

*the science
behind the news...*

THE GAMMA SERIES

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“Yucky dirty hands”

It would seem that we New Zealanders, both young and old, are not as good about washing our hands as we would like to believe. A recent survey in a primary school by the NZ Foodsafe Partnership Pilot School Hand Hygiene Campaign (Simmons et al, 2006) revealed that over a third of students did not wash their hands after visiting the toilet. Almost half of all male students did not wash their hands after visiting the toilet and of the half that did, over three quarters did not use soap.

Those who used soap when washing their hands washed for significantly longer than those who did not use soap, but this was only for about seven seconds versus around three seconds for non-soap users – a far cry from the recommended 20 seconds. Less than half of students stopped to dry their hands, and of those that did few dried their hands for the recommended twenty seconds on hand towels, and almost none for the recommended 45 seconds using air towels.



This state of affairs significantly improved after a school-wide hand hygiene campaign, but how does the rest of the country scrub up? Not well apparently. We are one of the worst countries in the first world when it comes to food-borne illnesses, many of which are caused by poor food handling by not observing the four ‘Cs’ of clean, cook, cover and chill – and yes, failure to wash our hands adequately before and after preparing food, or even between handling raw meat and other food products.



In Christchurch, in January 2006, there was an outbreak of hepatitis A, a jaundice-causing liver disease, which affected dozens of people, mainly adults. The outbreak was traced to a childcare centre. All those affected were children who attend the centre, family members or people who have been to parties with the centre's children. Mincing no words about the outbreak, a Canterbury medical officer said the viral infection was spread through contact with faeces due to poor hand washing after using the toilet.

Christchurch is not alone, according to statistics cited by the New Zealand Food Safety Authority (ESR, 2001), five outbreaks of hepatitis A occurred in New Zealand in 1999 and 3 in 2000. In one outbreak in Wellington, there were 36 people infected with the disease from faeces contaminated food prepared by an owner/operator. Hepatitis A is not the only nasty disease you can get from inadequate hand-washing and contamination of food. Other micro-

organisms which we can carry on our hands and pass to food include *Salmonella*, *Shigella*, *Staphylococcus*, *Streptococcus*, *Giardia*, and *E. coli*.



Eating contaminated food is not the only way you can get infected; various other bacteria and virus can be passed directly to you or by you because of unclean hands. Our lack of personal hygiene now has health officials increasingly concerned as the statistical likelihood of an influenza pandemic hangs over our heads. If such a pandemic were ever to arrive in New Zealand, how would we prevent the spread of the disease in our community when our grubby, sweaty, bacterial and viral-encrusted palms provide such willing vehicles?

According to various publications on influenza pandemic preparedness, "hand washing is the single most important measure to reduce the risks of transmitting infection from one person to another." (MED et al, 2005). It is amazing how the simple act of washing your hands could prevent the spread of many such diseases, save millions of people from becoming ill, prevent thousands from being hospitalised or even

killed, and save millions of dollars in health care and lost work and school productivity.

Wash your hands – but not too much!

Not that you should wash your hands compulsively or be like a surgeon who is required to scrub their hands for at least five minutes. It is not necessary and, in fact, undesirable to remove all bacteria from your skin. In normal quantities, the micro-organisms that are normally present on the human skin can help us in several ways. Typical organisms on our skin include *Staphylococcus aureus*, and *Staphylococcus epidermidis*. These are called 'normal flora' and they contribute to our existence in several ways. They may compete with 'transient flora' which include pathogens such as *Salmonella*; (Fix, n.d.). If we did not have our natural flora competing with harmful pathogens, then smaller levels of pathogens could make us easily sick. There have been documented accounts of the susceptibility to pathogens of animals raised in sterile environments. Normal hand washing will not upset the balance of natural flora on your skin.



A history of hand washing

It is only recently in human history that we have realised the benefits of washing our hands. The medical profession were particularly lax when it came to the practice. Throughout history thousands of people have died, including one US president ("*20th President of the United States*", n.d), because physicians did not realise the importance of removing bacteria from their hands with hand washing.

Childbearing in the nineteenth century was a particularly hazardous experience for

women, with thousands dying in hospitals throughout Europe and the United States from puerperal fever. One sixth of women died of this fever (*Puerperal fever*, n.d.)

In 1843, Dr Oliver Wendell Holmes noted the high number of deaths in American hospitals, and suggested that hand washing could prevent the spread of puerperal fever and wrote an essay on the subject. However, the medical community dismissed the claim.

How to wash your hands correctly

1. Remove jewellery (rings, bracelets) and watches.
2. Rinse hands and wrists under running water; (avoid using hot water).
3. Create a lather with soap or liquid soap perform vigorous rotational hand rubbing on both palms, and interlace fingers to cover all surfaces for 20 seconds. If hands are visibly soiled more time may be required..
4. Rinse hands under running water removing all the soap.
5. Dry your hands thoroughly with a single use towel.
6. Use the towel to turn off the tap.
7. or, dry your hands using an airtowel drier for at least 45 seconds – turning your hands frequently beneath the stream of hot air until hands are completely dry.
8. Try not to touch any bathroom surfaces particularly the door handle with your hands as you leave the bathroom – use the paper towel you used to dry your hands to touch the door handle if necessary.

PROTECT YOUR
LOVED ONES



REMEMBER ...
WASH AND DRY
YOUR HANDS

When Should You Wash Your Hands?

Wash your hands before you:

1. prepare or eat food; and
2. tend to someone who is sick or injured.

Wash your hands after you:

1. use the toilet;
2. change a nappy;
3. handle uncooked foods, particularly raw meat, poultry, or fish;
4. blow your nose, cough, or sneeze;
5. play with or touch a pet, particularly turtles and lizards as it is not unusual for them to carry *salmonella*;
6. handle rubbish; and
7. tend to someone who is sick or injured.

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Of further interest

<http://www.microbeworld.org/know/wash.aspx>

Blong Life internet-based project; An interactive, classroom activity where students learn about global water and sanitation issues through a creative process.

<http://www.megabright.co.nz/WaraBlongLife/home.htm>

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