



MIXED BAG

Handwashing and infection

I am constantly telling my non-medical friends that the simple procedure of washing your hands can drastically reduce the chances of infection of all types – colds, flu and enteric viruses. Very few people really believe me and continue to take all manner of over-the-counter supplements that are supposed to boost the immune system and then complain when they get sick. Now a paper in *The Lancet* shows that handwashing does indeed play a major role in preventing diarrhoea and acute lower respiratory tract infections in children.

Every year more than 3.5 million children less than 5 years old die from diarrhoea and acute lower respiratory tract infections, mainly in lower income groups in the developing world. Several studies have shown that regular handwashing with soap reduces the incidence of diarrhoea in children younger than 5 in communities with a high incidence of diarrhoea. However, Stephen Luby and his colleagues point out that there are no reports of the effect of handwashing on acute respiratory tract infections in places where pneumonia is a leading cause of death. The authors point out that the beneficial effects of handwashing have been shown in several studies in the developed world. In Canada, there was a reported 14% reduction in upper respiratory tract infection and in Australia a 12% reduction in the same infections in children aged 24 months or less.

This study was carried out in Karachi, where more than 4 million people live in squatter settlements where they do not legally own the land and where there is poor municipal

infrastructure. The authors cite a study in this community that concluded that 41% of deaths in children aged less than 5 years were due to diarrhoea and 15% to acute respiratory tract infection. The group undertook the Karachi Soap Health Study as a randomised controlled trial to measure the broad health benefits that could result from improvements in handwashing and bathing with soap in an area where communicable diseases are leading causes of childhood morbidity and mortality.

They chose adjoining squatter settlements in Karachi and randomly assigned 25 neighbourhoods to handwashing promotion, with 11 neighbourhoods (306 households) as controls. In the neighbourhoods where handwashing was promoted, 300 households each were given antibacterial soap containing 1.2% triclocarban and plain soap. Fieldworkers visited each household every week for 1 year to encourage the householders to use soap and also to record all incidences of illness and the symptoms of those illnesses. The team were looking specifically at diarrhoea, impetigo and acute respiratory tract infections. Pneumonia was defined using a WHO clinical case definition.

They found that children younger than 5 in households that received plain soap and where handwashing was promoted had a 50% lower incidence of pneumonia than controls. Children younger than 15 in households with plain soap had a 53% lower incidence of diarrhoea and a 34% lower incidence of impetigo. Notably, the incidence of disease did not differ significantly between households given plain soap compared with those given antibacterial soap.

The simple conclusion from this study was that handwashing, with plain or antibacterial soap, prevents the two clinical syndromes that cause the greatest number of childhood deaths globally – diarrhoea and acute respiratory tract infection. They also found that handwashing and daily bathing prevents impetigo.

I was particularly interested to see that antibacterial soap is no more effective than plain soap. Such simple measures with such excellent results.

Luby SP, *et al. Lancet* 2005; **366**: 225-233.