



Botulism poisoning fatalities linked to home-canned food products - Tajikistan, 2021

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BACKGROUND

- Botulism is a rare but severe disease of the nervous system caused by exposure to botulinum neurotoxins. The main cause of botulism in Tajikistan is the consumption of homemade canned food. During last years, more than 40% of cases and about 2/3 of deaths from botulism in Tajikistan are registered in Khatlon region, the country's leading producer of vegetables, where home canning is common among the population
- Time:** December 30, 2021
- 13 people were hospitalized to the regional hospital in Kulyab with suspected food poisoning, 4 of whom were in critical condition upon admission and were resuscitated. A tentative diagnosis of foodborne botulism was suspected. A suspected outbreak of botulism was reported to the regional Sanitary Epidemiological Department on December 31, 2022. at 8.00 am.
- Objective:** To identify the source and prevent new cases of botulism.

Year	# foci		# exposed		# dead		CFR, %		Incidence rate (per 100,000)	
	T	K	T	K	T	K	T	K	T	K
2019	19	8	68	31	6	4	8.8	12.9	0.7	1.0
2020	17	10	64	31	1	1	1.6	3.2	0.7	1.0
2021	30	10	114	41	4	1	6.1	9.8	1.1	1.1

T=Tajikistan; K=Kulyab

METHODS

Inclusion criteria:

Case classification of Foodborne botulism

- Probable: Clinical symptoms of diplopia, blurred vision, muscle weakness, bulbar weakness, dry mouth, breathing difficulty, and/or symmetric paralysis AND ingesting home-canned food within the previous 48 hours

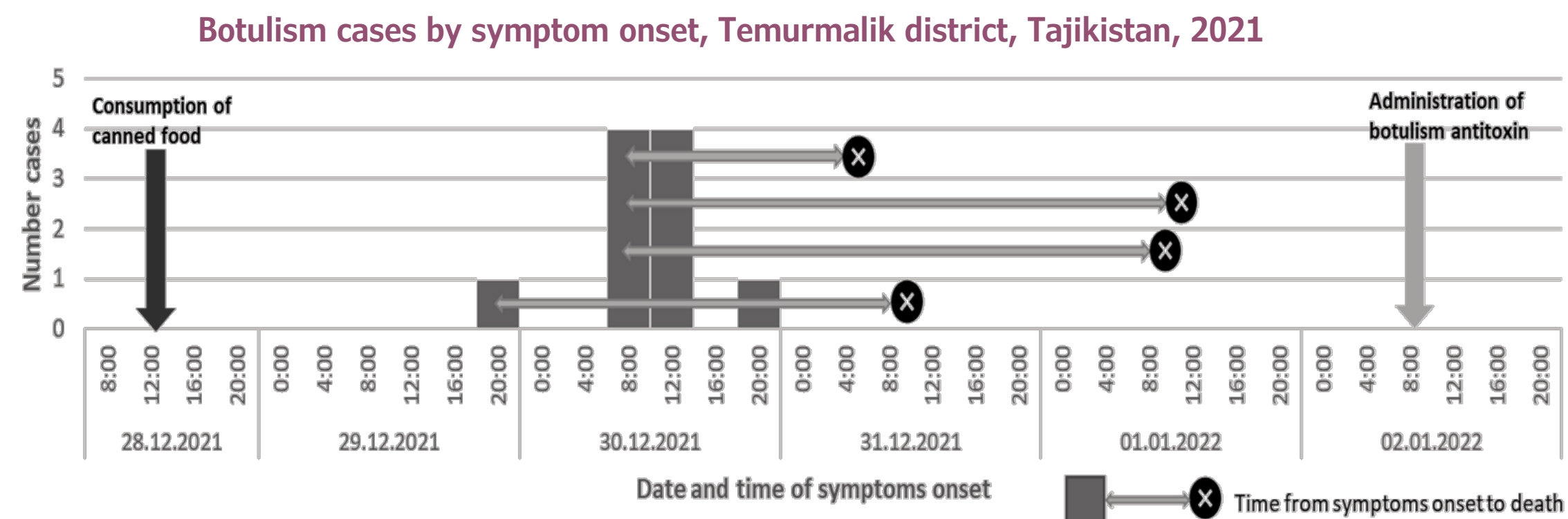
Note: Currently, in Tajikistan, due to lack of capacity, laboratory diagnostics of botulism (both culture method and toxin identification in clinical samples and left-over food) is not available.

Data sources:

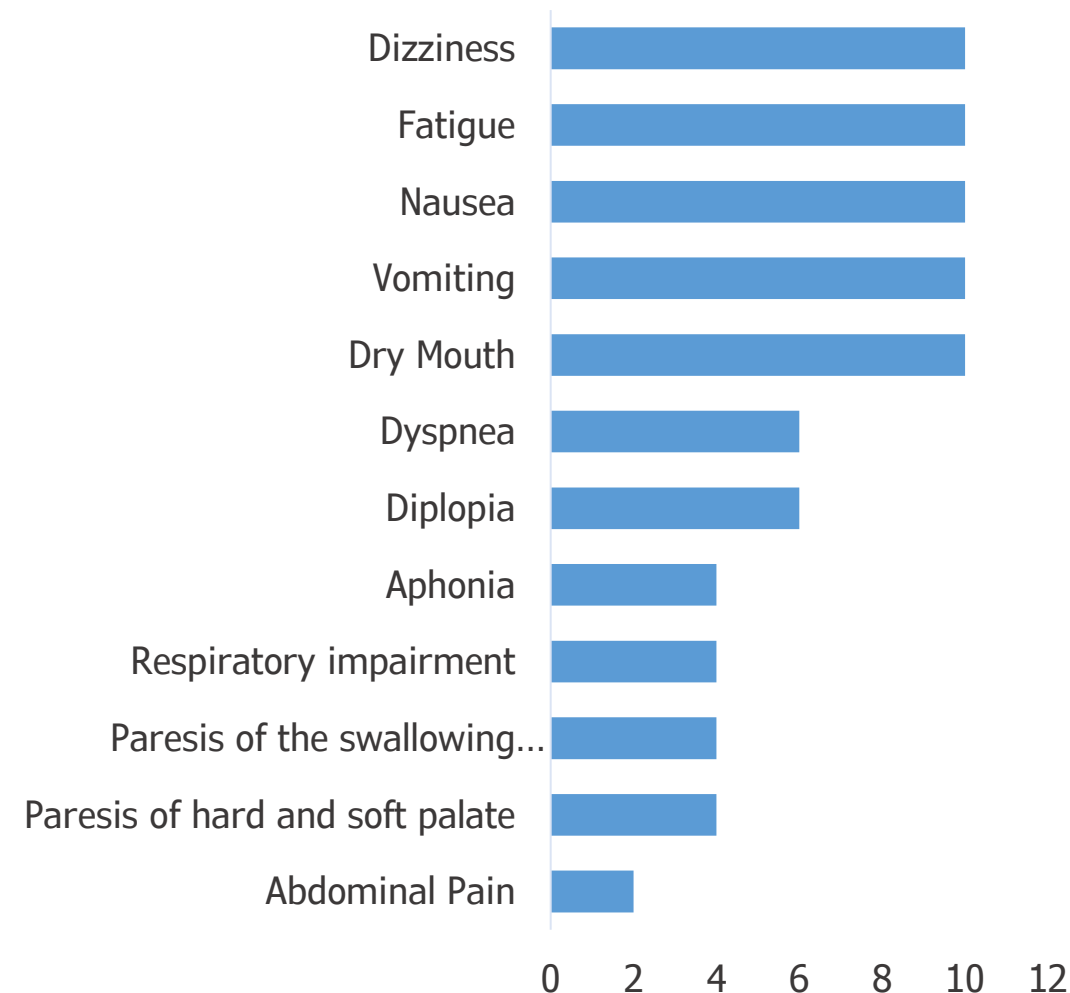
- Review of patient charts
- Interview patients/patients' parents using semi-structured questionnaire

RESULTS

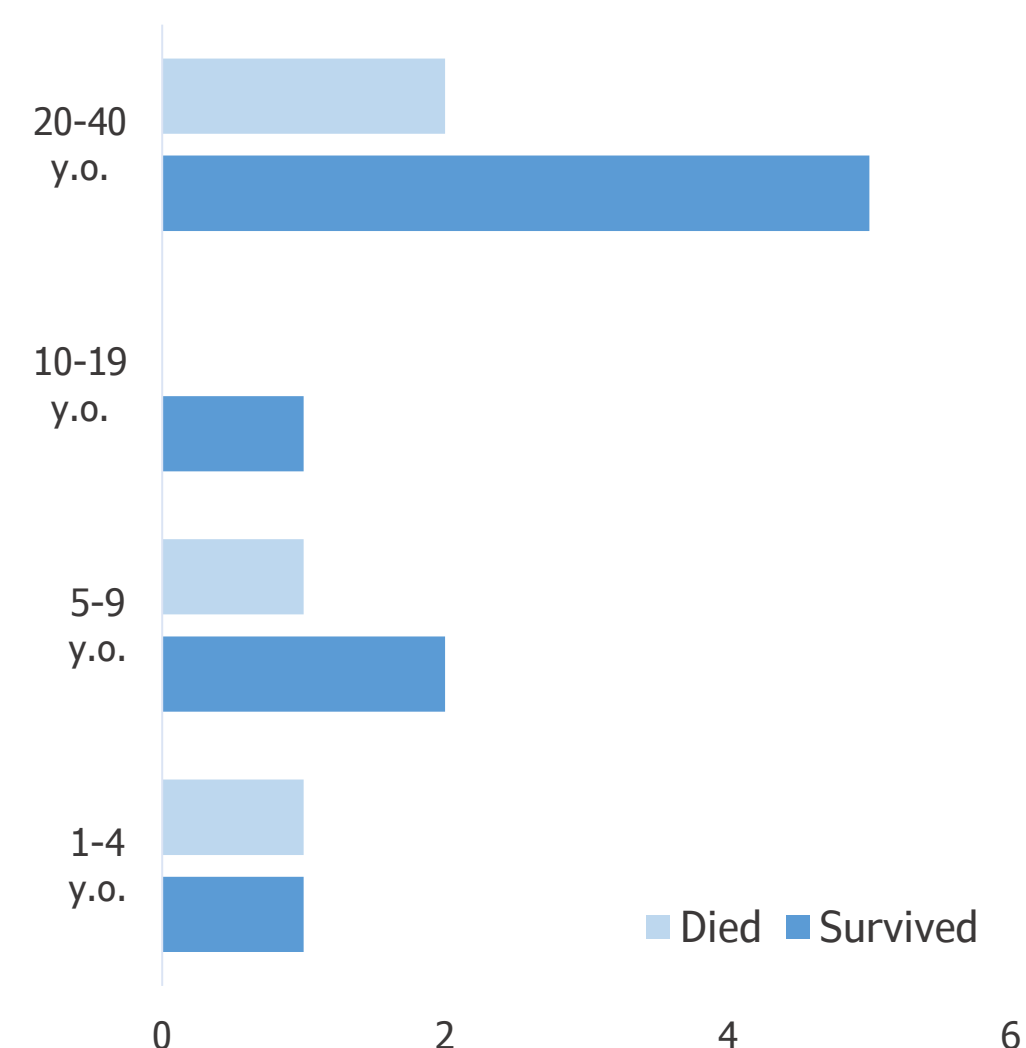
All 13 hospitalized had a family lunch together on December 28, 2021. Of the 12 who ate homemade canned vegetable salad, 10 met the definition of a probable case of botulism (Attack rate = 83%); clinical symptoms appeared after 30-56 hours (average incubation period - 47 hours). Clinical diagnosis for all of them was established 54 hours after eating canned food. One family member who did not eat canned food, and two who eat canned food, did not get sick. For lunch, fruits, sweets, and freshly prepared pilaf were also served. Four patients (two of them children) had a severe course of the disease, they required intubation, and died 65-97 hours after exposure (within 14.5-43 hours of admission), the mortality rate among exposed was 33% (4/12). Time from diagnosis to the first botulinum antitoxin treatment was minimum 62 hours because of absence of antiserum at the district infectious diseases hospital. Nine family members who participated in the lunch including those who aet canned food both symptomatic and asymptomatic, as well as one who did not eat were treated with polyvalent botulinum antitoxin, because four had already died by that time. All nine survived.



Frequency of the signs and symptoms



Cases and outcomes



CONCLUSION

- Six patients had mild symptoms with no need for intubation and were hospitalized
- Late diagnosis in the first patient, unavailability of antitoxin could have contributed to severe course and lethal outcomes of the disease in 4 out of 12 people who ate canned food
- Onset of symptoms from exposure is consistent with incubation of foodborne botulism.
- The presence of neurological symptoms with gastrointestinal disturbances is consistent with ingestion of botulinum toxin.
- All cases were epidemiologically linked in place and time.
- As with other outbreaks of botulism in the Sughd region, home-prepared canned foods were a likely source of probable foodborne botulism outbreak.
- The household is not provided with a constant supply of water, spring and rainwater is used. When preparing canned food, the rules for processing, washing products, washing and sterilizing dishes are not followed, which could lead to the ingress of pathogen spores into the canned product.

ACTIONS TAKEN

- All suspected canned food was destroyed.

RECOMMENDATIONS

- Involvement of FHLS centers and the media to inform the population of regions with favorable conditions for the occurrence of botulism (videos, handouts)
- Refraining from the preparation and use of home-prepared canned foods in the household
- To ensure faster availability of botulinum antitoxin serum, organize stocks in each hospital cooperation of the health departments within the country
- Improve national diagnostic capacity for botulism detection and typing (A,B,E)
- Conduct training for PHC clinicians on the diagnosis and treatment of botulism.

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