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Comparing Finland with New Zealand: lessons from Finland for controlling infectious diseases

There has recently been public and media discourse comparing Finland with New Zealand (in both countries). This discussion was triggered by comments in the New Zealand Parliament, and has not always been well informed by facts. Nevertheless, country comparisons can provide learning opportunities and hence we continue the comparison in the domain of infectious diseases. This domain is a particularly relevant one for New Zealand, given evidence for increasing rates of serious infectious diseases in this county over time.[1]

Methods—We examined infectious diseases related data detailed on the World Health Organization (WHO) website for the two countries for the three most recent years available (2008–2010).[2] This data source was selected as it contains an internationally agreed set of indicators and complete data from both countries.

Results and Discussion—The results indicate more favourable indicators for health service activities to control infectious diseases for Finland (4/6 indicators) vs. one being more favourable for New Zealand (Table 1). In terms of infectious disease burdens, the indicators also tended to favour Finland (8/17) compared to New Zealand (1/17) (Table 1). Furthermore, this comparison using WHO indicators ignores those infectious diseases for which New Zealand has particularly serious problems: skin infections,[3] rheumatic fever,[4] meningococcal disease,[5] and campylobacteriosis.[6]

Many reasons for these differences in infectious diseases burden between Finland and New Zealand are plausible. There is the fact that Finland is wealthier, spends more per capita on health, and has more physicians per capita.[2] Other reasons could relate to better levels of education in Finland (for all indicators[7]), lower levels of socioeconomic inequality (for all versions of the Gini index[8]), and probably better housing quality. Indeed, Finland has "good" housing conditions along with other long-standing northern EU member states.[9] Nevertheless, comparisons with New Zealand on housing are difficult in the absence of systematic data gathering through a regular, comprehensive national housing survey.

As shown in Table 1, the lower levels of immunisation coverage are also likely to be relevant (though this is an area that the New Zealand Government is actively addressing as one of its six health priorities[10]). In addition, to the credit of Finland, the tabulated data do not convey that measles, mumps and rubella have all been regarded as eliminated in this country since the mid-1990s (albeit with occasional imported cases).[11] Some other European countries may have also achieved measles elimination e.g., there were zero cases of measles in a total of eight such countries in 2010.[12] Furthermore, Finland has introduced routine rotavirus vaccination for children[13] (in 2009), while New Zealand has not.

In summary, the control of infectious diseases is clearly a domain where Finland leads New Zealand and where there is scope for New Zealand health sector leaders and politicians across the political spectrum to learn lessons from such countries.

Table 1. Comparison between Finland and New Zealand in infectious disease related health service activity and outcome measures (WHO data for 2010 unless otherwise indicated, bolded data shows the better result from a health perspective, except where this is not statistically significant)*

Indicator used by WHO	Finland	New Zealand
Health service activities (infectious diseases [IDs])		
Measles (MCV) immunization coverage among 1-year-olds (%)	**98**	91
Diphtheria tetanus toxoid and pertussis (DTP3) immunization coverage among 1-year-olds (%)	**99**	93
Hib (Hib3) immunization coverage among 1-year-olds (%)	**98**	89
Polio (Pol3) immunization coverage among 1-year-olds (%) [2009 data]	**99**	93
Case detection rate for all forms of tuberculosis	87 [77 – 99]	90 [79 –100]
Smear-positive tuberculosis treatment-success rate (%) [2009 data]	68	**76**
Population using improved drinking-water sources (%) [2008 data]	100	100
Health outcomes (IDs)		
Distribution of years of life lost by broader causes (%) – Communicable diseases [2008 data]	**3**	5
Age-standardised mortality rate by cause (per 100 000 population) – Communicable [2008 data]	**11**	15
Distribution of causes of death among children aged <5 years (%) – Pneumonia [2008 data]	**2**	5
Distribution of causes of death among children aged <5 years (%) – Diarrhoea [2008 data]	0	0
Distribution of causes of death among children aged <5 years (%) – Measles [2008 data]	0	0
Distribution of causes of death among children aged <5 years (%) – HIV/AIDS [2008 data]	0	0
Incidence of tuberculosis (per 100 000 population per year)	6.70 [5.90 – 7.60]	7.60 [6.60 – 8.70]
Prevalence of tuberculosis (per 100 000 population)	8.5 [1.9 – 15]	9.3 [2.9 – 16]
Deaths due to tuberculosis among HIV-negative people (per 100 000 population)	0.67 [0.62 – 0.72]	**0.17 [0.15 – 0.21]**
Prevalence of HIV among adults aged 15 to 49 (%) [2009 data]	0.1 [0.1 – 0.1]	0.1 [0.1 – 0.1]
Measles - number of reported cases (N)	**5**	43
Rubella (N)	**0**	2
Congenital Rubella Syndrome (N) [2009 data]	0	0
Mumps (N)	**4**	14
Diphtheria (N)	0	0
Pertussis (N)	**336**	462
Reported cases of tuberculosis (N) (DOTS) [2008 data]	**104****	101

* Ignoring tropical infectious diseases e.g., malaria, Japanese encephalitis, yellow fever.

** Better than NZ when considered as a crude annual population rate since Finland has a larger population (5.33 million vs 4.27 million for New Zealand in 2009).

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References:

1. Baker MG, Barnard LT, Kvalsvig A, et al. Increasing incidence of serious infectious diseases and inequalities in New Zealand: a national epidemiological study. Lancet. 2012;379:1112–9.
2. World Health Organization. Countries. Global Health Observatory Data Repository, Country statistics [Finland and New Zealand]. http://www.who.int/countries/en/
3. O'Sullivan CE, Baker MG, Zhang J. Increasing hospitalizations for serious skin infections in New Zealand children, 1990-2007. Epidemiol Infect. 2011;139:1794–1804.
4. Jaine R, Baker M, Venugopal K. Epidemiology of acute rheumatic fever in New Zealand 1996–2005. J Paediatr Child Health. 2008;44:564–71.
5. O'Hallahan J, McNicholas A, Galloway Y, et al. Delivering a safe and effective strain-specific vaccine to control an epidemic of group B meningococcal disease. N Z Med J. 2009;122:48–59.
6. Sears A, Baker MG, Wilson N, et al. Marked campylobacteriosis decline after interventions aimed at poultry, New Zealand. Emerg Infect Dis. 2011;17:1007–15.
7. OECD. Your Better Life Index: Country Notes. Paris: OECD, 2011. http://www.oecd.org/dataoecd/28/25/47930053.pdf
8. OECD. OCED.StatExtracts. Income distribution – Inequality. http://stats.oecd.org/Index.aspx?DataSetCode=INEQUALITY
9. Norris M, Shiels P. Housing inequalities in an enlarged European Union: patterns, drivers, implications. J European Social Policy. 2007;17:65–76.
10. National Heath Board and Ministry of Health. Targeting Immunisation. Wellington Ministry of Health, 2011. http://www.nationalhealthboard.govt.nz/our-priorities/health-targets
11. Davidkin I, Kontio M, Paunio M, et al. MMR vaccination and disease elimination: the Finnish experience. Expert Rev Vaccines. 2010;9:1045–53.
12. Steffens I, Martin R, Lopalco P. Spotlight on measles 2010: measles elimination in Europe – a new commitment to meet the goal by 2015. Euro Surveill. 2010;15:pii=19749.
13. Rasanen S, Lappalainen S, Halkosalo A, et al. Rotavirus gastroenteritis in Finnish children in 2006-2008, at the introduction of rotavirus vaccination. Scand J Infect Dis. 2011;43:58–63.