

Medical Officer of Health Environmental Health ADVICE

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Introduction

A number of agencies have roles in providing services to promote, protect and improve the public health. Some are statutory and others are broader. Public Health Protection has recently published the first part of an Environmental Health Risk Needs Analysis for the Auckland Region. We highlight some of the major issues identified.

Continuing our series on early childhood centres we present advice on managing cases of diarrhoea occurring in either staff or children. We include a synopsis of what is required of fumigation operators as we have had instances recently of breaches of the Fumigation Regulations.

Environmental Health Risk Needs Analysis

Background

This report presents information on the environmental health hazards, risks to public health and public health service needs in the Auckland region. It suggests areas of potential service development by these organisations and provides direction for public health protection services themselves.

The review of Needs and Risks has been based loosely on a human health risk assessment framework. The following were prioritised for review:

- Air Quality
- Drinking Water
- Environmental Noise
- Poisonings and Hazardous Substances
- Recreational water
- Residential and indoor environments
- Sewage disposal
- Waste and contaminated sites in Auckland

The essential elements of each chapter are

- ▶ A description of the environmental hazards in the Auckland region.
- ▶ A review of the health effects that have been associated with these hazards in Auckland, elsewhere in New Zealand or overseas.
- ▶ An outline of the likely impact of the hazards on the health of Aucklanders.
- ▶ A review of the impact on health of interventions to manage the hazards.
- ▶ Recommendation for future action to protect and promote health.

Overview of Findings

The first volume has just been published, covering the following topics.

Air Quality

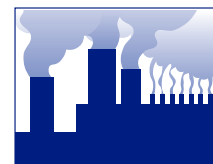
This chapter draws on work done by Auckland Regional Council (ARC) and the National Institute of Water and Atmospheric Research (NIWA). It includes a summary of air quality monitoring undertaken in Auckland over the past 20 years and recent work on specific air pollutants. The chapter will be reviewed when the Regional Council publishes updated information on the results of its air quality monitoring. This is expected within the next year and will bring the results up to the end of 1999.

Present information indicates that, while oxides of nitrogen and sulphur dioxide are not currently major pollutants, carbon monoxide and particulate levels are elevated in specific areas and transport routes. International information on health effects demonstrates that raised levels of particulates effect health in a number of measurable ways. These include use of inhalers by asthmatics, hospital admissions, and respiratory illness in general. Raised levels of carbon monoxide may affect people with heart and lung diseases depending on their levels of exposure.

The report is supportive of the general direction of the current Regional Council awareness campaign which focuses on the reduction of vehicle emissions.

Recreational Water Quality

This chapter focuses largely on the microbiological contamination of recreational water. The highest levels have been found around Central Auckland, the inner aspect of East Auckland, and North Shore's East Coast Bay beaches. Brackish water streams, lagoons, and estuaries throughout Auckland show significantly high levels of faecal contamination with pathogens including *Campylobacter jejuni*



and *Salmonella typhimurium* being identified. There is a consistent relationship between exposure to faecally contaminated recreational water and adverse health outcomes including gastroenteric illness, respiratory, eye, ear and skin infections. The most important means of exposure to waterborne pathogens is ingestion, with swimmers swallowing an estimated 50ml of water per hour. Other routes include inhalation and local skin contact and these have been linked epidemiologically to infection. Estimates of the rates of swimming related illness are made for beach bathers and compared with national Recreational Water Guidelines.

While there is chemical contamination of our coastal waters from a variety of sources, little detailed information is available at a regional level. This makes it difficult to comment on the hazard or the risk to health from this type of contamination. This situation will be partially addressed by the resource consent process over the next few years.

Waste and Contaminated Sites

Waste and contaminated sites were considered together since landfills, New Zealand's customary method of solid waste disposal, are among the commonest contaminated sites; also many of the health hazards are similar.

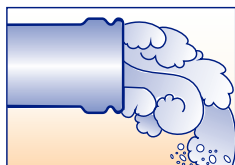


Imperfect records exist on the design and waste composition of the older landfill sites in the region. However, levels of landfill gas are generally low and their risk to human health is probably not significant, other than in specific occupational situations. Currently leachate contamination of surface water is very small and of groundwater minimal. Certain industries and contaminants are highlighted as having a high risk for contaminating land in the region. Those presenting greatest risk to human health include old scrap yards (PCBs, metals); smelting/refining (mercury, arsenic, lead) and landfills (gases).

There is limited information on specific health effects due to exposures to landfills and contaminated sites in Auckland. Overseas research has reported associations between contaminant exposure and a variety of symptoms. However, few of these studies are ideal, not measuring exposure and health effects and thereby proving a cause and effect relationship between exposure to landfills or contaminated sites and health consequences. Efforts to classify environmental hazards by industry or type of contaminant would be a useful next step.

Sewage Disposal

While most Aucklanders are served by municipal sewerage systems, there remain significant numbers reliant on on-site disposal systems (usually septic tanks). Both types of systems pose health risks when effluent is discharged.



The health effects of exposure to sewage have been documented overseas. Occupational groups have potentially significant exposures. The general public may be exposed to sewage overflows during heavy rain in densely populated areas (e.g. where there is a great deal of infill housing), during sewage system malfunctions, or when sewage is discharged under "normal" conditions. The health effects in these situations are difficult to assess, as the exposure itself may not be detected. Disease may therefore not be attributed to exposure to sewage. While the risks are likely to be small, based on overseas studies and the lack of obvious effects locally, the potential effects are great. Possible means of further reducing the risk to health are highlighted.

Implications

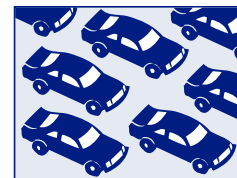
Several major themes arise which have current or anticipated impacts on public health. They include:

- ▶ the impacts of land transport on health; the residential environment;
- ▶ public health protection input into regional and local planning and policy development;
- ▶ a focus on evidence-based policy, implementation and evaluation.

These have not been key action areas previously for public health protection services.

Land Transport

The motor vehicle has an increasing impact on both the environment and health. Land transport issues and planning have been traditionally the province of national, regional and local government processes. These have been relatively isolated from public health services and methods, being seen as infrastructural and social concerns and not as public health issues. This review of environmental hazards and health risks suggests that the time has come for a marked increase in public health input into land transport planning and use in the Auckland region. The opportunity for reducing health impacts will otherwise be lost.



Land transport use results in various environmental impacts, which subsequently affect health. These are likely to become more significant in coming years if action to prevent environmental deterioration is not taken. They are (in order of the seriousness and magnitude of health effects at this time):

- ▶ traffic injuries - particularly motor vehicles crashes, cycle accidents, and pedestrian injuries.
- ▶ air pollution which may affect the health of susceptible individuals, such as those with respiratory or cardiovascular complaints and those who exercise in areas of high traffic density
- ▶ low frequency noise which impacts increasingly upon residential areas and residents throughout the region
- ▶ effects on Aucklanders opportunities to obtain exercise in their daily lives
- ▶ effects on stormwater and recreational water quality
- ▶ and the potential impacts of Greenhouse gas emissions (a subject not covered in this version of the review but a possible area for future consideration).

Because of the wide-ranging effects of land transport, Public Health Protection believes that this area should become a key priority for its own work. We foresee an increasing focus on land transport issues at the local body and regional level and support fully enhanced activity in this area.

Residential Environments

Residential environments have become increasingly complicated and diverse in recent decades due to changes in building design and materials, elevated standards of living and expectations of city dwellers, and changes in the urban environment. In Auckland, cultural and geographic diversities further influence the variations now inherent in these environments. Many factors that may cause illness or injury come together in the home environment, which provides a potential setting for intervention. The residential environments chapter will be published in the second release of information.



Health Protection Input into Planning and Policy Development within the Region

Traditionally, public health protection activities have been focussed on response to complaints received. This, of necessity, meant that the opportunity to prevent a health problem had largely passed. The information presented in this first volume of the review of needs and risks demonstrates the necessity for more active involvement of the Public Health Protection Service in regional and local planning and for greater co-ordination with regional and local authority activities. There is much overlap of interest with the Regional Council in terms of our regional mandate and relationship with local authorities; similarly with territorial local authorities in our dual responsibilities to promote, protect and improve the public health. On an anecdotal basis, health protection's contribution to planning processes is best made at the earliest opportunity. Early input may prevent needless expenditure for applicants

and councils in addressing issues they perceive to be health concerns, which may not, in fact, be a high priority in public health terms. Conversely, an issue may be overlooked which will become important subsequently and need to be addressed retrospectively. Effective timing of input may pre-date public notification of resource consent applications and other formal activities.

Evidence-Based Policy, Implementation and Evaluation

Increasingly, Public Health Protection advocates for evidence-based policy making. There is often literature on how to most effectively and efficiently implement programmes to improve public health. Where evidence is missing, it may be ethically and commercially beneficial for health agencies, councils and others to collaborate on studies to evaluate policies that are implemented to improve health.

Where to from Here

This report provides a direction for advancing Public Health Protection Services within the Auckland Region. It will be used as a basis for the development of internal business plans and of relationships with other organisations. It is hoped it will also assist councils and community groups in addressing issues related to public health.

This review represents only a snapshot in time of different areas of potential public health concern. It is our intention to continue to update the chapters in the report. Copies of the chapters will be made available on the Public Health section of the Auckland Healthcare Internet site when this becomes active. If copies are required urgently in the meantime, they can be obtained from virginia@ahsl.co.nz.

Fumigation

A reminder to all Fumigation operators

In recent times, Auckland Healthcare Public Health Protection's environmental health team has been informed of incidents following fumigation where health and safety has been placed at risk. The Medical Officer of Health must be notified of all fumigation and environmental poisonings or other injuries associated with them.

The Fumigation Regulations 1967 require fumigation operators to notify the Medical Officer of Health of:

- ▶ All intended fumigations;
- ▶ All completed fumigations;
- ▶ All fumigation accidents which cause the death of, or *bodily injury* to any person.

Bodily injury includes:

- any condition requiring first aid treatment;
- a loss of consciousness for any period;
- any symptoms of illness attributable to the fumigant, whether temporary or permanent

Chemical poisonings must also be notified to the Medical Officer of Health under the Toxic Substances Act 1979.

Fumigation accidents can be avoided by:

- ▶ Following the requirements of the Fumigation Regulations 1967;

- ▶ Ensuring that the fumigation is carried out by a minimum of two people;
- ▶ Fixing large warning signs which clearly state that the container or structure is under fumigation;
- ▶ Clearly marking and defining the fumigation risk area so that no one can walk, park or otherwise enter the risk area; (see Reg. 2 of the Fumigation Regs).
- ▶ Adequately locking or securing the fumigated container or structure and supervising the risk area to prevent people entering the risk area;
- ▶ Not venting containers in poorly ventilated and confined areas or places where people or vehicles may enter the risk area.
- ▶ Being aware of and complying with the requirements of laws such as the Toxic Substances Act 1979, which control the transport of fumigants.
- ▶ Establishing safe work practices and providing adequate safety equipment.
- ▶ Knowing what to do and who to contact in an emergency

▶ Further information on fumigation is available from the duty Health Protection Officer, Environmental Health Programme, ph: 09 262 1855.

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