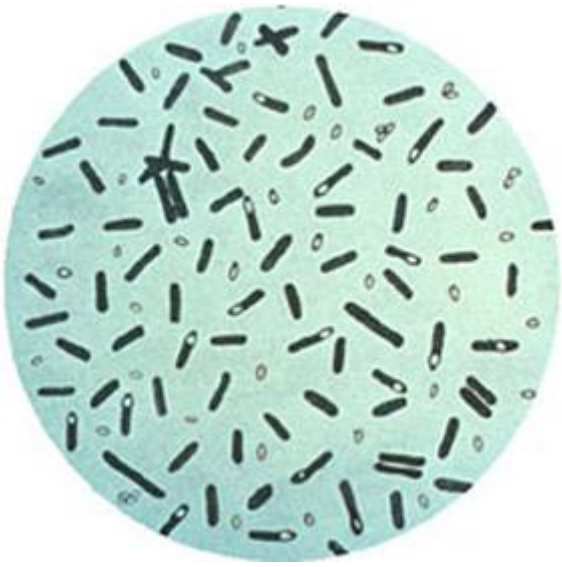
Fact File Infant Botulism And Honey
This is a very contentious subject amongst beekeepers and health authorities. Do our authorities over react? What do you think? Here are some facts relating to infant botulism and honey and they arise from a query put at a local beekeepers association meeting.



'Unsuitable for infants under 12 months." Almost every jar of honey sold in the UK now comes with this warning, with no explanation as to why and the Food Standards Agency strongly advises against giving honey in any form to under-ones.

Why? Here are some facts of the matter.

It was in 1978 that honey became a forbidden food for infants. In 1976, a very rare syndrome called infant botulism had been diagnosed for the first time, after some babies in California were found to have traces of botulism spores in their stools.

Two years later in 1978, an epidemiological study was done by the California Department of Health Services. They tested more than 550 samples of food, drugs and miscellaneous environmental substances for botulism. They found botulism organisms in five samples of soil, one in dust from a vacuum cleaner and nine of honey.

Don't confuse the illness with **adult botulism**. Although they are caused by the same Clostridium botulinum spores, the two illnesses have widely differing effects. Food-borne adult botulism occurs when **preformed toxins** enter the system in food. Hours after the contaminated food is eaten, the patient will have difficulty with walking and swallowing. Their muscles may become paralysed. In up to two-thirds of cases, patients will die.

Infant botulism is much less extreme. The baby consumes **botulism spores** which in themselves are not harmful, only becoming toxic in immature intestines. (If an older child ate the same spores, they would be fine). As many as 30 days

after ingesting the botulism, he or she may become constipated and listless, unable to suck as strongly or to cry as loudly as usual - all the symptoms of "floppy infant syndrome". If taken to hospital in good time, the odds are strongly in favour of them recovering. The mortality rate is about 1.3%.

Statistics show that botulism almost exclusively affects those under six months, who, on current advice (at least in the US), shouldn't be consuming anything other than milk.

In the UK, there have only ever been around eight cases of infant botulism (two of which resulted death) since the condition was identified. None of these were due to British honey. In the UK, the most common way in which an infant acquires the infection is via breast-feeding.

APIS-UK

Honey, I poisoned the kids

Official advice not to feed 'molten gold' to infants is ludicrous, writes Bee Wilson

Thursday August 25, 2005
The Guardian

'Unsuitable for infants under 12 months." Almost every jar of honey sold in the UK now comes with this stark warning, with no explanation as to why. Likewise, the Food Standards Agency strongly advises against giving honey in any form to under-ones.

Honey has become a scary food for modern parents. I know of one father who suffered a panic attack after mistakenly giving his 11-month-old daughter a fruit smoothie containing a tiny dab of honey. Yet the risks are not as obvious as the labels suggest. And the history behind the warning is both ambiguous and full of irony.

It was only in 1978 that honey became a forbidden food for infants. Two years earlier, a very rare syndrome called infant botulism had been diagnosed for the first time, after some sick babies in California were found to have traces of botulism spores in their stools. Then, in 1978, an epidemiological study was done by the California Department of Health Services, which tested more than 550 samples of food, drugs and miscellaneous environmental substances for botulism. They found botulism organisms in five samples of soil, one of dust from a vacuum cleaner and nine of honey. Immediately, honey became an official danger for infants, because it was the only variable in infant botulism that could be controlled. You can't put a label on soil saying "do not eat"; but with honey, you can.

This universal warning, however, makes the risks for infants in eating honey seem much greater than they are. The very word "botulism" is terrifying, summoning to mind either bioterrorism or that classic 1930s detective novel, Malice Aforethought, where murder is committed by smearing botulism on some meat paste sandwiches. But that is adult botulism, not infant botulism. Although they are caused by the same Clostridium botulinum spores, the two illnesses have widely differing effects.

Food-borne adult botulism occurs when preformed toxins enter the system in food. Hours after the contaminated food is eaten, the patient will have difficulty with walking and swallowing. Their muscles may become paralysed. In up to two-thirds of cases, patients will

die. Infant botulism, while still nasty, is much less extreme. The baby consumes botulism spores which in themselves are not harmful, only becoming toxic in immature intestines. (If an older child ate the same spores, they would be fine). As many as 30 days after ingesting the botulism, he or she will become constipated and listless, unable to suck as strongly or to cry as loudly as usual - all the symptoms of "floppy infant syndrome". If taken to hospital in good time, the odds are strongly in favour of them recovering. The mortality rate is about 1.3%.

Obviously, when you are an anxious parent, the mere phrase "mortality rate" is frightening, but the current advice on babies and honey does seem over-cautious. For one thing, botulism almost exclusively affects those under six months, who, on current advice, shouldn't be consuming anything other than milk. Epidemiological evidence suggests that both honey and soil from California have higher incidence of botulinum spores than elsewhere; and even in California only 10-13% of honey samples do contain botulinum spores. In the UK, there have only ever been six cases of infant botulism, none of which implicated British honey. In the most recent case, in 2001, contaminated formula milk was to blame. You can see why beekeepers might feel a bit disgruntled.

In other words, there is something slightly crazy about the blanket warning against honey as a baby food in a world which sees little wrong in feeding babies rusks thick with vegetable oil and yoghurts laced with sugar. There is also an irony in our current view that honey is unsuitable for infants, given that for most of human history, honey was seen as the most suitable food for newborns, after milk. As it says in Isaiah 7, "Behold, a virgin shall conceive, and shall bear a son, and shall call his name Immanuel. Butter and honey shall he eat, that he may know to refuse the evil, and choose the good."

In countless cultures, from ancient Egypt to modern Burma, babies have been given a little taste of this "molten gold" after they are born, not just for energy but to offer spiritual protection. In ancient Friesland in Germany it was believed that smearing honey on a child's lips was what made it fully alive. Less superstitiously, in the 1930s a number of doctors in Finland and the US published studies demonstrating the benefits of honey to under-ones, since it was more easily digested than refined sugar. During the US Depression, honey was used by public health officials to bring undernourished infants in New Jersey back from the grave - half a teaspoon at first, then a little more and a little more, until their emaciated bodies recovered strength.

To our ancestors, it would have been unimaginable that honey for infants should change from being the kiss of life to the kiss of death.

· Bee Wilson is author of The Hive: the story of the honeybee and us (John Murray). To buy for £7.99 inc free UK postage call Guardian book service on 0870 836 0875 or visit guardian.co.uk/bookshop

· What did you think of this article? Mail your responses to life@guardian.co.uk and include your name and address.

Bee

I've heard that infants can get botulism from honey. Is this true?
No name/ No state given

A.

It is true. Never give honey to infants younger than 1 year. Honey is a known source of bacterial spores that produce the bacterium *Clostridium botulinum*. This bacterium makes a toxin that can cause infant botulism. This rare but serious form of food poisoning affects a baby's nervous system and can result in death. Unlike adults, infants haven't developed beneficial bacteria in their digestive tracts that can control botulism spores and prevent growth of the bacterium and production of its toxin.

Signs and symptoms of infant botulism include:

- Persistent constipation
- Floppy arms, legs and neck
- Weak cry due to muscle weakness
- Weak sucking and poor feeding
- Tired all the time (lethargy)

Mayo

Honey warning for babies

By Celia Hall, Medical Editor

External Links

Figure 1

Honey and Infant Botulism

PARENTS are being told not to give their babies honey because of a risk that they could contract infant botulism, a potentially dangerous form of food poisoning.

The British Honey Importers' and Packers' Association has advised its members to change their labels with a warning that honey should not be given to infants under 12 months.

The organisation and the Department of Health say that the risk is small and does not apply to older babies. Sir Kenneth Calman, the Chief Medical Officer, says the greatest incidence has been in America where 900 cases were reported over 20 years. In Britain, there have only been five cases of infant botulism, between 1978 and 1994. In two cases, the babies had not been given honey. "Very occasionally honey may contain clostridial spores which are not removed during normal processing," Sir Kenneth says.

"Although honey has been implicated in cases of infant botulism overseas there has been no proven link between honey and the small number of reported cases in Britain."

He says that the symptoms are constipation and neurological disorders. They range from mild to conditions severe enough for hospital admission.

Telegraph

Sunday **18 May** 1997

Issue **723**

Honey not safe for babies, parents told

By Andrew Gilligan

External Links

Figure 2

Honey and Infant Botulism

Infant Botulism

HONEY, regarded as one of the purest foods in existence, has been declared unsuitable for babies and there are also fears that honey made from the pollen of genetically-engineered crops could endanger people's health.

Warnings that babies under 12 months should not be given honey are beginning to appear on commercially-produced brands. The Government and honey trade associations said last week that the warning was issued as a precaution against infant botulism, a serious form of food-poisoning. "There has been a number of cases overseas - though none in Britain can be pinned down to eating honey," said Walter Anzer, secretary of the British Honey Importers' and Packers' Association. "The risk is small and it is purely a precautionary measure," he said.

A Ministry of Agriculture newsletter gave more details: "Very occasionally, honey may contain low numbers of naturally-occurring bacterial spores. Young infants' intestines may not have developed sufficiently to cope with them, which can lead to illness."

Botulism spores are hardy organisms that are found throughout the environment, particularly in soil. Scientists have found botulism spores in dust, raw vegetables, potato skin, corn syrup and honey (whether it is pasteurized or not).

In adults, the spores ingested from food are digested before they can form a toxin. However the intestine of an infant under one year of age is sometimes not mature enough to digest these spores.

In **rare cases**** the botulism spores can germinate in the infant's intestine and produce a toxin which can make the baby sick. For this reason it is recommended that infants under one year of age are not fed honey. Toddlers over one year old and adults can eat honey without any concern.

Note:

*** None of the handful of UK cases of infant botulism (less than 10) has been definitely linked to the consumption of honey by the infants concerned, nor have Clostridium botulinum spores been detected in UK honey.*

The label warnings from the Foods Standards Agency are based on no independent FSA-sourced data. They are probably there to protect honey importers.

The disease is almost invariably encountered in infants aged 6 months or less.

HRBKA

Question: Is it safe to sweeten my baby's food with honey?

Tanya Wright: Honey sometimes contains a spore of the bacterium Clostridium Botulinum. This can cause a rare form of food poisoning (botulism) in babies and, very occasionally, in

adults. Babies under six months are most vulnerable. The symptoms of botulism appear around eight to 36 hours after consuming the honey or other contaminated food. Symptoms may include constipation, listlessness and lack of appetite. If you suspect your baby may be affected, seek medical help straight away. Although cases of botulism in babies are very rare, it is recommended that you don't give your baby honey until after his first birthday.

Babycentre.co.uk

Should infants avoid honey?

Bee Wilson believes that the blanket warning advising parents not to give infants under twelve months old honey, due the possibility of botulism poisoning, may be over cautious. Writing for the Guardian (25/08/05) she explains why.

The majority of honey sold today bears the warning 'unsuitable for infants under 12 months old'. The UK's Food Standards Agency (FSA) also advises against giving honey to babies under one year but Wilson believes the history behind this warning to be ambiguous and full of irony.

In 1976 the rare syndrome infant botulism was diagnosed for the fist time in sick babies in California, US, after traces of botulinum spores were found in their stools. In 1978 a Californian study tested more than 550 samples of food, drugs and miscellaneous environmental substances for botulism. *Clostridium botulinum* was found in five samples of soil, one of dust from a vacuum cleaner and nine of honey. Honey was the only one of these variables that could be controlled, and it became officially recognised as a danger for infants.

However, as the author points out, honey and soil from California have a higher incidence of botulinum spores than elsewhere, and even in California only 10 - 13% of honey contains botulinum spores. In the UK there have only ever been six cases of infant botulism, none of which implicated British honey. The most recent UK case was due to contaminated milk formula. She also notes that infant botulism almost exclusively affects those under six months old, most of whom would still be consuming milk.

While both adult botulism and infant botulism are said to be caused by *Clostridium botulinum* spores, the two illnesses have widely differing effects. Adult botulism occurs within hours of consuming a food product contaminated with pre-formed botulinum toxin. The patient will have difficulty walking and swallowing, the muscles may become paralysed, and two-thirds of cases end in a fatality. While infant botulism is serious it is much less extreme. Up to thirty days after consuming botulinum spores in a contaminated product the

infant will become constipated and listless, unable to suck as strongly or cry as loudly as usual (symptoms of floppy infant syndrome). If taken to hospital in good time the infant is likely to recover. The mortality rate of infant botulism is approximately 1.3%.

The author also gives a brief history of how honey has been administered to infants in the past for mythological, cultural or nutritional reasons and how it is only relatively recently that it has been seen a particularly unsuitable for babies.

Microbiological mainly
bacteria that cause illness but also yeasts and
moulds. The nature of honey inhibits bacterial growth but bacterial spores such as Clostridium botulinum can survive (there have been no reported cases of Botulism associated with honey in the UK). Some honey producers and packers label honey as being unsuitable for infants under 12 months because of the occurrence of Infant botulism and its association with honey.

FSA THE FOOD SAFETY (GENERAL FOOD HYGIENE) REGULATIONS 1995

(a) THE IDENTIFICATION AND CONTROL OF FOOD HAZARDS

.2 Clostridium botulinum

Classical botulism is a serious acute food poisoning. The causative agent is a bacterium Clostridium botulinum. The essential feature of classical botulism is that the illness is caused by ingestion of preformed ecotoxin and symptoms appear within a few hours of eating infected food. The risk in honey is not classical botulism but Infant Botulism. Although caused by Clostridium botulinum, its pathogenesis is quite different. This involves the ingestion of clostridial spores followed by their germination and colonization of the baby's gut. Spores do not germinate in the acidic adult digestive system. Symptoms develop as toxin is produced and liberated into the intestine. It is only in infants under 12 months where the defence mechanisms and intestinal flora of the gut are not fully developed, that spores can germinate. Ninety-four percent of cases are found in infants between 2 weeks and 6 months of age. Symptoms include constipation, listlessness and muscle weakness. They range from mild to severe with rare fatalities. Incidence of infant botulism is low with the Public Health Laboratory service recording only 5 recorded cases in the UK (58) and, between 1973 and 1997, 71 per annum in the USA (59). Studies conclude that the distribution of spores is ubiquitous in the soil, dust and air (59,60,61,62,63). Epidemiological studies of infant botulism identify breast-feeding as the major risk factor and specify that there is no evidence that honey is a causative factor (64,65,66).

Paediatricians and the British Honey Importers and Packers Association therefore advise that honey should not be fed to infants less than one year old because it is an avoidable source of spores.
The presence of spores in honey is not the result of poor processing or bottling and the spores, if present, cannot be eliminated under normal conditions unless ultrafiltration is used. Heating food products to 80 Centigrade for several minutes will destroy the bacterium and its toxin but not the spores which persist up to 130 Centigrade. Heating honey to this temperature would alter product composition, impair quality and lead to hydroxymethylfurfural (HMF) levels above the maximum allowed under Codex Alimentarius (67).

Infant botulism and honey
Here's some very useful information we found the other day quite by accident, it is advisable not to give honey to your baby until he is over a year old, as it contains spores which can cause infant botulism.

Infant botulism is caused by the bacteria clostridium which is the same bacteria that causes food poisoning.

Although these spores can be found in soil, honey is the only food stuff that has been found to be associated with infant botulism.

The reason children under one year are susceptible to this and other bacteria is because they have not developed any gut flora which is the body's own natural defence against the food poisoning bacteria.

Remember after your baby is one year old, honey is an excellent natural food.