# Immunisation: protecting the community

How effective is herd immunity in protecting children (<16) from communicable diseases?

Immunisation programs within our communities help to reduce and prevent numerous communicable disease outbreaks. This is done through the delivery of individual vaccinations, which provide population-wide protection.

## What is Herd Immunity?

High immunisation rates are known as 'the herd immunity threshold', which is the proportion of individuals within a population that are required to be immunised to prevent the transmission of communicable disease.

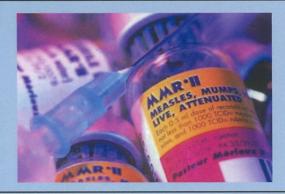
The concept and theory around 'herd immunity' states that because communicable diseases pass from one individual to another, that by immunising the majority of a population, the chain of infection and the prevalence of the disease(s) will be reduced, and individuals will be protected because the immunisation rate is higher than the disease specific threshold.

#### Evidence

A study from America, compared historical communicable disease prevalence statistics, with 2006 statistics, and found that on average there was shown to be a 92% reduction creditable to the introduction of vaccines into the healthcare system.

New Zealand's current immunisation schedule is achieving an average 93% vaccination rate amongst children. A vaccination rate of 90% is relatively sufficient in providing herd immunity, which means this current statistic is considered successful.





### Vaccination Fear

Parents receive all sorts of information surrounding vaccination, and may choose not to immunise their children based upon this information. This decision can leave their children, family and community vulnerable to deadly communicable disease(s).

For parents who are worried about vaccination safety one of their primary concerns comes from a falsified link between vaccination and autism. This alleged link, and the original study, has been widely discredited and since withdrawn from the scientific community.

Consequences of the anti-vaccine movement have led to recent epidemics, which highlight how under-vaccination of a population can negatively affect herd immunity.

### Recommendations

- Within a population without herd immunity, additional vaccinations should be recommended in order to establish herd immunity and prevent communicable disease outbreaks amongst the community.
- Health care professionals should support the early enrolment of infants into general practice, and support the parents with on-going meetings with primary health care services and well child services.
- Providing age appropriate and timely information to parents regarding immunisations, could assist in fewer missed opportunities and help to reduce parental concerns.
  Meg Sanders.

#### References

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PECOT category	Information relating to	Explanation
	question	
Population	Children <16	<16 is when children receive
•		most immunisations. Children
		are also very vulnerable to
		communicable disease due to
		underdeveloped immune
		systems.
Exposure (intervention)	Herd immunity – increased	How the increased number of
	immunisation in our	children being immunised
	communities.	against communicable diseases
		help protect the entire
		population.
Comparison/control	Communities or times where	To see how prevalent
	and when herd immunity	communicable diseases
	wasn't effective due to low	become in populations where
	immunisation uptake,	they are not protected through
	compared to communities	immunisation programs,
	where herd immunity exists.	compared to those who are
		protected. Would there be
		different morbidity and
		mortality rates?
Outcome	Is the population protected by	Are both unimmunised and
	herd immunity due to	immunised children protected
	childhood immunisations?	from communicable diseases
		within their communities?
Time	Childhood	Research is relevant to
		childhood immunisations
		effecting population outcome.

Immunisation programs within our communities help to reduce and prevent numerous communicable disease outbreaks. This is done through the delivery of individual vaccinations, which in turn provide population-wide protection (Ministry of Health, 2015).

Currently within New Zealand the Ministry of Health has set a target that 95% of all infants aged eight months will received their complete set of primary immunisations on time (Ministry of Health, 2015). This target allows for population-wide benefits to arise due to high immunisation rates. The Ministry of Health (2015) has stated that although immunisation rates have been increasing since 2009 from 80% to 93% in 2012. Low immunisation rates stem from lack of education around immunisations, missed opportunities, and personal and philosophical beliefs of parents (Stevenson, 2009). Currently within New Zealand the vaccination programme is working efficiently, so I felt that there was no need to make a submission to change this programme. But due to the hesitancy and lack of education within the population, I chose to present the information from the literature review in the form of a poster. This format allows the public to be educated around how effective immunisations are at protecting their family and community.

#### References

Ministry of Health. (2015). *Health targets: increased immunisation*. Retrieved from www.health.govt.nz/new-zealand-health-system/health-targets/about-health-targets/health-targets-increased-immunisation

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