Enhanced Surveillance of Potentially Foodborne Enteric Disease within a New Zealand Public Health Service

Thesis presented in partial fulfilment of the requirements for the degree of Master of Veterinary Studies in Public Health

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Disclaimer:

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Most of all I look forward (with the end of this project) to becoming a less distracted Mum and a more enlightened Health Protection Officer.

Glossary

ARPH	Auckland Regional Public Health
CDC	Centres for Disease Control and Prevention
CMP	*Campylobacter* in the Manawatu project
Common enteric diseases	Salmonellosis, Yersiniosis, Cryptosporidiosis, Giardiasis, Campylobacteriosis
CRF	EpiSurv Case Report Form
DHB	District Health Boards
EARS	ESR's Early Aberration Reporting System
ECC	Early Child Care Centre
EHO	Environmental Health Officer
EpiSurv	New Zealand's Notifiable Disease Database
ESR	Institute of Environmental Science and Research Limited
FBI	Foodborne Illness
FDA	United States Food and Drug Administration
GP	General Medical Practitioner
MCPHS	MidCentral Public Health Service
MoH	Ministry of Health
MOoH	Medical Officer of Health
NHI	National Health Index number
NZDep 06	New Zealand Deprivation Index 2006
NZFSA	New Zealand Food Safety Authority
PHS	Public Health Service
RPH	Regional Public Health (Greater Wellington Region)
TLA	Territorial Local Authority
TO	Technical Officer
USDA	United States Department of Agriculture

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Abstract

An enhanced notified enteric disease surveillance trial began on 1 July 2007 and continued until 30 June 2008. The aim of the trial was to measure the quality, timeliness and completeness of data collected and submitted by a regional Public Health Service (PHS) to the Institute of Environmental Science and Research Limited (ESR), via the national disease database (EpiSurv) for notified cases of enteric diseases. The trial evaluated two different methods of data collection: postal questionnaires and telephone interviews.

Telephone interview techniques were used to improve the contact rate, timeliness and completeness of data gathered from all notified cases of campylobacteriosis in the Manawatu, Horowhenua and Tararua regions. The target set for the project was to achieve a 95% contact rate with 90% full completion of all EpiSurv data fields. For all notified cases of campylobacteriosis a 97% contact rate was achieved in a time frame of between zero to 20 days (three day median) and completeness of all the EpiSurv case report fields ranged between 96 – 100% in the final data. Prior to the commencement of the study, between 1 July 2004 to 30 June 2005, MidCentral PHS (MCPHS) made contact with around 58% of all notified cases of campylobacteriosis and 77% of all other notified enteric disease cases[1].

A short pre-screen mail questionnaire, with reply-paid envelope, was sent to all notified cases of cryptosporidiosis, giardiasis, salmonellosis and yersiniosis in the MCPHS regions. EpiSurv case report fields were completed using information supplied in the returned questionnaires. Return rate, timeliness, and completeness were compared with the telephone interview group. Fifty three percent of cases we attempted to contact via mail questionnaire responded within two to 63 days (six day median) and completeness of all the EpiSurv case report fields ranged between 81 – 100%.

In addition, we monitored the newly introduced ESR Early Aberration Reporting System (EARS) flags for increased levels of disease compared to historical disease rates, and assessed its usefulness as a tool to identify potential outbreaks in the

[1] Contact rates for the 2005 to 2006 period were not comparable as MCPHS had enhanced it's data collection methods for campylobacteriosis in June 2006 to support the *Campylobacter* in the Manawatu project

region. While no outbreaks that had not already been identified by PHS staff were found by monitoring the EARS system, EARS has become an important tool in the MCPHS for comparing our rates of disease with bordering PHSs. EARS also provided a good quick reference tool for media enquiries and the graphs produced in EARS have been well utilised as visual aids for training and seminars presented during the trial period.

The results of the surveillance trial initiatives were compared to the rest of New Zealand (NZ) over the same time frame and with a comparable, medium-sized, PHS. While the results of the telephone interviews from the MCPHS trial were close to the comparable PHS, they were significantly higher than for the rest of NZ. The postal questionnaires achieved a lower contact rate than the comparable PHS but similar to the rest of NZ. However, the quality of data gathered in the returned MCPHS postal questionnaire was significantly higher in most fields. Additional analysis was undertaken which indicated that those cases living in higher deprivation and rural areas were less likely to respond to a postal questionnaire. An over-representation of common enteric disease notifications from rural areas in the MCPHS was also highlighted by our research.

This trial has shown the effectiveness of utilising telephone interviews and telemarketing techniques for gathering timely and complete data for human enteric disease surveillance within the MCPHS. It has also demonstrated that a short pre-screen questionnaire can be effective in collecting good quality data needed to complete the standard EpiSurv case report form.