



## **FSAI Information Note - Hepatitis A Virus in Imported Frozen Berries**

The Food Safety Authority of Ireland in collaboration with the Health Protection Surveillance Centre (HPSC), the National Virus Reference Laboratory and the Health Service Executive are investigating a national foodborne outbreak of Hepatitis A virus. The outbreak appears to be associated with a similar outbreak in Italy which has been linked to mixed frozen imported berries. There are also foodborne outbreaks of Hepatitis A linked to frozen berries in Scandinavian countries and across the United States.

Hepatitis A is a human virus. It does not come from animals. In recent years Hepatitis A infection has become very uncommon in Ireland and has been seen mostly in people who travel to parts of the world where sanitation is not well developed. The virus is shed in faeces from the gut of people who are infected. The virus spreads to other people through swallowing virus in traces of faeces from hands, food or water. Infection with Hepatitis A virus can cause illness so mild that it is hardly noticed (especially in young children) but it can also cause very severe and sometimes life-threatening disease (especially in some adults). Illness usually starts about 28 days after exposure to the virus but it can start anytime between 15 and 50 days after infection. The illness usually starts with fever, loss of appetite, nausea, fatigue and abdominal pain, followed within a few days by jaundice. There are a number of different types of virus (called genotypes) and identifying the particular type of virus involved in infection can be helpful in judging if people have been infected from a common source. The virus causing illness in Ireland and Italy have identical genotypes. More information on transmission of Hepatitis A can be found on the following website [Health Protection Surveillance Centre](#).

### **Illness in Ireland**

On the 19th June 2013 the FSAI was notified by the HPSC of 3 cases of Hepatitis A, all of which had a similar strain of the virus, belonging to genotype 1A. The cases became ill in April 2013 and none had travelled to countries experiencing outbreaks. An additional 7 cases of Hepatitis A virus infection have recently been identified with the same genotype of Hepatitis A. None of the cases have known links to one another. As the most recent date of onset of illness in Ireland is 3<sup>rd</sup> July, this outbreak is ongoing.

It can be difficult to identify the source of foodborne outbreaks of Hepatitis A because of the long time period between eating the contaminated food and becoming ill. The current investigation is focused on tracking and tracing a variety of foods consumed by the sick people to identify a common food. At this stage, given the association between the Italian and Irish outbreaks and the fact that the Italian Authorities have detected the virus in mixed frozen imported berries, plus the fact that several of the Irish cases had consumed frozen imported berries, we are investigating whether the source may be frozen imported berries.

### **Illness in Italy**

Italy is also currently experiencing an outbreak of Hepatitis A infection involving genotype 1A. The strain is identical to the strain causing the Irish outbreak. At the start of year the Italian outbreak appeared to be restricted to the autonomous provinces of Trento and Bolzano in northern Italy however, it is now recognised to be a nationwide outbreak. The Italian authorities have detected the Hepatitis A virus in four frozen mixed berries products and have withdrawn the implicated products from the market. The types of berries involved were raspberries, redcurrants, blackberries and blueberries. The frozen berry mix originated from Italy, with raw berry material sourced from various countries. Their investigation is ongoing.

### **Illness in Scandinavia**

As of the 5<sup>th</sup> July 2013 a total of 59 confirmed cases and 103 probable cases of Hepatitis A infection were identified in Denmark, Sweden, Norway and Finland. The majority of cases were in Denmark. The outbreak is not travel related. The cases of infection in these countries were caused by a different Hepatitis A, genotype 1B, compared with that causing infection in Ireland and Italy. Epidemiological evidence based on case control studies in Denmark and Sweden points to imported frozen strawberries as the most likely source of food causing the outbreak. However, Hepatitis A virus has not been detected in any of the samples of frozen berries tested to date during this investigation. It is important to note that methods for detecting virus in food are still fairly new and failure to find the virus on testing should not be seen as proof that the virus is not present.

As a precaution one retailer in Denmark recalled the suspect frozen strawberries from its customers. Following the epidemiological investigations the food authorities in Denmark (14 March 2013), Finland (20 March 2013) and Sweden (11 April 2013) recommended that citizens should boil all frozen berries or berries of non-domestic origin before consumption. The Norwegian Authorities issued similar advice on the 12 April.

## **Illness in the United States**

The United States Centers for Disease Control and Prevention (CDC) reported that as of the 15<sup>th</sup> July, 2013, 147 people across eight States have been confirmed to have become ill from Hepatitis A genotype 1B (the same genotype as seen in Scandinavia). Illness has been linked to eating a frozen berry and pomegranate seed mix. Data from their epidemiological investigation suggests the most likely source of the Hepatitis A virus appears to be a common shipment of pomegranate seeds from a company in Turkey. The outbreak strain, "Genotype 1B" is rarely seen in the United States but circulates in the North Africa and Middle East regions. This genotype is the same as the genotype in the current Scandinavian outbreak and a 2012 outbreak in British Columbia related to a frozen berry blend with pomegranate seeds from Egypt. More information is available at: [Multistate Outbreak Hepatitis A](#)

## **FSAI RECOMMENDATIONS**

### **ADVICE for the Public in Ireland**

We have not yet identified a definitive food source for the Hepatitis A outbreak in Ireland. However, we do know that the related outbreak in Italy has been linked to imported frozen berries and that several of the Irish cases have consumed imported frozen berries. Therefore, as a precautionary measure **we recommend that until further notice the public should boil all imported frozen berries before consumption. Boiling for at least one minute will destroy the virus.**

**We also remind consumers to wash all fresh berries, and other fruit and vegetables if eating them uncooked.**

People who have symptoms suggestive of Hepatitis A as described above should consult their doctor for advice.

### **ADVICE for Retailers, Caterers and Manufacturers**

Frozen imported berries such as blueberries, raspberries, redcurrants, blackberries and strawberries are widely used in the food industry. In Ireland these are distributed into the food service sector for use in cooked and ready-to-eat dishes. They are also sourced by the manufacturing sector for products like fruit yoghurts, desserts, smoothies and other drinks where they may not receive sufficient heating to kill the virus, if present. They are also sold at retail level as bagged frozen berries or as an ingredient in made-to-order smoothies, shakes and other drinks. Frozen berries are a documented source of viral and bacterial infection and therefore food business operators need to take account of the hazards of

viruses like Hepatitis A and Norovirus as well as pathogenic bacteria like *E. coli* O157 and *Salmonella* when developing their food safety management plans (HACCP plans).

Food business operators using frozen imported berries need to ensure that the berries they use are sourced from reputable suppliers with an efficient and comprehensive traceability system and an effective food safety management system. As the food chain can be quite complex, we are recommending that food business operators at each stage of the food chain seek reassurances of an effective food safety management system from their supplier. The supplier should be able to demonstrate that their food safety management system is working effectively. Particular care regarding Hepatitis A virus should be taken when berries originate from countries where Hepatitis A virus infection is common (see [CDC Advice](#)).

**If reassurances of the safety of the frozen imported berries are not available, the berries should be cooked or boiled before being used in foods to eliminate or reduce the risk from foodborne viruses and pathogenic bacteria.**

Sourcing frozen berries where strict hygiene is implemented at harvest, as part of good agricultural practices, and during processing, as part of good hygienic practices, and where evidence of the effectiveness of the food safety management system is available is an essential critical control point for food business operators making foods containing berries that are not sufficiently heated to kill viruses and bacteria.

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