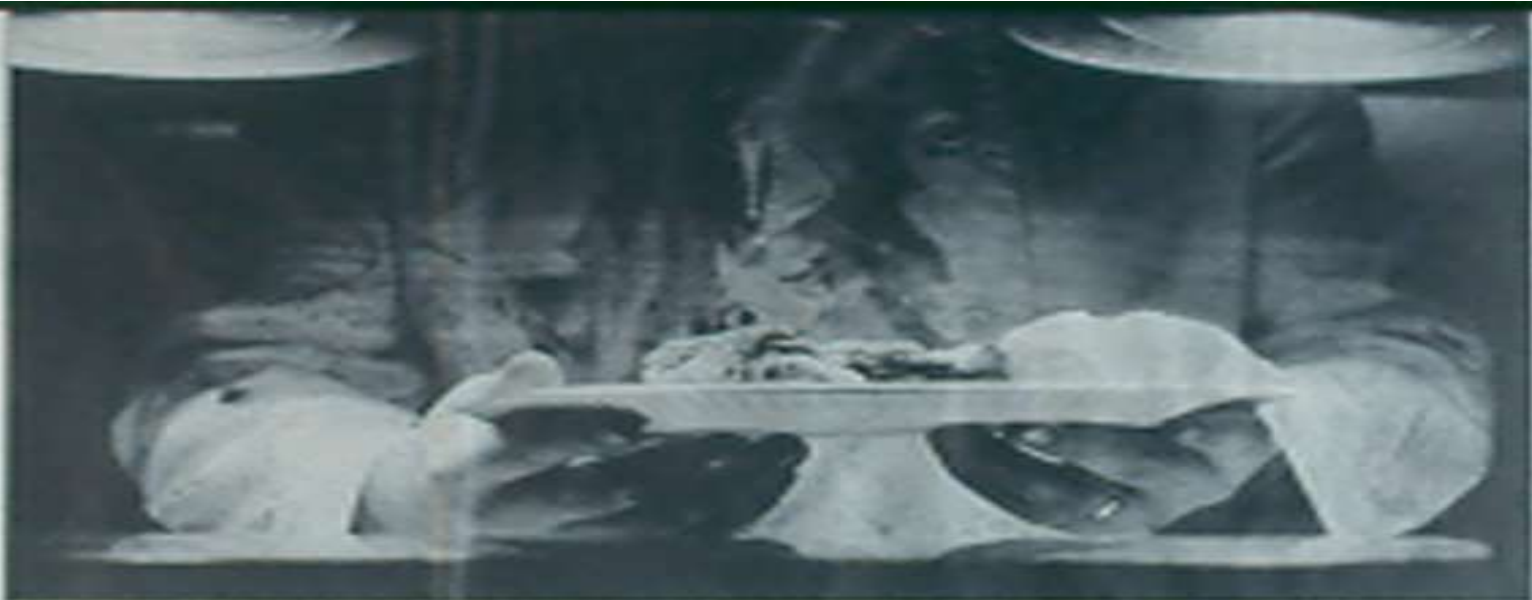
She said the claim was "a gross distortion of the truth" and that the UK's defence budget would be cut by 10 per cent over the next 10 years, not 10 per cent in the next 10 years.



POISON SERVED UP ON A PLATE

At least a million people die each year from food poisoning. **Ruth Schwartz** and **Shirley Leonard** look at some solutions

Every year, at least a million people die from food poisoning. In New Zealand, the number of people who get sick from food poisoning is about 100,000. This is a big problem for the country. Food poisoning can be caused by many different things, but the most common is bacteria. Bacteria can get into food in many ways, such as from the soil, water, or the air. It can also get into food from a person's hands or from a pet. Once bacteria get into food, they can multiply and make the food poisonous. This can happen even if the food looks and tastes fine. So, it's important to be careful when you eat. Wash your hands, keep food clean, and don't eat food that has been left out for a long time. These are some ways to avoid food poisoning.



...with a better idea of how great food can be, many New Zealanders are now more concerned with eating healthily and responsibly. This means eating less meat and more vegetables, and choosing food that is good for you. It also means being careful about where you get your food from. Buying food from reputable sources, like supermarkets or farmers' markets, can help you avoid food poisoning. And, of course, it's always a good idea to wash your hands and keep food clean. By following these simple rules, you can enjoy your food safely and healthily.

As new strains of these bacteria become increasingly widespread, they bring much danger to those who eat them. It is important to be aware of the risks and to take steps to avoid them. This includes washing your hands, keeping food clean, and not eating food that has been left out for a long time. By being careful, you can protect yourself and your family from food poisoning.



Central Scotland outbreak of *E. coli* O157 infection

► Initial Ref. Lab. Load - (26/11/96 - 21/01/97)

Isolates:Faeces	1256		
Sera	766	2099	1:5
PM Specimens	77		

- At 21/01/97 > 6000 tests performed → 10 years work in 8 weeks
- FAI > 21 died > 600 cases
- 5 ton food container – carcasses, cuts, mince and scotch eggs

Central Scotland outbreak of *E. coli* O157 infection

► Final Ref. Lab. Load - (20/05/97)

Isolates	3188	
Faecal/PM*	881	5259
Sera	1190	

* NEG. after Culture/IMS/PCR

VTEC: Counting the cost - Estimated total costs incurred by the Central Scotland outbreak

Type of Service	Components	Estimated Total GBP Cost in 1996	Estimated Total GBP Cost in 2019
Hospital	Specialised care & treatment Specialised (non-laboratory) investigations	£479,788	£761,475
Diagnostic (laboratory) investigations	Micro-biology Haematology Biochemistry	£231,457	£367,347
Primary Care (Special clinic at Wishaw)	Community Nursing Medical Infection Control	£172,200	£273,299
Public Health	Epidemiological investigation Outbreak Management	£107,891	£171,234
Public Information & Communications	Media Health Promotion campaign Helpline	£138,159	£219,273

TOTAL £1,129,495

TOTAL £1,792,628

The primary role of the FSA is to protect consumers in relation to food, through risk assessment, regulation and other interventions; attempting to reduce and minimise:

Incidence of food safety risks



Food Related
Microbiological
IID; TSE



Food Hypersensitivity
(allergens, coeliac
diseases and food
intolerance)



Chemical and
Radiological
Contamination



Impacts on society



Costs to
Britain
(Society)



Costs to
individuals



Costs to
employers



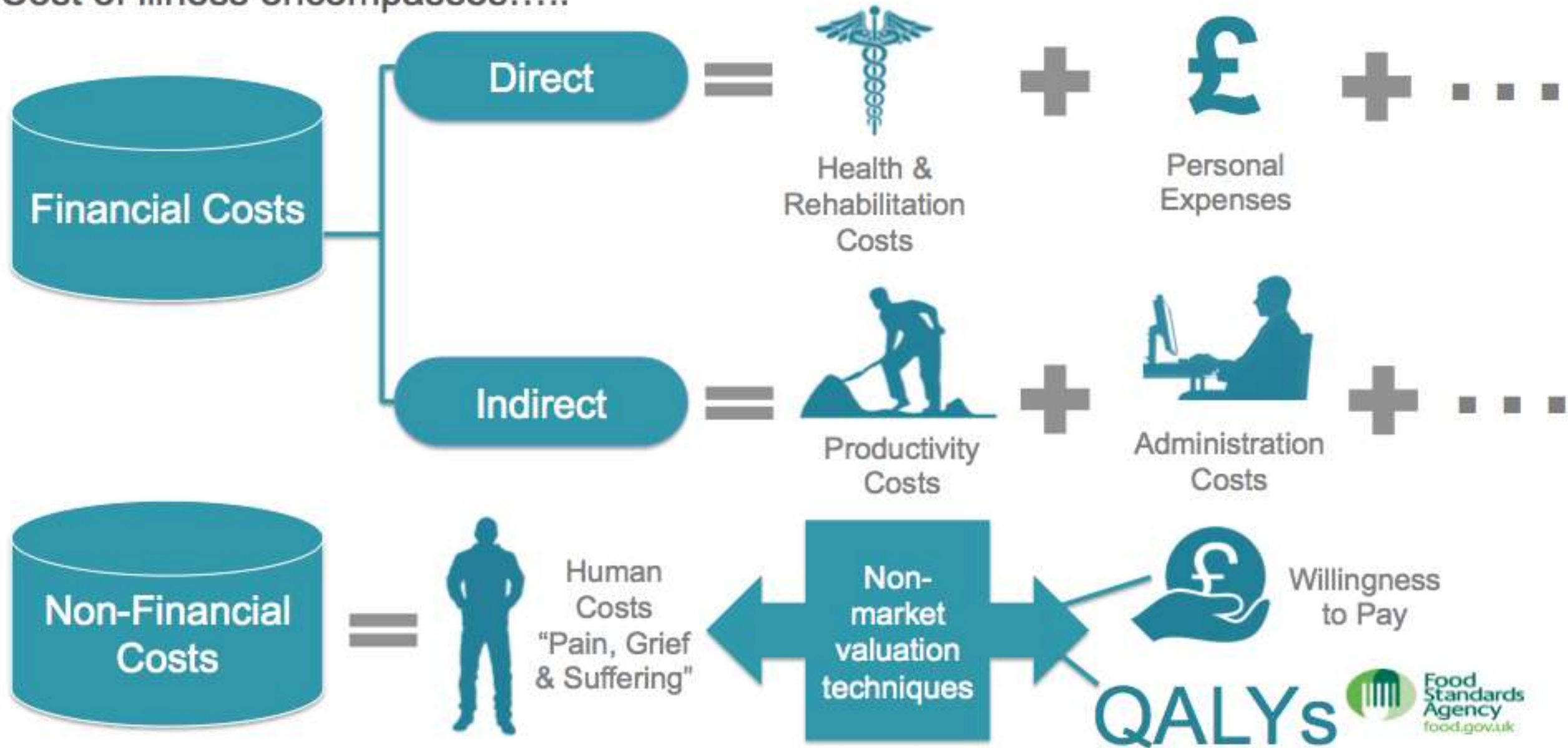
Costs to
Government

Cost of foodborne IID

Foodborne IID imposes a significant burden on individuals and their families, healthcare services and the economy. Estimated at a cost to the economy in excess of **£1bn.**

Cost of Illness: Foodborne IID

Cost of illness encompasses.....



FSA Cost of Illness Model: Health Costs

Health cost estimates currently rely on data derived from the ***Report of The Study of Infectious Intestinal Disease in England (IID1 study (2000))***. The FSA recognise that there are shortcomings with the current COI model:

1994

Data sources go back as far as 1994; failing to reflect demographic and socio-economic changes including recent NHS reforms - advancement in treatment/ medicine.



Does not include cost data on long-term consequences of FBD i.e. permanent incapacity.

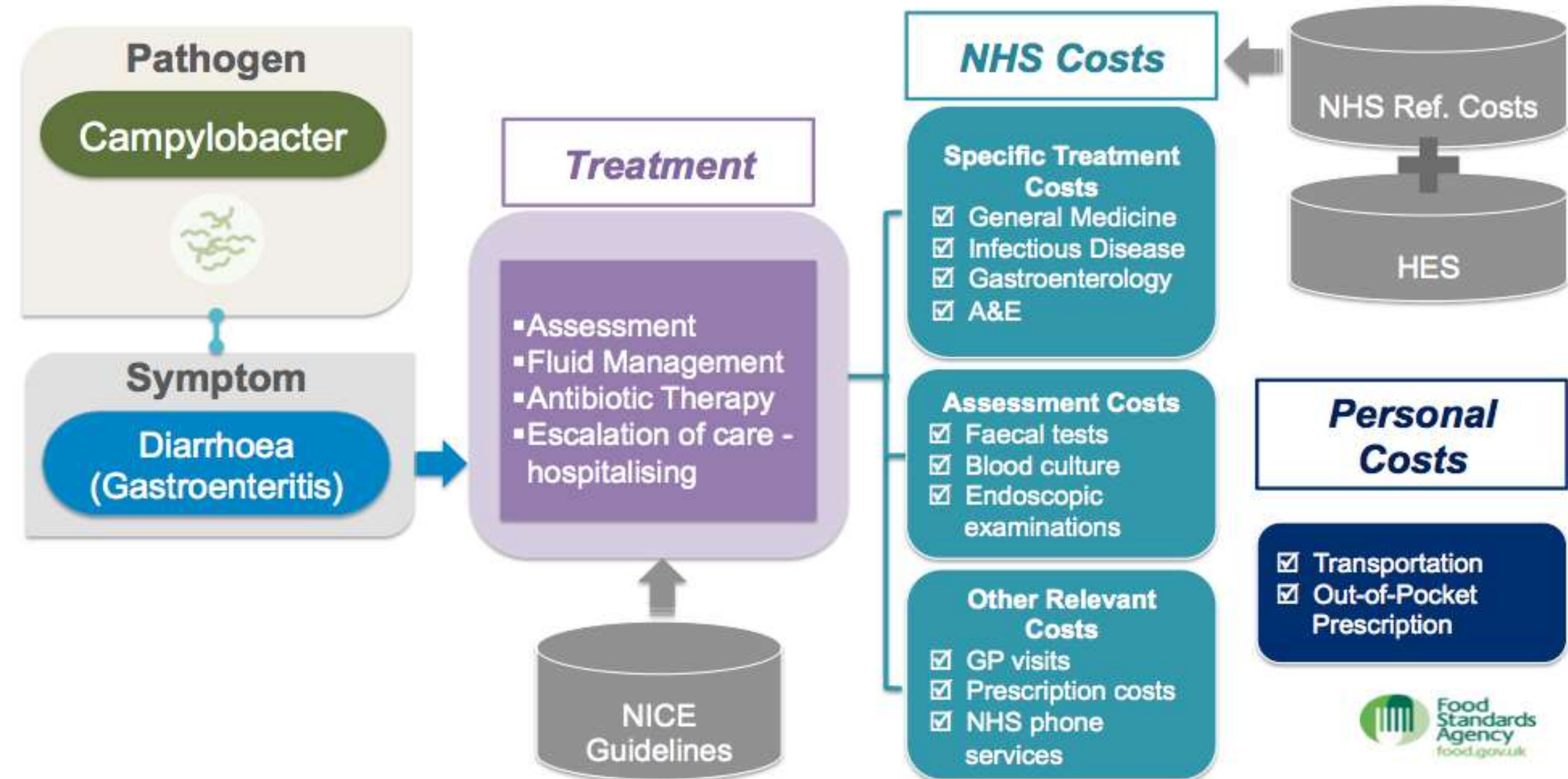


IID1 study only includes details for a few pathogen specific level costs.

NHS

Cost by severity of FBD is currently only weighted and estimated by number of hospital bed days obtained from the IID study. The current approach neglects intensity of resource use such as type of treatment and care e.g. if a specialist ward or medical equipment is required to treat patients.

COI (Financial): Treatment & Health Related Costs



O157 in Scotland

► West Lothian Outbreak May 1994

- Largest milk-borne outbreak world-wide
- 70 cases, 9 cases of HUS, 1 death
- *E. coli* O157 isolated from humans, dairy cattle, bulk milk tanker, dairy machinery all indistinguishable by PFGE
- Dairy owners prosecuted under Food Hygiene Regulations, dairy closed

VTEC : Counting the cost

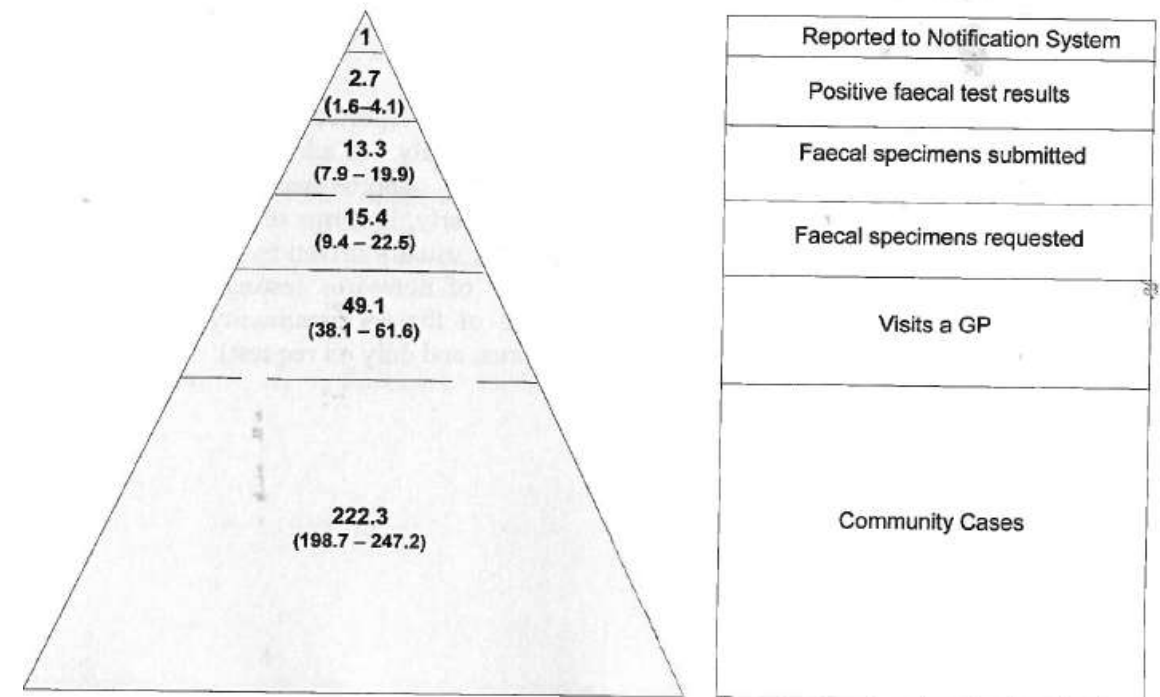
► Lothian Outbreak 1994

- HUS £62,354 (1994 - 1995)
- Investigation and Control £171,848
- Cost over 30 years
 - £168,032 per case
 - £11.9 million

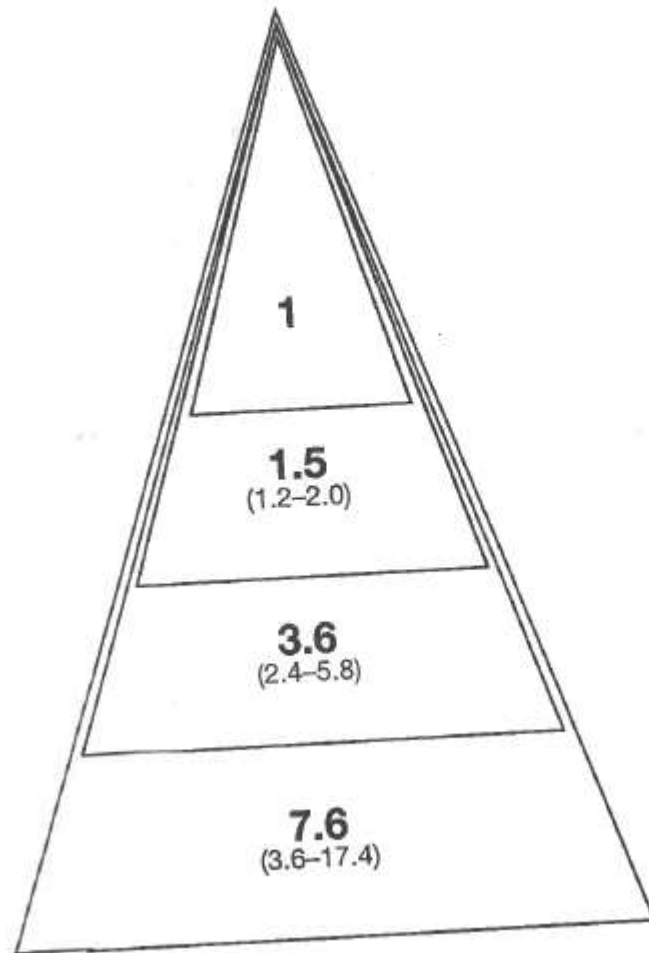
New Zealand situation

- The problem – under-diagnosis, surveillance gaps.

Figure 1: The New Zealand AGI reporting pyramid showing ratios of cases in the community, general practice, and clinical laboratory levels relative to notifiable diseases, 2006 (mean, 5th and 95th percentiles, areas to scale). Note that not all positive faecal test results will be for diseases that are notifiable.



Reporting Pyramid for *Campylobacter*



Reported to CDSC

Positive by routine
laboratory investigation

Presenting to the GP

Community case

New Zealand situation

Table 10: Cost per cases for foodborne disease in New Zealand

Disease	Estimated incidence, 2005 Mean (95% CI)	Total cost of foodborne illness (\$M) Mean (95% CI)*	Cost per case (\$) Mean (95% CI)*
Campylobacteriosis	123,000 (86,000-177,000)	74 (51-102)	600 (350-939)
Salmonellosis	16,800 (5,200-32,000)	2.8 (1.9-4.0)	220 (90-550)
Listeriosis (Perinatal)	6 (5-10)	2.3 (0.7-4.8)	380,000 (110,000-690,000)
Listeriosis (Acquired)	18 (15-27)	0.2 (0.1-0.5)	14,000 (7,000-28,000)
STEC infection	340 (170-760)	1.6 (0.06-4.8)	4,400 (190-13,200)
Yersiniosis	7,900 (5,500-10,900)	1.4 (0.9-2.0)	190 (120-300)
Norovirus infection	108,000 (19,000-450,000)	3.0 (0.7-11)	50 (8-220)

95% CI = 95th percentile confidence interval

* Based on a discount rate of 3.5%

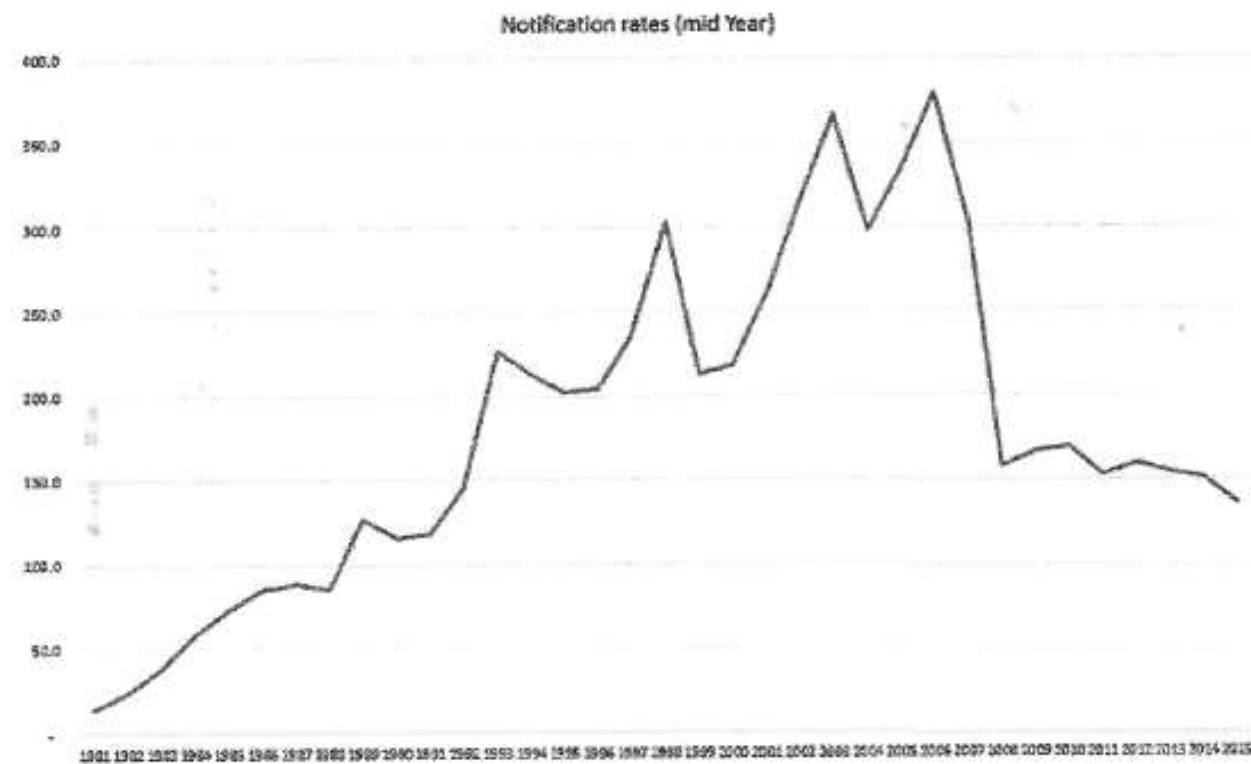


Fig. 11.7 The impact of the *Campylobacter* Strategy on human campylobacteriosis notifications

More than an upset stomach

- Food-borne disease creates significant societal costs, not solely economic.
- A major global public health issue of long-standing.
- In addition to current food-borne disease, new microbiological and chemical risks will continue to emerge.
- New Zealand's Food Safety Strategy will deliver enhanced food safety across the whole system.
- COI \$116.1m in 2007, reduced to \$48.8m by 2008 because of effective risk management and regulation, leading to reduction in incidence.
- We have been successful in delivering on strategic priorities e.g. reducing the incidence of campylobacteriosis however, we can and are determined to do more.

Thank you