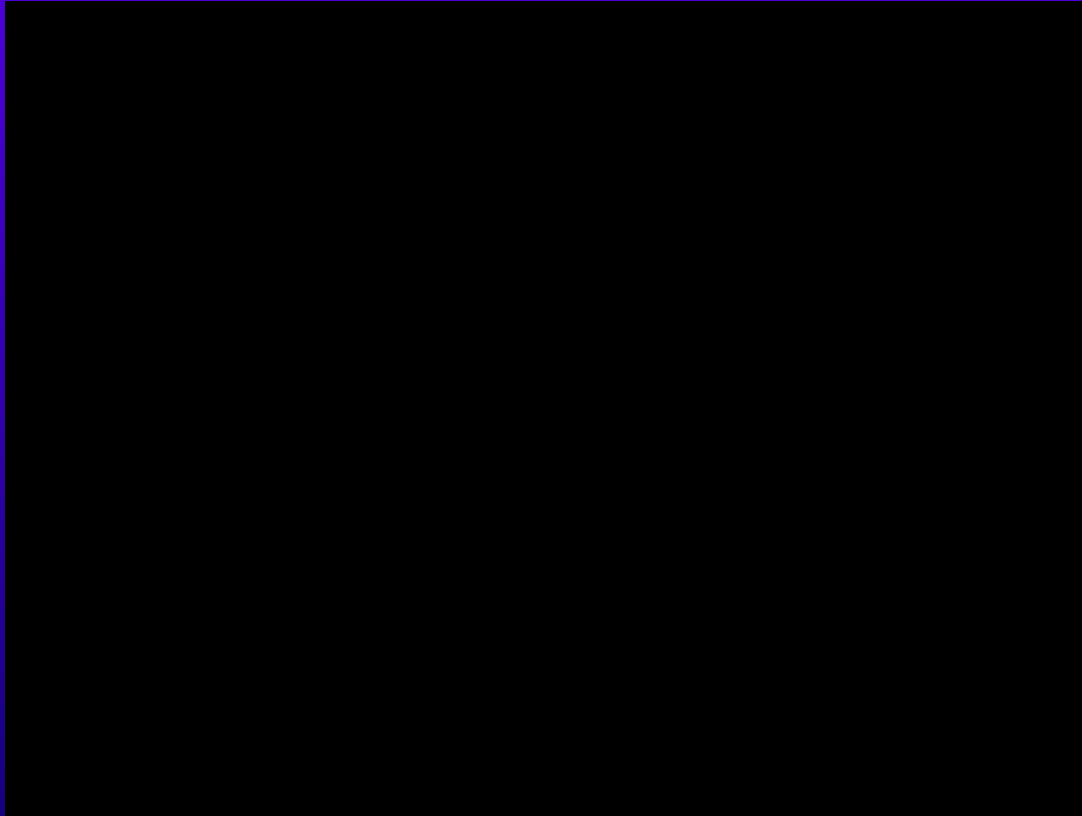


**Evaluation of an Educational Videotape to Prevent  
Botulism in Alaska  
Bristol Bay, Alaska, August 2001**

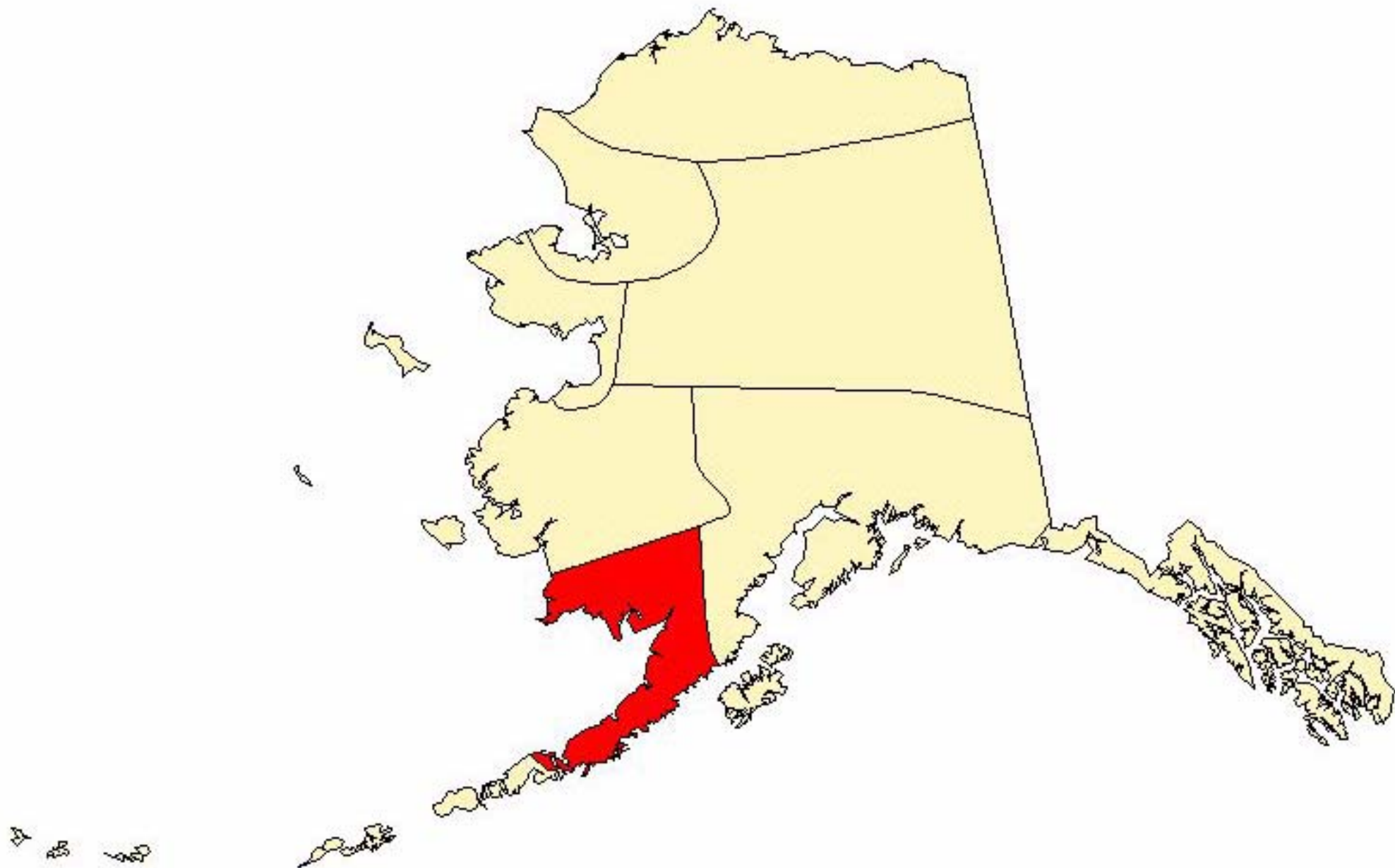


## Botulism Prevention Videotape Evaluation

# Foodborne Botulism in Alaska

- Incidence > 20 times higher than general U.S
- All cases associated with Alaska Native foods
  - Fermented aquatic mammals and fish heads
- *Clostridium botulinum* spores in Alaska: marine sediments, fish gills
- Increasing rates over last 20 years
  - Improved surveillance
  - Recognition of mild cases
  - ? Role of non-traditional fermentation methods
- Highest rates of disease in Southwestern Alaska villages
  - Bristol Bay Area Health Corporation Botulism Working Group

# Bristol Bay, Alaska



## Botulism Prevention Videotape Evaluation

# Preventing Disease in Rural Alaska

- Acute care services: health aides
  - 15 weeks training
  - Yearly continuing medical education
- Telephone contact with regional hospitals
- Emergency medical evacuations
  - Small airplanes
  - Weather-dependent
  - Expensive
- Disease prevention programs
  - Minimal personnel
  - Videotape players available in most clinics, schools, and homes
  - Public broadcasting airs videotapes in villages

**Botulism Prevention Videotape Evaluation**  
**KAP Survey, Bristol Bay, Alaska, September, 1999<sup>1</sup>**

- High awareness of botulism
- Fermenting foods in plastic containers dangerous
  - 34% of preparers use
- Acceptable prevention messages elicited
- Misconceptions identified

<sup>1</sup>Chiou et al., Int J Circumpolar Health, 2002

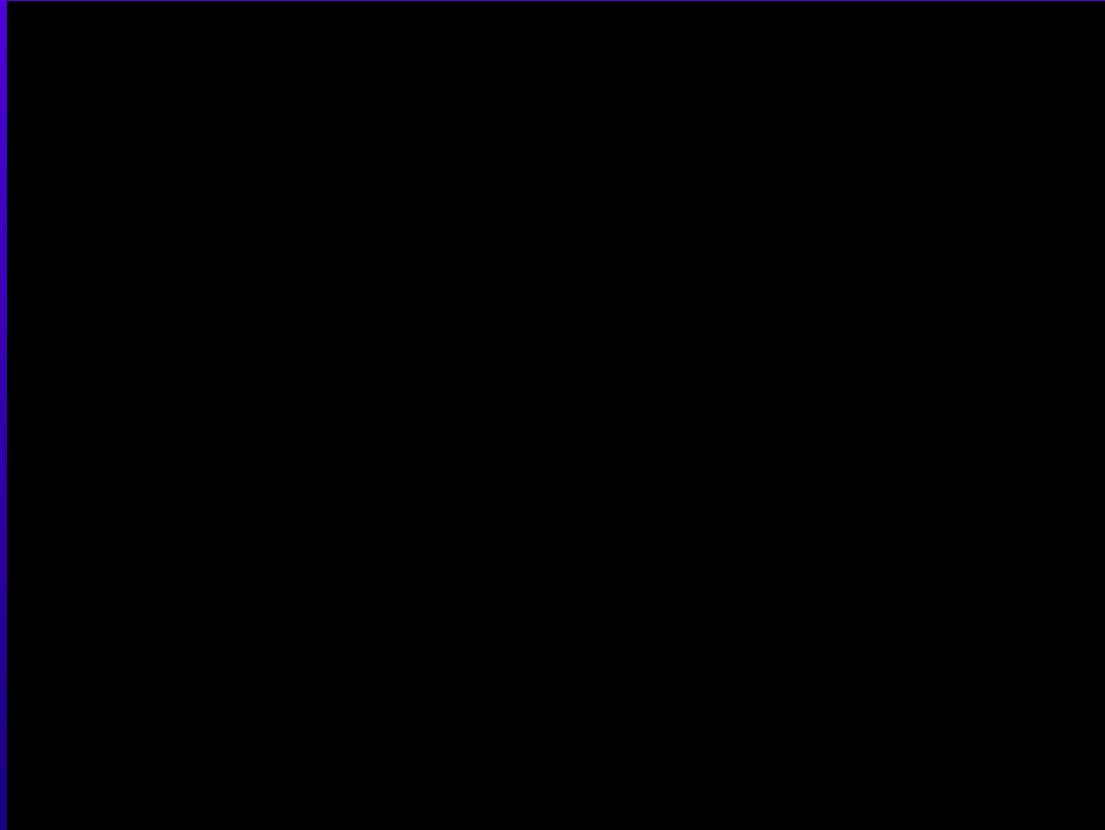
# **Educational Videotape to Prevent Foodborne Botulism among Alaska Natives**

- Videotape produced, > 600 distributed, April 2000
  - Rural clinics and schools
  - Rural radio stations, public television serving rural areas
  - Community centers, libraries, tribal councils
- Interactive website
  - <http://www.cdc.gov/phtn/botulism/default/default.asp>

## Botulism Prevention Videotape Evaluation

Message:

Traditional Preparation Methods are Safer



# Botulism Prevention Videotape Evaluation

## Methods

- Repeat KAP survey, August 2001
  - In-person interviews
  - 16% random sample
  - $\geq 18$  years old
  - 9 villages in Bristol Bay, Alaska
- Data collected
  - Videotape viewing
  - Frequency of consuming and preparing fermented foods
  - Knowledge of botulism
  - Willingness to modify behavior
  - Fermented food preparation methods



## Botulism Prevention Videotape Evaluation

# Results – Videotape Awareness and Usage

- 254 participants
  - 110 (43%) heard of the videotape
  - 97 (38%) saw the videotape
    - 66 (68%) learned of the videotape from public television
    - 76 (78%) saw at home on public television
    - 17 (18%) saw in a medical facility
- Well received
  - Alaska Native Health Boards
  - Award winning

# Botulism Prevention Videotape Evaluation

## Results - Demographics

	1999 Pre-video N = 140*	2001 All Participants N = 254*	2001 Saw video N = 97*
	N (%)	N (%)	N (%)
<b>Male</b>	<b>84 (60)</b>	<b>97 (38)**</b>	<b>29 (30)**</b>
<b>Age</b>			
<b>18-39</b>	<b>60 (43)</b>	<b>117 (46)</b>	<b>37 (38)</b>
<b>40-59</b>	<b>62 (43)</b>	<b>96 (38)</b>	<b>44 (46)</b>
<b>60+</b>	<b>17 (12)</b>	<b>38 (15)</b>	<b>15 (2)</b>
<b>Ethnicity</b>			
<b>Yup'ik/AN</b>	<b>127 (91)</b>	<b>234 (93)</b>	<b>93 (97)</b>
<b>Other</b>	<b>13 (9)</b>	<b>18 (7)</b>	<b>3 (3)</b>
<b>Food Preparers</b>	<b>38 (27)</b>	<b>52 (21)</b>	<b>25 (25)</b>
<b>Male</b>	<b>16 (42)</b>	<b>12 (23)**</b>	<b>2 (8)**</b>

\* Denominators vary slightly, proportions exact

\*\*P < 0.05

## Botulism Prevention Videotape Evaluation

# Results - Practices\*

	1999	2001	2001
	Pre video	All respondents	Saw video
Fermented foods:	N=140	N=254	N=97
	N (%)	N (%)	N (%)
Fish heads	65 (46)	100 (39)	48 (49)
Beaver tail	27 (19)	32 (12)	16 (16)
Seal flipper	28 (2)	39 (15)	22 (23)
Walrus flipper	9 (6)	17 (6)	9 (9)
Fish eggs	11 (7)	16 (6)	7 (7)

\*Not mutually exclusive

**Botulism Prevention Videotape Evaluation**  
**Believed They Could get Botulism**

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	1999 Pre video n/N (%)	2001 All respondents n/N (%)	2001 Saw video n/N (%)
Total	94/121 (78)	204/248 (82)	84/96 (87)
Male	58/74 (78)	80/96 (83)	27/29 (93)
Female	36/47 (77)	124/152 (82)	57/67 (85)

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## Botulism Prevention Videotape Evaluation

# Willingness to Change Behavior

	1999 Pre video N=117* N (%)	2001 All respondents N=254* N (%)	2001 Saw video N=97* N (%)
<b>Boil fermented foods</b>	<b>53 (45)</b>	<b>111 (44)</b>	<b>44 (45)</b>
<b>Avoid foods fermented in plastic</b>	<b>75 (64)</b>	<b>128 (50)**</b>	<b>55 (57)</b>
<b>Eat foods fermented in cool places</b>	<b>75 (64)</b>	<b>130 (52)**</b>	<b>60 (62)</b>

\* Denominators vary slightly, proportions exact

\*\* P= <0.05

## Botulism Prevention Videotape Evaluation

# Misconceptions

Misconception:	1999 Pre video	2001 All responders	2001 Saw video
<b>Causes fever</b>	73/124 (59)	143/254 (56)	44/97 (45)
<b>Some people protected</b>	28/124 (23)	41/254 (16)	17/97 (17)
Open-ended questions:			
<b>Vomit after symptom onset</b>	23/54 (42)	51/117 (43)	18/53 (34)
<b>Combining foods</b>	7/37 (19)	29/81 (36)	9/29 (31)

## Botulism Prevention Videotape Evaluation

# Food Preparer Practices

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	1999 Pre video n/N (%)	2001 All respondents n/N (%)	2001 Saw video n/N (%)
Ferment in plastic container	13/37 (34)	11/50 (22)	6/21 (28)
Ferment in cool place	35/37 (94)	45/47 (96)	20/20 (100)
Wash food before fermenting	26/37 (71)	32/49 (65)	14/22 (64)

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## Botulism Prevention Videotape Evaluation

# Conclusions

- Fewer than half of adults had heard of the videotape
- 38% of adults viewed the videotape
- No change in food consumption or preparation practices:
  - Trend among those who watched the video to appreciate risks and have fewer misconceptions
  - Survey underpowered due to low viewing of video



# Botulism Prevention Videotape Evaluation

## Future Directions

- Videotape marketing
  - Increase awareness of the videotape
  - Increase viewing
- Methods to reinforce prevention messages
  - Yup'ik language courses
  - Public schools
  - Continuing Medical Education
    - Rural health care providers
- Support behavior change

# **Botulism Prevention Videotape Evaluation**

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**Catherine Dentinger, MS, FNP<sup>1</sup>**

**Helen Gregorio, CHR<sup>2</sup>**

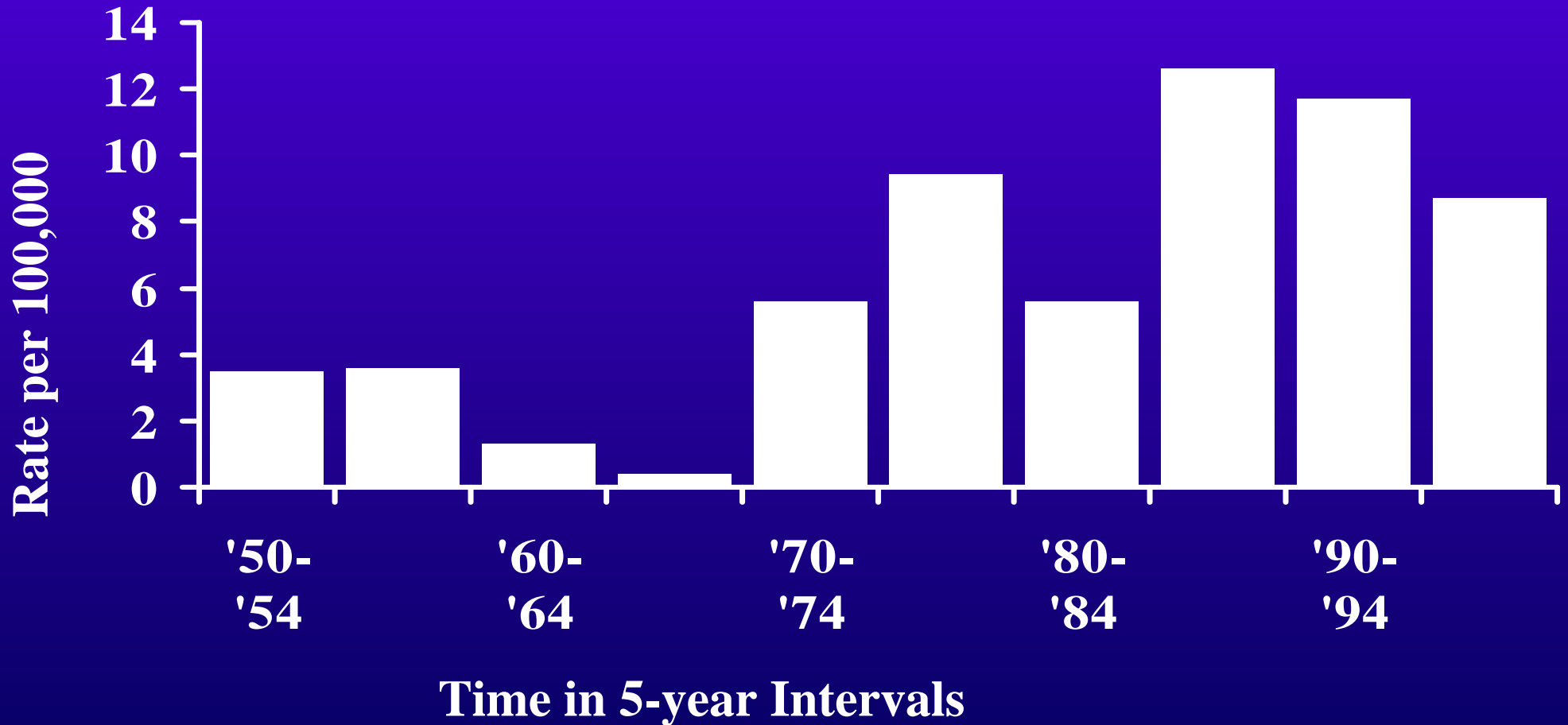
**Thomas Hennessy, MD, MPH<sup>1</sup>**

**Andrea Horn, RS<sup>2</sup>**

<sup>1</sup>Arctic Investigations Program, Centers for Disease Control and Prevention, Anchorage, AK

<sup>2</sup>Bristol Bay Area Health Corporation, Botulism Working Group, Dillingham, AK

# Annual Rate of Botulism in Alaska, 1950-1999



# Beaver Paws Tested for Botulinum Toxin at CDC, Atlanta, GA



# Botulism Prevention Videotape Evaluation

## Misconceptions among Women

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Misconception	1999 Pre video	2001 All responders	2001 Saw video
Causes fever	24/53 (45)	79/152 (52)	28/67 (42)
Vomit to treat	4/22 (18)	3/77 (4)	2/40 (5)
Not everyone is susceptible	11/47 (23)	27/152 (18)	11/67 (16)
Combining foods	1/9 (11)	16/44 (36)	5/19 (26)
Antibiotics treat	2/22 (9)	10/77 (13)	6/40 (15)

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# Botulism Prevention Videotape Evaluation

## Willingness to Change Behavior among Men

	1999 Pre video N=70* N (%)	2001 All male respondents N= 97* N (%)	2001 Males who saw video N= 29* N (%)
<b>Boil fermented foods</b>	<b>28 (40)</b>	<b>46 (48)</b>	<b>17 (59)</b>
<b>Heat seal oil</b>	<b>13 (18)</b>	<b>19 (20)</b>	<b>7 (24)</b>
<b>Avoid foods fermented in plastic</b>	<b>43 (61)</b>	<b>46 (48)</b>	<b>16 (55)</b>
<b>Eat foods fermented in cool places</b>	<b>42 (60)</b>	<b>45 (47)</b>	<b>16 (55)</b>
<b>Eating dried fish only if salted</b>	<b>43 (58)</b>	<b>53 (55)</b>	<b>15 (52)</b>

\* Denominator varies slightly, proportions exact