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

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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.

Kata kunci:

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A B S T R A K

Salmonella adalah agen yang dapat menyebabkan penyakit tular pangan. Serotipe *typhimurium* adalah penyebab wabah pada kelompok usia di bawah 10 tahun dan anak-anak pada tahun 2022. Produk cokelat merek dagang Kinder telah diidentifikasi terkontaminasi Salmonella *typhimurium*. Laporan kasus pada 25 April 2022, infeksi Salmonella *typhimurium* mencapai 151 kasus di berbagai negara. Sumber kontaminasi ditemukan selama proses pembuatan *butter milk*, kebersihan pekerja, dan sanitasi peralatan yang buruk di pabrik cokelat di Arlon, Belgia. Industri makanan harus mendisiplinkan penerapan sistem HACCP, yang merupakan instrumen penting dalam manajemen keamanan pangan untuk mencegah dan mengendalikan penyebaran infeksi.

INTRODUCTION

Salmonella is an agent that can cause food borne 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 diaseas and 48,365 people infected (Food Europan 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.

METHOD

This type of research is descriptive with a case report study design. Sources of secondary data used in this study include case reports of Salmonella infection, sources, and causes of infection in children in EU/EEA countries, the United Kingdom (UK) and Indonesia. Data were obtained from the Ministry of Health data base in each country and scientific literature.

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 1
Case Report Monophasic *Salmonella typhimurium* Infection in Chocolate

Country	Confirmed Cases	Probable Cases	Total Cases	Type of Chocolate	Reported per
Austria	5	1	6	Kinder chocolate	19 April 2022
Belgium	7	22	29	Kinder chocolate	19 April 2022
Denmark	1	0	1	Kinder chocolate	19 April 2022
France	37	0	37	Kinder chocolate	19 April 2022
Germany	11	3	14	Kinder chocolate	19 April 2022
Indonesia	0	0	0	Kinder chocolate	13 May 2022
Ireland	15	0	15	Kinder chocolate	19 April 2022
Luxembourg	1	1	2	Kinder chocolate	19 April 2022
Netherlands	2	0	2	Kinder chocolate	19 April 2022
Norway	1	0	1	Kinder chocolate	19 April 2022
Spain	1	2	3	Kinder chocolate	19 April 2022
Sweden	4	0	4	Kinder chocolate	19 April 2022
The UK	73	0	73	Kinder chocolate	19 April 2022
The US	1	0	1	Ferrero chocolate	25 April 2022

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

The results of case reports show that the total number of confirmed cases in EU/EEA countries is 85 cases with 29 probable cases. In the UK there are 73 confirmed cases, in the US there is 1 confirmed case, while in Indonesia there are no reported cases of *monophasic Salmonella typhimurium* infection due to chocolate. In Indonesia, there are no confirmed cases because all Kinder chocolate products circulating in Indonesia are producted in India, while Kinder chocolate contaminated with *Salmonella* is registered with the Office of Global Policy and Strategy (OGPS) India Office (INO) serving as the Indian FDA lead (Badan Pengawas Obat dan Makanan Republik 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 monophasic *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 19 April 2022, kasus terkonfirmasi di negara EU/EEA menjadi 85 kasus dan the UK total kasus menjadi 73. Laporan kasus terus mengalami perkembangan, pada 25 April 2022 total kasus infeksi *monophasic Salmonella typhimurium* yang dilaporkan berjumlah 151 di berbagai negara (M. S. Nascimento, Reolon, Santos, Moreira, & Silva, 2015). Rincian sebaran 151 kasusnya adalah, Belgium (26 cases), France (25 cases), Germany (10 cases), Ireland (15 cases), Luxembourg (1 case), the Netherlands (2 cases), Norway (1 case), Spain (1 case), Sweden (4 cases), the United Kingdom (65 cases) (World Health Organization, 2022). The US pada 25 April 2022 melaporkan kasus pertamanya infeksi Salmonella melalui Ferrero cokelat (Park 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 Europan 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 +6281219999533, 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).

Contaminated Type of Chocolate

Plant X located in Belgium has identified Salmonella typhimurium contamination in December 2021 by self-examination of samples (Centers for Disease Control and Prevention (CDC), 2021). The alleged critical point is the source of contamination in the buttermilk manufacturing process, personal hygiene of workers, and sanitation of equipment used (Centers for Disease Control and Prevention (CDC), 2022c). Plant X was allowed to re-distribute its chocolate products throughout Europe and globally after the presence of *Salmonella* was not identified again. However, on April 8, 2022, as quoted from the official supervision of the food safety authorities in Belgium, plant X was unable to guarantee the quality of its products (Centers for Disease Control and Prevention (CDC), 2022a). Therefore, plant X's operating license was revoked. In the same case, plant Y which produces Brand Y products produced in plant X is subject to an extension of the recall on all batches not taking into account the expiration date and lot number (Centers for Disease Control and Prevention (CDC), 2022b). In the prevention and control of widespread Salmonella infection, some chocolate products have been extended to the market.

Cited to the Food Safety Agency (FSA), the results of ongoing surveillance of the outbreak, the chocolate product that has been extended with the withdrawal of distribution is Ferrero chocolate produced by a plant located in Arlon, Belgium. Other recalled products include Kinder Surprise 20g and 20g x 3, Kinder Surprise 100g, Kinder Mini 75g eggs, Kinder Egg Hunt Kit 150g, and Kinder Schokobons 200g (Rao & Tamber, 2021). In Indonesia, products circulating and registered with *Badan Pengawas Obat dan Makanan* of the Republic of Indonesia (BPOM) originate from India. The types of products are Kinder Joy, Kinder Joy for Boys, and Kinder Joy for Girls (Rouzeau-Szynalski et al., 2019). Prevention and control of the expansion of Salmonella infection can be done by applying the HACCP system. HACCP is an important instrument in food safety management (Ferrigno, Murino, Romano, & Akkerman, 2013). The HACCP system can analyze hazards, crisis control points, critical limits to monitoring systems.

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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