

# Multi-State Scombroid Outbreak Associated with Tuna: A Rhode Island Perspective

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## Abstract

In September 2019, a healthcare provider alerted the Center for Acute Infectious Disease Epidemiology (CAIDE) about a scombroid case in an individual who consumed tuna steak at Restaurant A. The Center for Food Protection (CFP) placed an embargo on the tuna steak and collected the tuna for testing on the following day. The State Health Lab (SHL) notified CFP that two of the samples had histamine levels in amounts greater than 500ppm. CFP obtained further traceback information and notified FDA of findings to initiate a recall. The FDA notified CFP that the product was traced back to an importer in Florida who had received the product from a Vietnamese firm, and that cases in Vermont had been linked to this importer as well. CFP then received an illness complaint from two individuals who had also eaten at Restaurant A. These individuals experienced flushing, dizziness, headache, rash/hives, and itching less than one hour after consuming tuna at this establishment. CFP inspectors visited the establishment, embargoed tuna, and collected a frozen tuna sample. CFP also determined from Restaurant A's supplier, that other restaurants in RI had received the product. Additional frozen tuna samples were collected from these restaurants (ready to eat stand at Market A and Market B). Rhode Island Department of Health (RIDOH) issued a noticed to retail food establishments regarding the contaminated tuna from Vietnam. In October, the Florida importer voluntarily recalled implicated tuna products, and in November the Vietnamese firm was put on the import alert list.

## Outbreak Investigation

Participating  
Rhode Island  
Organizations

Center for Food Protection (CFP)

Center for Acute Infectious Disease Epidemiology (CAIDE)

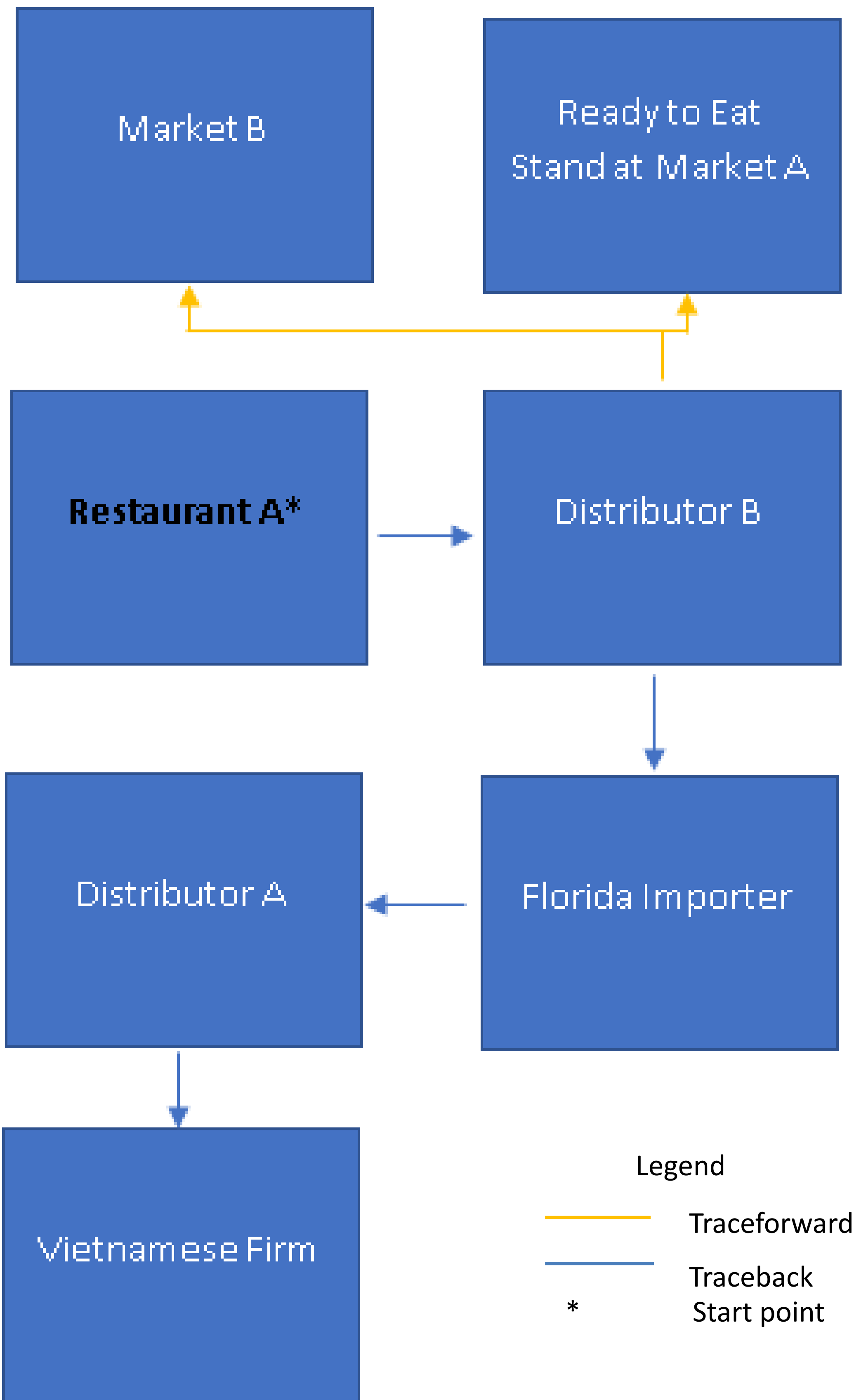
State Health Laboratory (SHL)

- On September 16<sup>th</sup>, 2019, healthcare provider alerted CAIDE about a scombroid case in an individual who consumed tuna steak at Restaurant A.
- CFP performed an onsite investigation at the establishment and placed an embargo on the tuna steak.
- CFP collected the embargoed tuna for testing and brought to the SHL.
- SHL notified CFP that two of the frozen unopened samples that were collected had histamine levels in amounts greater than 500ppm.
- CFP notified FDA of findings to continue the traceback and to initiate a recall of contaminated product.
- CFP had released the embargo at Restaurant A and all product was disposed.
- On September 19<sup>th</sup>, 2019 FDA notified CFP that the product was traced back to Importer A, an importer in Florida who had received the product from a Vietnamese firm.
- On September 27<sup>th</sup>, 2019, CFP received an illness complaint from two individuals who became ill after eating at Restaurant A. One individual consumed tuna at Restaurant A on September 26<sup>th</sup>. The other individual ate a small portion of her meal on the 26<sup>th</sup> and took her leftovers home to consume for lunch on September 27<sup>th</sup>. Both individuals experienced flushing, dizziness, headache, rash/hives, and itching less than one hour after consuming tuna.

## Outbreak Investigation Cont.

- CFP inspectors visited Restaurant A for another on-site investigation. Inspectors embargoed all tuna and collected invoices of embargoed product.
- It was determined that the product consumed by ill individuals came from the same source as the product that caused the illness on September 14<sup>th</sup> (they had received a new shipment of this contaminated product).
- CFP contacted Restaurant A's supplier and determined that other restaurants in RI (ready to eat stand at Market A and Market B) had possibly received the contaminated product.
- CFP collected samples of frozen tuna from an unopened package of embargoed product at Restaurant A, three frozen tuna samples from a ready to eat stand at Market A, and one frozen tuna sample from Market B.

**Figure 1.** Traceback of the tuna to the Vietnamese firm and the trace forward from the distributor that Restaurant A received their tuna from.



## Results

- Rhode Island had three cases associated with this multi-state scombroid outbreak.
- In the initial investigation after the first illness, two of the samples from frozen product in an unopened package had histamine levels in amounts greater than 500ppm.
- CFP notified FDA of findings to continue the traceback and to initiate a recall of contaminated product.
- FDA notified CFP that the product was traced back to Distributor A, an importer in Florida who had received the product from a Vietnamese firm.
- After the two additional illnesses, CFP collected more samples.
- SHL determined that four tuna samples from the traceforward contained >3,000ppm histamine.
- In October, the Florida importer conducted a voluntary recall and in November the Vietnamese firm was put on the FDA import alert list.

**Table 1.** Collection site, product description, histamine concentration, and result of the tuna samples taken during the investigation.

Collection Site	Product Description	Histamine Concentration (ppm)	Result
Restaurant A	Tuna	4.7	Negative
Restaurant A	Tuna	>500	Positive
Restaurant A	Tuna	>500	Positive
Restaurant A	Tuna	2.6	Negative
Restaurant A	Tuna	<2.5	Negative
Restaurant A	Tuna Loin	3200	Positive
Market B	Tuna	3400	Positive
Ready to Eat Stand at Market A	Tuna	3300	Positive
Ready to Eat Stand at Market A	Tuna loin	6400	Positive
Ready to Eat Stand at Market A	Tuna loin	14	Negative

**Figure 2.** Tuna loin that exceeded the size of the whirl pack bags.



**Figure 3.** Sample pictures from the traceback and traceforward.



## Discussion/Lessons Learned

- Based on the epidemiological, laboratory, and environmental evidence, scombroid poisoning was identified as the outbreak etiology and tuna was identified as the food vehicle.
- Our first case was identified by a health care provider alerting CAIDE, which demonstrates the importance of Scombroid being a reportable illness.
- Our illness complaint system worked effectively in helping us identify cases associated with this outbreak.
- In total, 50 cases across 11 states were associated with the Vietnamese firm.
- RIDOH also issued a provider advisory on October 2<sup>nd</sup> to remind providers to detect and report scombroid cases occurring in the community.
- Such high histamine levels had not been seen before in RI and likely suggest the product was highly contaminated and decomposed.
- Early detection of cases and a prompt recall is essential to preventing additional cases.
- After action assessment of this outbreak indicated the need to have larger whirl pack bags to prepare for similar situations where the food vehicle is large, frozen, and difficult to sample.