

UNCOVERING THE CAUSE:

**FOODBORNE OUTBREAK
AT ROMPIN DISTRICT'S SCHOOL SPORTS AND
SCIENTIFIC DAY, MAY 2024**

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INTRODUCTION

On May 13, 2024, Rompin District Health Office received a notification from Rompin Health Clinic about seven (7) students having food poisoning like symptoms.

An immediate investigation confirmed a food poisoning outbreak following the School's Sports and Scientific Days in Rompin District, Pahang.

OUTBREAK LOCALITY

School's Sports and Scientific Day

- Involved seven (7) religious high schools from three (3) districts: Rompin, Pekan and Kuantan
- From May 9, 2024, until May 12, 2024
- A total of 907 participants, 785 students and 122 teachers.



OBJECTIVES

1. To describe the outbreak
epidemiological characteristics by time,
place and person
2. To determine the source of outbreak
3. To determine the possible risk factors
4. To implement appropriate control
measures and provide recommendations
to prevent recurrence of outbreak



METHODOLOGY: Epidemiological Investigation

- Study design: Case control study
- Case investigation: face-to-face interviewed using structured standard questionnaire.

Case definition

Any individual who involved in School's Sport and Scientific Day in Rompin, who experience diarrhea and/or abdominal pain with any one or more of the following symptoms; nausea, vomiting starting from May 9, 2024 until May 15, 2024.

Control definition

Any asymptomatic individual who participated in School's Sport and Scientific Day in Rompin, and ate the food provided during the event.

METHODOLOGY: Environmental Investigation

The environmental investigation was conducted through:

- Inspection
- Observation
- Interview
- environmental sampling

BORANG PEMERIKSAAN PREMIS MAKANAN BERASASKAN RISIKO

PEJABAT KESIHATAN DAERAH : Rompeng
UNIT KESELAMATAN DAN KUALITI MAKANAN

JENIS BISNES : ☐ Kilang ☐ Rutin
☐ Katering ☐ Susulan
☐ Premis jual RTE ☐ Aduan
☐ Kenderaan ☐ Lain-lain (nyatakan)

Petunjuk: 0 - Memuaskan. Markah demerit - Tidak memuaskan. N/A - hazard tidak berkaitan dengan perniagaan makanan ini.

1 - Pemeriksaan 2 - Lawatan susulan Jenis Premis : ...
(Contoh : Gera/Penjaja/Van dll)

NAMA PEMILIK : Wan Khamat bin Wan Sulaiman No. IC/PASSPORT : 710205-06 Nama Syarikat/Premis : ...
ALAMAT PREMIS : DAPUR PERAMA Sma Bukit 18am No. Pendaftaran Perniagaan : 5310 No. Pendaftaran KKM : ...
POSKOD : ... Bil. Pekerja : 6
No. Telefon : 019 70519450 No. Fax : ... Waktu Perniagaan Tempoh/Jam : ...

BIL	PERKARA	MARKAH PEMERIKSAAN	
		1	2
1. KAWALAN PROSES 25			
1	Titik Kawalan Kritikal (atau peringkat proses terpenting) Kawalan e.g masakan 70°C atau lebih, makanan berisiko tinggi disimpan di bawah 4°C	15	16
2. PERPARITAN & KEMUDAHAN/SISTEM 3			
	Kebersihan kemudahan/sistem pengaliran air limbah yang efektif, tiada persilangan line dan aliran terbalik.	1	1
	Disediakan/dipasang dan berfungsi dengan baik.	1	1
3. KEMUDAHAN SANITASI 6			
21	Tandas yang mencukupi dan berkeadaan baik/berfungsi (atau akses kepada tandas awam/awam *).	1	
22	Kemudahan persalinan & mandi yang mencukupi *	2	
23	Kemudahan mencuci tangan : Mencukupi dan sesuai pengering tangan atau tuala pakai buang, sabun cecair.	3	X
4. PENGURUSAN SAMPAH/BAHAN SISA 2			
24	Bekas atau tong sampah yang bersih dan mencukupi dan mempunyai jadual pembuangan.	1	
25	Penyelenggaraan tempat pengumpulan sampah yang bersih dan mencukupi di luar premis.	1	
5. KAWALAN MAKHLUK PEROSAK 3			
26	Terdapat kawalan yang efektif dan mencukupi.	3	X 3

BIL	PERKARA	MARKAH PEMERIKSAAN	
		1	2
4. PERALATAN & PERKAKAS MAKANAN DAN KAWASAN PENYEDIAAN MAKANAN 9			
	Pemukaan menyentuh makanan (termasuk peralatan) : Pemukaan		
10. PEMBERSIHAN & PENYELENGGARAAN PREMIS 2			
27	Pembersihan & penyelenggaraan yang berjadual (termasuk pembuangan peralatan yang tidak digunakan).	1	1
28	Penyimpanan bahan pencuci yang berasingan dengan makanan.	1	
11. PENGANGKUTAN DAN PENGHANTARAN 1			
29	Pembersihan mencukupi, kawalan suhu dan penyelenggaraan.	1	
12. OPERASI-OPERASI LAIN 1			
30	Dokumentasi / Notis (Contoh : Notis cuci tangan, dilarang membawa masuk binatang dll).	1	X 1
13. PROSES LAIN YANG ADA KAITAN DENGAN RISIKO TERHADAP KESIHATAN AWAM 10			
31	Ditolak dengan tambahan 10 markah jika isu bukan proses boleh menyebabkan risiko yang serius.	10	10
14. UNTUK KILANG SAHAJA 35			
32	Pengujudan Program Jaminan Keselamatan Makanan.	30	
33	Kebolehkesanan (Traceability).	5	

* TIDAK TERMASUK PENJAJA (HAWKERS)
(Jum Skor demerit : Kilang = 122, Hawkers = 80, Restoran /Kedai/Geral dll = 87)
Premis boleh ditutup jika tiada bekalan air selamat dan ais digunakan bukan dari punca air selamat.

JUMLAH MARKAH PENILAIAN TAHAP KEBERSIHAN :

Pemeriksaan Pertama 100 tolak = 5621
Skor demerit Tahap kebersihan

Pemeriksaan Susulan 100 tolak = ...
Skor demerit Tahap kebersihan

Diperiksa Oleh: AFIQ BIN AHMAD
Penj. Peg. Kes. Persekitaran U29
(Tanda tangan Pegawai Kesihatan Daerah Rompeng)

Disah Oleh: ...
(Tanda tangan)

Nama Pegawai Diberi Berkassa: ... Nama Penyelia (Pej. Kesihatan Daerah): ...

Nota : Cara pengiraan Markah :
1. Jumlah Skor markah demerit = 87 markah demerit

METHODOLOGY: Laboratory Investigation

Type of samples	Test	Lab
Clinical samples	Rectal swab and hand swab for pathogenic bacteria	NPHL
Food samples (proxy)	A 250mg sample of each food items	Food Quality and Safety Lab at Mentakab
Environmental samples	Utensils swab using 3m quick swan	NPHL

NPHL: National Public Health Lab

RESULTS: Descriptive Epidemiology

Table 1: No. of cases and overall attack rate

Case Detection	No of Cases	Exposed Population	Attack Rate
Active Case Detection (ACD)	34	907	14.7%
Passive Case Detection (PCD)	99		
Total	133	907	

RESULTS: Descriptive Epidemiology

Table 2: Attack rate by Gender and Age (n=133)

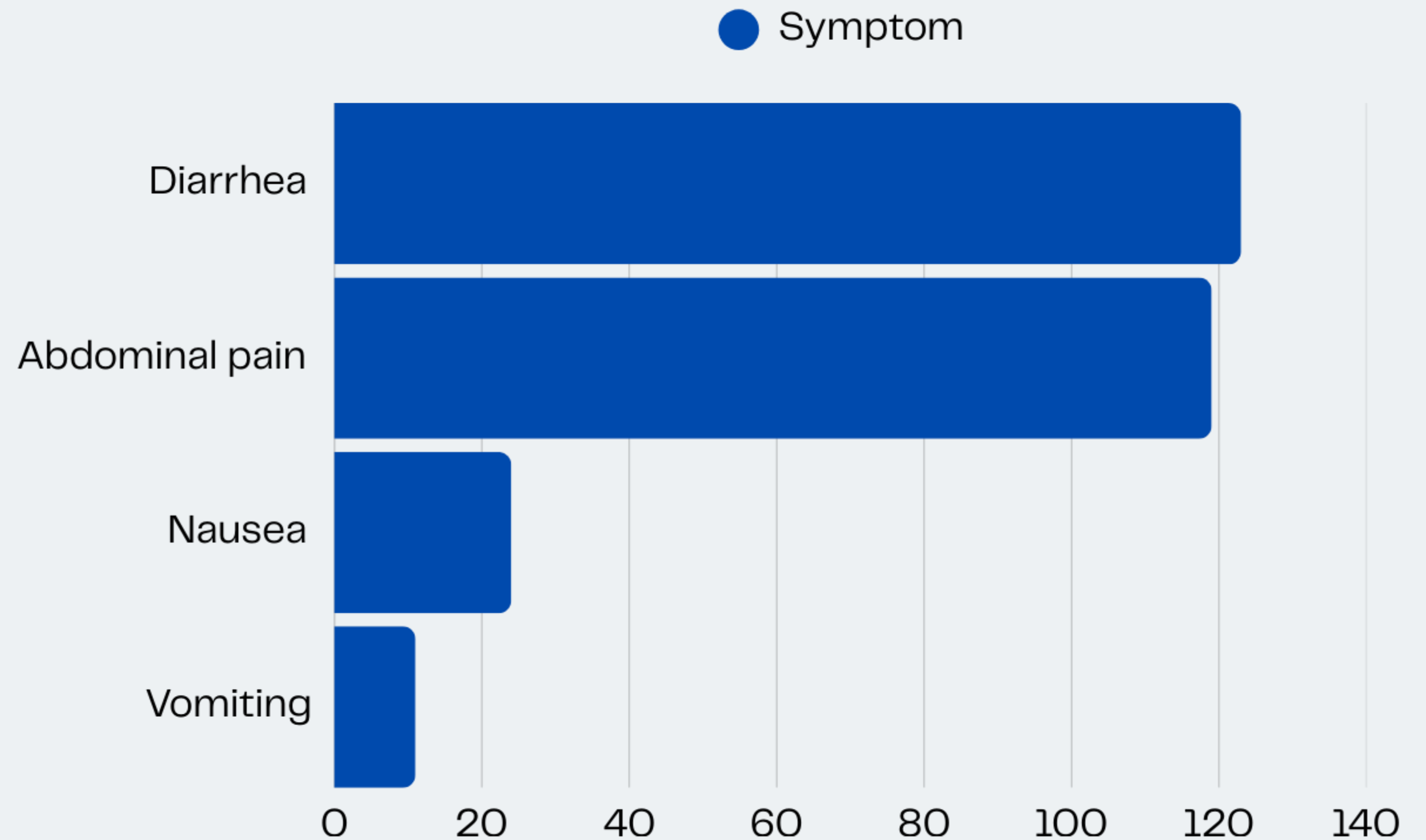
Variable	N	Attack Rate
Gender • Male • Female	39 94	8.04 31.33
Age Mean (SD) • Students (13-19 years) • Teachers (21-28 years)	16 (4.26) 130 3	16.56 2.45

RESULTS: Descriptive Epidemiology

Table 3: Attack Rate According to School and holding time (from serving to eating time

Characteristics	No of cases	Attack Rate	Holding time
1.SMA Darul Makmur Ganchong	65	29.32	8 hours
2.Maahad Tahfiz Negeri Pahang	27	70.66	10 hours
3.SMA Rompin	25	16.03	8 hours
4.SMA Bukit Ibam	9	6.82	6 hours 30min
5.SMA Tg Ampuan Fatimah	7	10.00	9 hours
6.Al-Attas Pekan	0	0	2 hours
7.Kulliah Al-Lughah Waddin, Pekan	0	0	2 hours

RESULTS: Descriptive Epidemiology

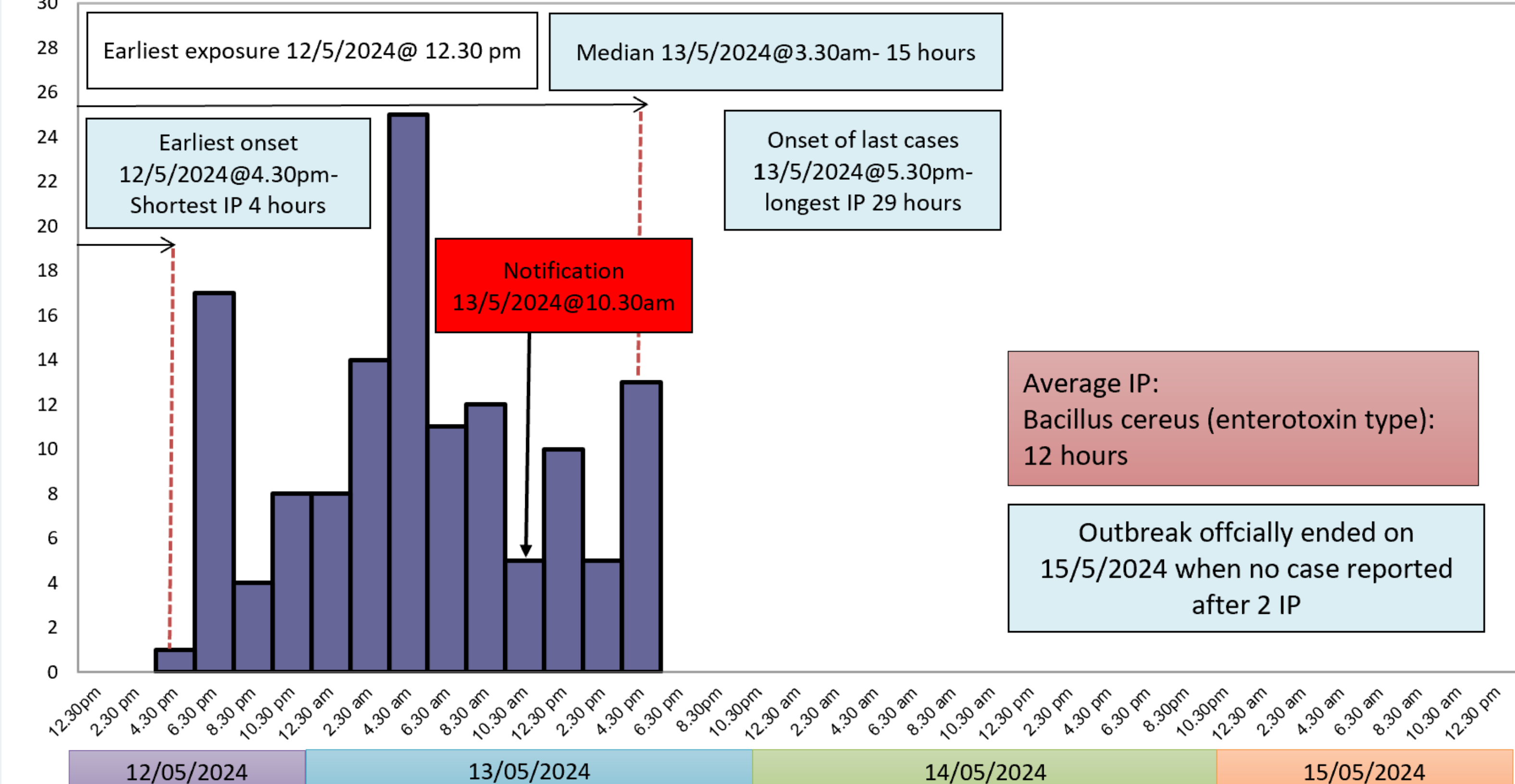


- Outpatient: 34
- Not receive any treatment: 99
- No death was reported

Figure 1: Symptoms Distribution among FP cases (N=133)

RESULTS: Descriptive Epidemiology

Figure 2: Epidemic Curve of the Foodborne Outbreak at a School's Sports and Scientific Day, Rompin on May 12, 2024



RESULTS: Analytical Epidemiology

Table 4: Univariable Analysis of Food Risk

Date	Food consumption	Case (n=133)		Control (n=399)		Odds Ratio (95% CI)	P value
		Eat	Attack rate (%)	Eat	Attack rate (%)		
12/5/2024 (lunch)	Tomato rice • Yes • No	110 23	82.71	227 172	56.64	3.62 (2.22,5.92)	<0.001
12/5/2024 (lunch)	Chicken in red chili sauce • Yes • No	118 15	88.72	306 93	76.69	2.39 (1.33,4.29)	0.04
12/5/2024 (lunch)	Raw pickle • Yes • No	81 52	60.90	199 200	49.87	1.57 (1.04, 1.90)	0.03
12/5/2024 (dinner)	Chicken curry • Yes • No	40 93	30.07	81 318	20.30	1.69 (1.07, 1.99)	0.02
12/5/2024 (dinner)	Cabbage with soy sauce • Yes • No	33 100	24.81	44 355	11.03	2.66 (1.43, 2.66)	<0.001

RESULTS: Analytical Epidemiology

Table 5: Multivariable Analysis for risk factors: Foodborne outbreak in Rompin District

Date	Risk Factor	Adjusted Odds Ratio	(95% CI)	P value
12/5/2024 (lunch)	Tomato rice	3.03	1.58, 5.83	<0.001
	Chicken in red chili sauce	1.39	0.58, 3.32	0.46
	Raw pickle	0.88	0.52, 1.50	0.64
12/5/2024 (dinner)	Cabbage in soy sauce	2.10	0.84, 5.24	0.11

RESULTS: Environmental Investigation



Cooking area

Rating: 65.76%
Food handler: 12. Only 6 food handlers are permanent staff



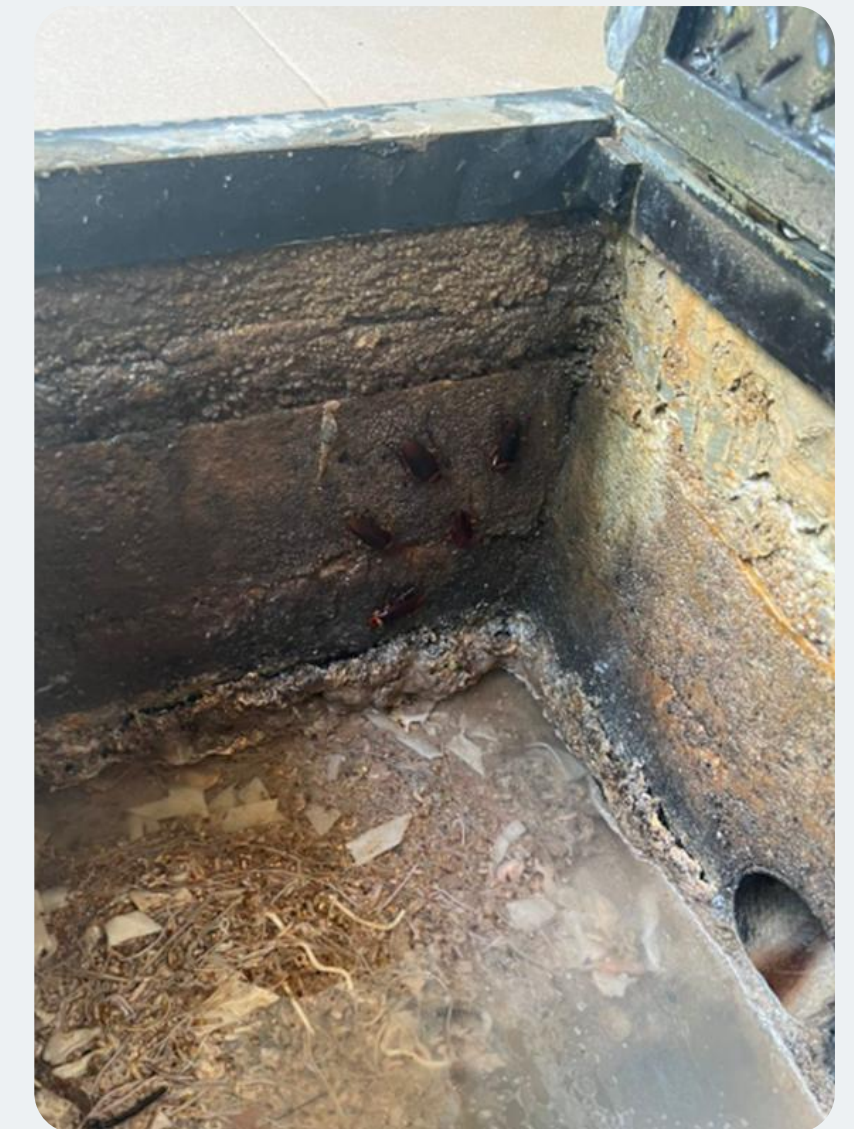
Cooking area

Hazard analysis: poor cleanliness



Raw material storage

Suboptimal temprature (18c)
No FIFO System



Food waste trap

No regular maintenace

RESULTS: Environmental Investigation

HACCP findings for Tomato rice

Sat, May 11, 2024 @ 7.00pm

- Preparation of ingredients (garlic, onion, tomato, spices)
- Store in 1 container at room temperature

CCP 1

Sun, May 12, 2024 @ 4.00am

- Wash the 100 kg rice twice and drain.
- Sauté the ingredients in one frying pan
- Rice was cooked using 2 rice cookers

Sun, May 12, 2024 @ 12.00noon

- Tomato rice were served with chicken in red chili sauce and raw pickle.

Sun, May 12, 2024 @ 6.00am

- Rice was packing in the food containers and leave it at room temperature before serving

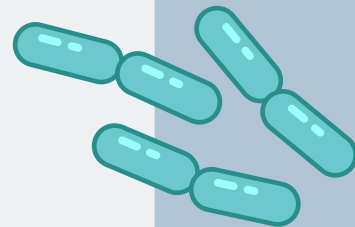
CCP 2

RESULTS: Laboratory Investigation

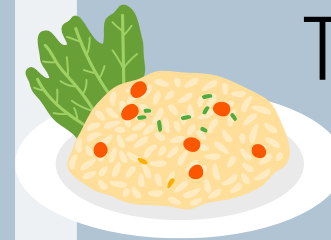
Table 6: Laboratory findings

Sample	Result
Food samples	Bacillus cereus
Clinical samples: food handlers	Staphylococcus aureus
Environmental and utensil swab: chopping board	TPC

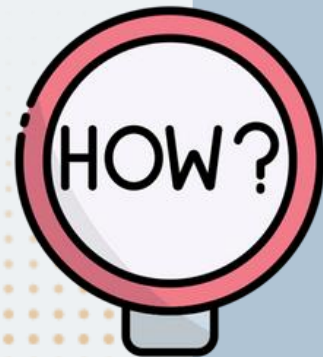
DISCUSSION



The outbreak likely caused by
bacillus cereus



The probable vehicle was tomato
rice



- The tomato rice was holding at room temperature for more than 4 hours before serving.
- It was consumed for more than 4 hours (from serving to consumption).
- Allowed germination of bacillus cereus and rapid multiplication of the bacteria.

RECOMMENDATION

- The rice must keep in proper warmer that can hold food above the 63°C before serving.
- The rice must be consumed within 4 hours after the serving.
- The event organizer should inform the local health authorities before any large event or mass catering.



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