Health Information: A Case Report of Outbreak Salmonella Infection in "Kinder Chocolate", How in Indonesia?

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ABSTRACT

Salmonella is an agent that can cause foodborne disease. Serotype typhimurium is the cause of outbreaks in the age group under 10 years and children in 2022. Kinder trademark chocolate products have been identified as being contaminated with Salmonella typhimurium. Case reports on April 25, 2022, against Salmonella typhimurium infection reached 151 cases in various countries. The source of the contamination was discovered during the manufacturing process for buttermilk, worker hygiene, and poor equipment sanitation at a chocolate plant in Arlon, Belgium. The food industry must discipline the application of the HACCP system, which is an important instrument in food safety management to prevent and control the spread of infection.

INTRODUCTION

Salmonella is an agent that can cause foodborne disease (Mehlhorn, 2015). Salmonella infection can cause a global burden with considerable morbidity and mortality (Mehlhorn, 2015). The presence of 2,500 Salmonella serotypes that have been reported worldwide: enteritidis and typhimurium serotypes are often reported as the causative agent of human salmonellosis (Centre, 2022). The presence of Salmonella was identified in several types of food such as fruits, sprouts, turkey, meat (Zhang et al., 2016), pork, and chicken; and in fast food, nut butter, frozen pot pies, chicken nuggets, cooked meat (Ehuwa, Jaiswal, & Jaiswal, 2021), seafood (Ehuwa et al., 2021), and stuffed...
chicken entrees (Centers for Disease Control and Prevention (CDC), 2022c). Recently, *Salmonella* serotype *typhimurium* was identified in food and reported as an outbreak in seven EU/EEA countries and the United Kingdom (UK) (Centre, 2022).

Previously in 2018, 91,857 people in the EU were infected with *Salmonella*. It was also reported that 5,146 outbreaks caused food borne diases and 48,365 people infected (Food Europen Safety, 2019). In 2019, 88,000 people were infected by *Salmonella* and in 2020 it was 52,702 people infected by *Salmonella* (Rapid & Assessment, 2022). In 2 September 2021, an increase in *Salmonella Enteritidis* ST11 infections was reported from France to reach a total of 272 cases of infection spread across European Union/European Economic Area (EU/EEA) countries and the United Kingdom (UK) (Centers for Disease Control and Prevention (CDC), 2021).

The first report of a new case of *monophasic Salmonella typhimurium* contamination in chocolate food was reported on 7 January 2022 in the United Kingdom (UK). On February 17, 2022, cases spread and were found in Europe (Centers for Disease Control and Prevention (CDC), 2021).

*Monophasic Salmonella typhimurium* contamination was identified in chocolate food products (Centers for Disease Control and Prevention (CDC), 2022b). The chocolate food is then consumed by children, consequently causing infection in children. The incident later became an outbreak, marked by a high proportion of children being hospitalized (Centers for Disease Control and Prevention (CDC), 2022b). The clinical symptom identified was diarrhea in children, from the results of interviews and analytical epidemiological investigations, chocolate products have been identified as a transmission pathway (Food European Safety, 2019).

Infected children were reported as cases through advanced molecular typing techniques (Centers for Disease Control and Prevention (CDC), 2022a). These reporting techniques are not evenly used across countries, so some cases may go undetected (Food et al., 2021). This study aims to provide health information on case reports of monophasic *Salmonella Typhimurium* infection in children in EU/EEA countries, the United Kingdom (UK), and Indonesia.

### Results and Discussion

The data results were obtained from the European outbreak case definition, regarding reports of *monophasic Salmonella typhimurium* infection. The countries with confirmed cases are Austria, Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Norway, Spain, Sweden, the UK, the US, and Indonesia. Details of the number of cases are presented in table 1 below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Confirmed Cases</th>
<th>Probable Cases</th>
<th>Total Cases</th>
<th>Type of Chocolate</th>
<th>Reported per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Belgium</td>
<td>7</td>
<td>22</td>
<td>29</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Denmark</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>France</td>
<td>37</td>
<td>0</td>
<td>37</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Germany</td>
<td>11</td>
<td>3</td>
<td>14</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Kinder chocolate</td>
<td>13 May 2022</td>
</tr>
<tr>
<td>Ireland</td>
<td>15</td>
<td>0</td>
<td>15</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Norway</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>The UK</td>
<td>73</td>
<td>0</td>
<td>73</td>
<td>Kinder chocolate</td>
<td>19 April 2022</td>
</tr>
<tr>
<td>The US</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Ferrero chocolate</td>
<td>25 April 2022</td>
</tr>
</tbody>
</table>

Source: ECDC, Food Safety News, dan CNBC Indonesia (CNBC Indonesia, 2022)

### History of Case Reported

The first report of a new case of *monophasic Salmonella typhimurium* contamination in chocolate food was reported on 7 January 2022 in the United Kingdom (UK) (Centers for Disease Control and Prevention (CDC), 2022c). On 17 February 2022, the distribution of cases due to *monophasic Salmonella typhimurium* infection in the UK is in the form of clusters (Centers for Disease Control and Prevention (CDC), 2021). Continue on February 17, 2022, cases spread and were found in Europe (Centers for Disease Control and Prevention (CDC), 2022a). Cited from the WHO page, on 27 March 2022.
the UK reported a case of monophase Salmonella typhimurium sequence type 34 infection (M. da S. do Nascimento, Brum, Pena, Berto, & Efraim, 2012). The initial suspicion was that chocolate was produced by Belgium, then distributed to 113 countries (Campagnollo et al., 2020).

In April 2022, BPOM RI distributed to 113 countries (Campagnollo et al., 2020). The majority of cases of infection occur in the age group under 10 years and many children of EU/EEA and the UK have been hospitalized (Centers for Disease Control and Prevention (CDC), 2022b).

On April 2, 2022, when the British Food Standards Agency (FSA) issued a public warning letter regarding the voluntary recall of Kinder chocolate products (Food-European Safety, 2019), BPOM RI carried out a recall of Kinder chocolate products on April 11, 2022. BPOM RI continues to carry out surveillance related to Salmonella infections in Indonesia, Indonesian people are given access to information or submit complaints related to contamination of Kinder chocolate products. The public can report via lapor.go.id, HALO BPOM contact center 1-500-533, SMS +6281219995533, WhatsApp +628119181533, e-mail halobpom@pom.go.id, Instagram @BPOM_RI, Facebook Fanpage @BPOM.official, Twitter @BPOM_RI or Consumer Complaints Service Unit of POM Centers/Local Centers throughout Indonesia (Szpinak, Ganz, & Yaron, 2022).

**CONCLUSIONS AND SUGGESTIONS**

Salmonella with serotypes typhimurium is an agent that can infect and cause outbreaks in several countries. Case reports on April 25, 2022, against Salmonella typhimurium infection reached 151 cases. Alleged contamination stems from the buttermilk manufacturing process, worker hygiene, and poor sanitation of equipment. The food industry must discipline the application of the HACCP system, which is an important instrument in food safety management to prevent and control the spread of infection.

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**Conflict of Interest Statement**

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**REFERENCES**


