P3-S10

Suspected Food Poisoning Outbreak Investigation, Chililabombwe District, Copperbelt, Zambia, 7-10th April, 2024.

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Key Findings

Chililabombwe district *Food Poisoning Outbreak Linked to Shawarma Consumption at Known Food Outlet*. *E. coli & Staphylococcus aureus* were the most likely causes, with unsafe food handling practices leading to contamination.

BACKGROUND

- Food poisoning is an acute illness associated with consumption contaminated food/water.
- Toxins, Noroviruses, *Salmonella*, *E.coli, Staph. Aureus*, amongst the common causes,
- Common symptoms include nausea, vomiting, abdominal pains & diarrheoa.
- Globally 600 million cases & 420 000 deaths reported annually with majority going unreported.
- On 8/4/2024 Chililabombwe district notified 145 cases of food poisoning with all reporting having eaten from a named food outlet.
- We investigated to describe, establish vehicle of transmission & cause.

METHODS

- Unmatched case-control (1:1).
- Minimum sample size=69 (Fleiss with CC).
- 60/145 cases had complete contact details & were included in the study.
- Conducted interviews using a structured questionnaire in Kobo collect.
- **Case**; Resident of Chililabombwe with any of the following: abdominal pain, nausea, vomiting, or diarrhoea between April 5th & 11th, 2024.
- **Control**; Resident of Chililabombwe without nausea, vomiting, abdominal pains or dehydration from the same household or workplace as the case.
- Collected food samples & conducted inspections.
- Descriptive data summarised using frequency tables.
- Multivariable logistic regression used to control for confounding.
- Backward stepwise logistic regression used to identify best predictors.
- Collected data was anonymized.

RESULTS

- Sixty cases & seventy-four controls were enrolled.
- Attack rates were high in females & age group 15-45 years(Table 1).
- Median age for cases=28 years (IQR 19-38), controls=26 years (21-34).
- Sixty-two percent developed symptoms within six hours of exposure & mean hospital stay was two days(Fig.1).
- Eating shawarma (aOR=4.56; 95% CI: 1.2-17.6), eating from a known food outlet (aOR=30.8; 95% CI: 6.3-149.5) were associated with food poisoning (Table.2).
- *Staphylococcal aureus & E. coli* were isolated from food samples(Table.3).
- Two food handlers were not examined and certified to handle food.
- Small unkempt kitchen space for food handling.

Table 1. Attack rates by age & sex, Chililabombwe, April, 2024. *N=145*

Variable	Age Group	Population	# of cases	# of deaths	Attack rate/100000
Age	Below 1	6 104	2	0	32.8
	1 to 4	24 415	9	0	36.9
	5 to 15	44 253	19	0	42.9
	15 to 45	45 779	118	0	**257.8**
	Above 45	30 519	4	0	9.8
	Total	152 592	145	0	95.0
Sex	Male	74 771	62	0	82.9
	Female	77 823	83	0	**106.6**
	Total	152 592	145	0	95.0

RESULTS

Fig.1 Epi-curve by time of onset, Chililabombwe district, April, 2024

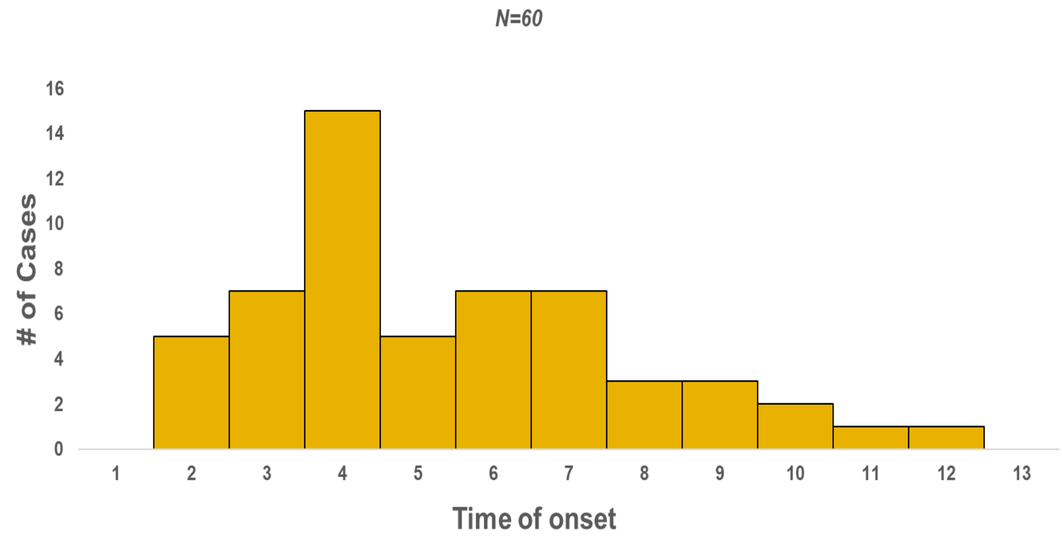

Table 2. Best predictors of food poisoning, Chililabombwe district, April, 2024. N=134.

Predictors	Response	aOR	CI	P-value
Eating shawarma	No	Ref.		
	Yes	4.56	1.19-17.6	0.027
Eating from known food outlet	No	Ref.		
	Yes	30.8	6.33-149.5	0.001

Table 3. Food poisoning sample results, Chililabombwe district April, 2024

Sn	Food Item	Salmonella	Staph. Aureus	E.coli(CFU/ml)	Feacal coliforms(CFU/ml)	Moulds(CFU/ml)
1	**Sauce**	Absent	**Present**	**>300**	**>300**	**>300**
2	**Chicken mash**	Absent	Absent	0	0	1
3	**Sausage**	Absent	**Present**	9	0	**>300**
4	**Chicken wings**	Absent	**Present**	0	0	**>300**
5	**Samosa**	Absent	Absent	**>300**	**>300**	0
6	**Special ribs**	Absent	Absent	0	0	7

CONCLUSION

- Our findings indicated a food poisoning outbreak caused by consumption of contaminated shawarma served on the 7th of April, 2024 at a named food outlet.
- The epidemic curve indicated a point source exposure.
- Incubation period, symptomatology, duration of symptoms & food sample results implicated a mixed exposure with *Staphylococcal aureus & E. coli*.
- Poor food handling practices were responsible for the contamination.
- We recommended closure of the food outlet until it conforms to the food safety act.
- Our findings informed the response & protected the public from further food poisoning.

ADDITIONAL INFORMATION

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