

## WHEN SCIENCE IS NOT ENOUGH – THE HEALTH RESPONSE TO HISTORIC DIOXIN (TCDD) EXPOSURE IN NEW ZEALAND

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### Introduction

A serum dioxins study was carried out in the small community of Paritutu, New Plymouth, New Zealand in 2004 following long standing concerns about historical exposure to dioxins, in particular 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD), from the former Ivon-Watkins Dow (IWD) plant which manufactured 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) from 1962 to 1987. The mean serum TCDD level of non-occupationally exposed residents who lived in the area during the manufacturing years was found to be significantly above the background level for the New Zealand population for both sexes and all age groups. Long term ( $\geq 15$  years) residents had a serum TCDD level of 14.6 pg/g lipid or about a 4-fold elevation over expected background<sup>1,2</sup>. This is similar to the mean TCDD level found in zone B of Seveso, Italy 20 years after a trichlorophenol plant explosion<sup>3</sup>. At the time of the release of the serum dioxins study results in 2005 the Ministry of Health (the Ministry) noted that although the health implications were uncertain it was possible based on international studies that the TCDD levels found may have health consequences for individuals and there may be a small population increase in cancer rates<sup>4,5,6</sup>.

### Methods

Further epidemiological work was undertaken to put the serum results into a public health context to assist in addressing the community's perception of high health risk. No evidence of adverse effects that could be related to dioxin exposure was found<sup>7,8</sup>. However there are limitations of epidemiological studies in addressing a community's risk perception – particularly in this instance where the likely exposed population is small (estimated to be only several thousand), there is no reliable means of identifying all historic residents, and public concern has waxed and waned over several decades with many health effects attributed to exposure. As a consequence public consultation on the community's health needs, evidence-based options for health support and eligibility criteria for access also occurred as a staged process. The outcome of the consultation is the focus of this presentation.

### Results and Discussion

On 1 July 2008, the Ministry established the Health Support Service for Dioxin Exposed People for people potentially exposed to TCDD from the former IWD plant. The objectives of the health support service are:

- to support an overall reduction in the potential increased morbidity and/or mortality risk of cancer and other non-communicable diseases experienced by eligible individuals, by promoting healthy lifestyles and reducing lifestyle risk factors
- to support the early detection of potential health conditions for eligible individuals
- to meet health needs through prescribing medical treatment where required and referring to specialist or other care if appropriate
- to ensure that the service continues to contribute to meeting the needs of the community in a cost-effective manner, through the implementation of continuous quality improvements to service design and delivery.

Individuals are eligible for the service if they meet certain criteria based on where they lived, worked or went to school in relation to the IWD plant and the period and length of time of residence, employment or enrolment at this place. The eligibility criteria are wider than those indicated by science (particularly serum and soil TCDD results) alone and apply to an estimated 5,500 people. To apply for the service, an individual must complete an application form and submit it to the service secretariat for eligibility assessment and approval from the Ministry's Chief Medical Officer. The applicant must provide evidence or sign a statutory declaration to indicate that they meet the eligibility criteria.

The users of the service are entitled to have an annual free health check from a primary care team, during which their provider assesses their general health. The content of each health check depends on the patient's health needs and the clinical judgement of the primary care team. A range of referred services are available including health promotion advice (smoking cessation, physical activity and nutrition), mental health services and, in some circumstances, serum dioxin testing and genetic counselling. The focus of the service is on keeping people well, and facilitating early diagnosis of any disease (whether dioxin exposure-related or not) that may develop. Health information and technical support via a 0800 number and material on the Ministry's website is provided to health professionals managing eligible patients.

The service was internally reviewed, including a survey of users and service providers, after two years to identify means of improving service provision. Uptake has been low but users have reported high levels of satisfaction. The average length of the first check is 40 minutes and the second check 15 minutes. Current uptake data will be presented. The service has also been used as a model for health support provided to former sawmill workers historically exposed to pentachlorophenol.

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