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Botulism risk to babies fed on honey

It has been reported that two British babies have contracted botulism through eating honey.

The boys, aged three months and five months, had to be put on life-support machines suffering from infant botulism. Both had showed the typical symptoms of descending flaccid paralysis and constipation.

The incidents, confirmed last month, have prompted public health chiefs to warn that infants under 1 year old should not be given honey.

The younger boy had eaten honey, while the older one had been given a homeopathic treatment that may have contained honey.

According to the latest health protection report from Public Health England, the five-month-old was diagnosed just before Christmas in central or southern England. He had taken the homeopathic remedy before becoming ill, though tests on it showed no trace of botulism.

The three-month-old was treated at a children's hospital in northern England and has recovered. His mother admitted giving him honey at home, although tests on what was left in the jar also failed to detect *Clostridium botulinum.*

Infant botulism results from the ingestion of the *C. botulinum* spores, and the subsequent colonization of the small intestine. The infant gut may be colonized when the composition of the intestinal microflora (normal flora) is insufficient to competitively inhibit the growth of *C. botulinum*. Also the levels of bile acids (which normally inhibit Clostridia) are lower in developing intestines than later in life.

The growth of the spores releases botulinum toxin, which is then absorbed into the bloodstream and taken throughout the body, causing paralysis by blocking the release of acetylcholine at the neuromuscular junction. Typical symptoms of infant botulism include constipation, lethargy, weakness, difficulty feeding and an altered cry, often progressing to a complete descending flaccid paralysis. Although constipation is usually the first symptom of infant botulism, it is commonly overlooked.

Honey is the only known dietary reservoir of *C. botulinum* spores linked to infant botulism. For this reason honey should not be fed to infants less than one year of age.

The underdeveloped intestinal flora, low levels of bile salts and immature immune system is the reason why young children are particularly vulnerable to food borne disease.

Do we need to wash hands in hot water?

Using hot water for hand washing is unnecessary while potentially being harmful for the environment, according to a recent study.

However nearly 70 per cent of us believe hot water is more effective than cold or warm water, despite having no evidence to back this up.

Researchers at Tennessee's Vanderbilt Institute for Energy and Environment University found that water as cold as 4.4°C is just as effective at reducing bacteria as hot water if the hands were scrubbed, rinsed and dried properly. And they noted that hot water could even have an adverse effect on hygiene stating that "Warmer water can irritate the skin and affect the protective layer on the outside, which can cause it to be less resistant to bacteria."

Hot water for hand washing is generally between 40°C to 55°C.

The researchers point out that using hot water to wash hands is therefore unnecessary and wasteful, "the choice of water temperature during a single hand wash may appear trivial, when multiplied by the nearly 800 billion hand washes performed by Americans each year this practice results in more than six million metric tons of CO2 equivalent emissions annually."

Official guidelines from the Centre for Disease Control simply recommend using soap and water and scrubbing vigorously for at least 20 seconds followed by a thorough dry.

Mature biofilm removal

It is well known that contamination of surfaces in food processing environments may result in biofilm formation. Biofilms are a build- up of dead cells and extracellular substances which can surround the actively growing bacterial cells and protect them from the action of sanitizers. Recent research into the activity of three sanitizers; sodium hypochlorite, sodium hydroxide and benzalkonium chloride were examined against an early (48 hours) and relatively mature (168 hours) *Salmonella* biofilm. All 3 agents result in reduction in viable counts of *Salmonella,* however only sodium hydroxide resulted in eradication of the early biofilm. None of the agents achieved eradication of mature biofilm, even at 90-minutes contact time. The difficulty of eradication of established *Salmonella* biofilm serves to emphasise the issues associated with biofilm build up in food manufacturing environments.

A new *E coli* 0157 outbreak in Scotland

The Food Standards Agency has been made aware of an outbreak of *E.coli* O157 in Scotland and is working with the Public Health Protection Units of NHS Greater Glasgow and Clyde and NHS Lothian, as well as NHS Lanarkshire, Health Protection Scotland and Glasgow City Council environmental health, to identify the source. Seven cases of illness have so far been reported.

While there is no conclusive evidence at this stage, initial investigations have indicated that there may be a link to the consumption of burgers at the SSE Hydro venue. Glasgow City Council environmental health is working closely with the vendors to ensure all appropriate food hygiene standards are being met.

The world's worst recorded outbreak of *E. coli* food poisoning occurred when twenty-one people died in 1996 after eating contaminated meat supplied by a butcher's shop in Wishaw, Lanarkshire.