



MINISTRY OF HEALTH
SINGAPORE

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All Registered Medical Practitioners

MOH CIRCULAR 16/2011
ALERT: HAEMOLYTIC URAEMIC SYNDROME DUE TO
ENTEROHAEMORRHAGIC E.COLI O104 INFECTION IN GERMANY

1. As of 1 June 2011, 420 seriously ill cases of HUS linked to EHEC have been reported in Germany. The majority of the cases were female and aged 18 years and older. Cases have also been reported in other EU countries (including Sweden, Denmark, the Netherlands, United Kingdom, Switzerland, Spain, Finland and Poland) and the US, all of whom had a recent travel history to Germany. The outbreak is caused by *E. coli* serogroup O104 and the source of the outbreak is suspected to be contaminated raw vegetables. As a precautionary measure, the German authorities have advised the public to avoid eating raw tomatoes, cucumbers and leafy vegetables, in addition to taking the usual hygiene measures in handling fruits and vegetables.

SITUATION IN SINGAPORE

2. There are currently no reported cases in Singapore of severe *E. coli* infection linked to the outbreak in Germany. However, the Ministry advises all medical practitioners to be vigilant to cases of *E. coli* infection in patients who have travelled to Germany.

CLINICAL FEATURES

3. Enterohaemorrhagic *E. coli* (EHEC) like serogroup O104 can produce toxins, known as Shiga toxins or verotoxins, which can cause bloody diarrhea and lead to HUS, which is characterized by acute renal failure, haemolytic anaemia and



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thrombocytopenia. HUS can develop even after the initial diarrhoeal symptoms have resolved.

MANAGEMENT OF SUSPECT CASES

4. Patients suspected of being infected with *E. coli* linked to the outbreak in Germany should be referred to hospital for further clinical management due to the risk of development of HUS.

5. The following criteria can be used to determine if a patient is suspected of infection with *E. coli* serogroup O104:

- a. Individuals presenting with abdominal pain and diarrhoea which may be bloody and with a recent travel history to Germany in the preceding 3 weeks; or
- b. Individuals presenting with symptoms and signs of HUS, i.e. acute renal failure, dehydration, haemolytic anaemia, and thrombocytopenia, and with a recent travel history to Germany in the preceding 3 weeks.

6. Treatment is largely supportive. Treatment with anti-diarrhoeal products or antibiotics is not usually recommended, as these may worsen the situation.

ADVICE TO PATIENTS

7. You may wish to refer to the frequently asked questions on enterohaemorrhagic *E. coli* infection in Annex A, in addressing queries and concerns from patients. The latest updates on the outbreak and local disease situation can be found on the MOH website at <http://www.moh.gov.sg>.

8. We look forward to your co-operation and assistance in this matter. For any clarification, please e-mail moh_info@moh.gov.sg.



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Annex A. Frequently asked questions on outbreak of Haemolytic Uraemic Syndrome (HUS) and bloody diarrhoea caused by shiga toxin-producing *Escherichia coli* (STEC) or Enterohaemorrhagic *Escherichia coli* (EHEC) or *E. coli* (for short) in Germany

1. What is Haemolytic Uraemic Syndrome (HUS) and bloody diarrhoea caused by *E. coli*?

E. coli is a bacterium that is commonly found in the gut of humans and warm-blooded animals such as cows. Most strains of *E. coli* are harmless. Some strains however, such as enterohaemorrhagic *E. coli* (EHEC), can cause a severe diarrhoeal disease. It is transmitted to humans primarily through consumption of contaminated foods, such as raw or undercooked meat and ground meat products (usually beef), unpasteurised milk and uncooked vegetables. *E. coli* is destroyed by thorough cooking of foods until all parts reach a temperature of 70°C or higher.

Symptoms of the disease caused by EHEC include abdominal cramps and diarrhoea that may in some cases progress to bloody diarrhoea (haemorrhagic colitis). Fever and vomiting may also occur. The incubation period can range from three to eight days. Most patients recover within 10 days, but in a small proportion of patients (particularly young children and the elderly), the infection may lead to a life-threatening disease, such as haemolytic uraemic syndrome (HUS).

HUS is characterised by acute kidney failure, anaemia and low platelet count. It is estimated that up to 10% of patients with EHEC infection may develop HUS, out of which approximately 3% to 5% may progress to death.

You may wish to refer to the WHO Factsheet on *E. coli* for more information:

<http://www.who.int/mediacentre/factsheets/fs125/en/>

2. What is the situation in Germany now?

As of 1 June 2011, 420 seriously ill cases of HUS linked to EHEC have been reported in Germany. The majority of the cases were female and aged 18 years and older. 16 deaths have been reported.

3. What is the situation in other countries?

Cases have also been reported in other EU countries (including Sweden, Denmark, the Netherlands, United Kingdom, Switzerland, Spain, Finland and Poland) and the US, all of whom had a recent travel history to Germany.

4. Who are the at-risk groups?

For this current outbreak of STEC in Germany, adults (mainly women) are affected, instead of the normal high-risk groups which are young children and the elderly. However, all persons who consume food contaminated with *E. coli* can potentially come down with the illness.

5. What is the cause of the outbreak?

The cause is still unknown, but contaminated vegetables are suspected to be linked to the outbreak. Further investigation to determine the exact food sources is underway.

6. Why is this outbreak unusual?

Current laboratory results suggest that the causative agent is shiga toxin-producing *E. coli* (STEC) serogroup O104. In the past, most outbreaks of HUS in Germany and elsewhere were found to be connected with another serotype - *E. coli* O157. Hence, the identification of serotype O104 in this context is highly unusual, although *E. coli* O104 had previously been described as the cause of an outbreak in the United States in 1994.

This current outbreak of *E. coli* is also unusual because it is affecting adults (mainly women) instead of the normal high-risk groups which are young children and the elderly.

7. What is MOH doing about it?

MOH is monitoring the situation in Germany and Europe closely.

We have alerted all hospitals to be vigilant and to notify MOH immediately of any suspected cases of HUS or bloody diarrhoea related to *E. coli* infection, especially among those who had travelled to Germany in May 2011.

8. What are other countries doing?

The European commission on 26 May 2011 urged people who recently visited Germany to watch for symptoms of bloody diarrhoea and seek medical treatment early. The UK Health Protection Agency (HPA) warned travellers to Germany to avoid eating raw tomatoes, cucumbers and lettuce there. Meanwhile, the British health workers are being told to look out for signs of serious illness linked to *E. coli* in people returning from Germany.

9. Should the public be concerned? Should we avoid travel to Germany? Should we avoid raw tomatoes, cucumbers and lettuce? Any health advisories?

The outbreak appears to be limited to Germany at the moment - all cases are from, or have a history of travel to Germany.

As a precautionary measure, we advise Singaporeans travelling to Germany to observe good hygiene, avoid eating raw tomatoes, cucumbers and leafy vegetables and ensure that food is thoroughly cooked before consumption.

Persons returning from Germany should also be advised to seek medical care at a hospital immediately if they develop abdominal cramps and diarrhoea, which may be bloody.

10. If I have come back from Germany and have bloody diarrhoea, what should I do?

You should seek medical attention at a hospital immediately. Inform the doctor that you have a travel history to Germany.