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## Paralytic Shellfish Poisoning in Southeast Alaska, May–June 2011

### Introduction

On June 6, 2011, the Alaska Section of Epidemiology (SOE) received a report that a person had been medevaced from Metlakatla to Ketchikan due to possible paralytic shellfish poisoning (PSP). We launched an immediate onsite investigation.

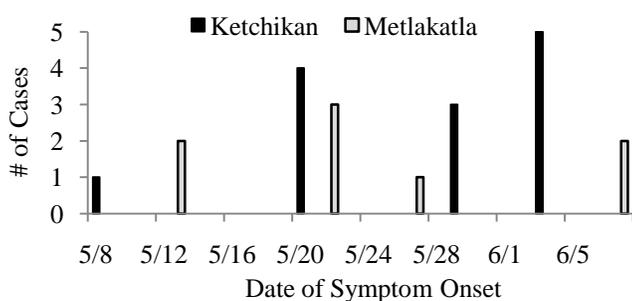
### Methods

In Metlakatla, two SOE epidemiologists and one public health nurse conducted interviews using a structured questionnaire, collected available leftover shellfish from ill persons and at implicated beaches, performed active case finding by broadcasting messages on local TV and radio, and posted signs warning individuals to avoid personally harvesting shellfish. Probable cases were defined as persons who developed PSP symptoms within 12 hours of shellfish consumption; confirmed cases met the above case definition and had saxitoxin identified in their urine or had consumed shellfish that later tested positive for a high saxitoxin level (>80 mcg/100g of meat). Press releases were issued and media interviews were conducted to inform the public.

### Results

Eight probable and five confirmed PSP cases were identified in Metlakatla. Additionally, while the epidemiologists were in Metlakatla, two persons were hospitalized in Ketchikan with suspected PSP. Subsequent active case finding in Ketchikan identified five more probable cases. One other confirmed case of PSP in Ketchikan had been reported to SOE in May.<sup>1</sup> In total, 21 cases of PSP were identified in Southeast Alaska during May and June, 2011 (Figure). Of these 21 cases, 15 (71%) were associated with cockles, four (19%) with blue mussels, one (5%) with butter clams and cockles, and one (5%) with unspecified clams. Four of the 21 (19%) ill persons were hospitalized (Table); none died. Eight of the 21 (38%) ill persons had laboratory-confirmed PSP (Table). Implicated shellfish collected from both Metlakatla and Ketchikan tested positive for high levels of saxitoxin (Table).

**Figure. Cases of PSP (N=21) in Southeast Alaska, May–June 2011**



**Table. Characteristics of the Laboratory-confirmed Cases of PSP (n=8) in Southeast Alaska, May–June 2011**

Patient	Location	Symptoms	Time from consumption to symptom onset	Type of shellfish consumed	Toxin level in shellfish consumed (mcg/100g)	Level of toxin in urine (ng/mL)	Hospitalized
A	Ketchikan	Ataxia, dizziness, floating sensation, paresthesia, vomiting, weakness	45 minutes	Butter/ Little Neck Clams	1,321	N/A	Yes
B	Metlakatla	Ataxia, dysphagia, dizziness, difficulty moving, floating sensation, nausea, paresthesia, shortness of breath, weakness	3.5–4 hours	Cockles	528	N/A	Yes (ICU)
C	Metlakatla	Paresthesia	10–15 minutes	Cockles	528	N/A	No
D	Metlakatla	Paresthesia	2.5–3 hours	Cockles	528	N/A	No
E	Metlakatla	Ataxia, dysphagia, floating sensation, paresthesia, weakness	<1 minute	Cockles	528	N/A	No
F	Metlakatla	Paresthesia	<1 minute	Cockles	528	N/A	No
G	Ketchikan	Ataxia, dysphagia, floating sensation, paresthesia, shortness of breath, weakness	<1 minute	Blue Mussels	5,037	118	Yes (ICU)
H	Ketchikan	Dizziness, dysphagia, floating sensation, nausea, weakness	1 hour	Blue Mussels	5,037	15	Yes

ICU=Intensive care unit; N/A=Not available

(Contributed by Kimberly Porter, PhD, MSPH, Donna Fearey, ANP, MS, and Tari Esposito, BSN, RN, PHN, Alaska Division of Public Health.)

### Discussion

PSP is a potentially fatal neuroparalytic condition that results from ingestion of saxitoxin, a marine toxin produced by dinoflagellate algae, that accumulates in bivalve mollusks (e.g., butter clams, cockles, geoducks, mussels, and scallops).<sup>2</sup> PSP can result in mild symptoms, such as short-lived parasthesia of the mouth or lips, or can cause severe illness with respiratory or cardiac involvement that can be fatal.<sup>2</sup> Symptoms occur within minutes to hours of consumption.<sup>2</sup>

Active case finding during these investigations enabled epidemiologists to identify many people who did not seek care and would never have been reported. This suggests that the overall burden of PSP in Alaska is likely to be greatly underestimated through standard reporting. Because reporting prompts public health prevention efforts, we strongly encourage health care providers and PSP patients to *notify SOE immediately, even if symptoms are mild*.

Shellfish are an important food source for many Alaskans; however, the risks associated with consumption of personally-harvested shellfish are high. Because there is no risk-free time of year to consume personally-harvested shellfish in Alaska, and cooking or freezing the shellfish does not destroy the toxin, the development of an inexpensive testing kit that provides rapid identification of the toxin would be extremely beneficial for people who wish to personally-harvest shellfish from Alaska waters.

### Recommendations

1. Health care providers should inform their patients of the serious risks associated with consumption of personally-harvested shellfish, and recommend against this practice.
2. If symptoms of PSP occur following consumption of shellfish, persons should be advised to seek medical attention immediately.
3. Clinicians caring for suspected PSP patients should promptly collect a urine specimen, and ship it frozen to the Alaska State Public Health Laboratory.
4. Collect any remaining shellfish (i.e., leftover suspect food) and consult SOE regarding testing.
5. *PSP is a public health emergency and should be reported immediately to SOE by health care providers (7 AAC 27.005). To report, please call 907-269-8000 Mon-Fri 8 AM-5PM, or 1-800-478-0084 after-hours.*

### References

1. Man who ate Southeast clams develops symptoms of shellfish poisoning Available at: [http://www.hss.state.ak.us/press/2011/PSP\\_PR\\_052511.pdf](http://www.hss.state.ak.us/press/2011/PSP_PR_052511.pdf)
2. RaLonde R. Paralytic Shellfish Poisoning: The Alaska Problem. University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, 1996. Available at: <http://seagrant.uaf.edu/features/PSP/PSP.pdf>