Lindane Exposure from Traditional Food Sources

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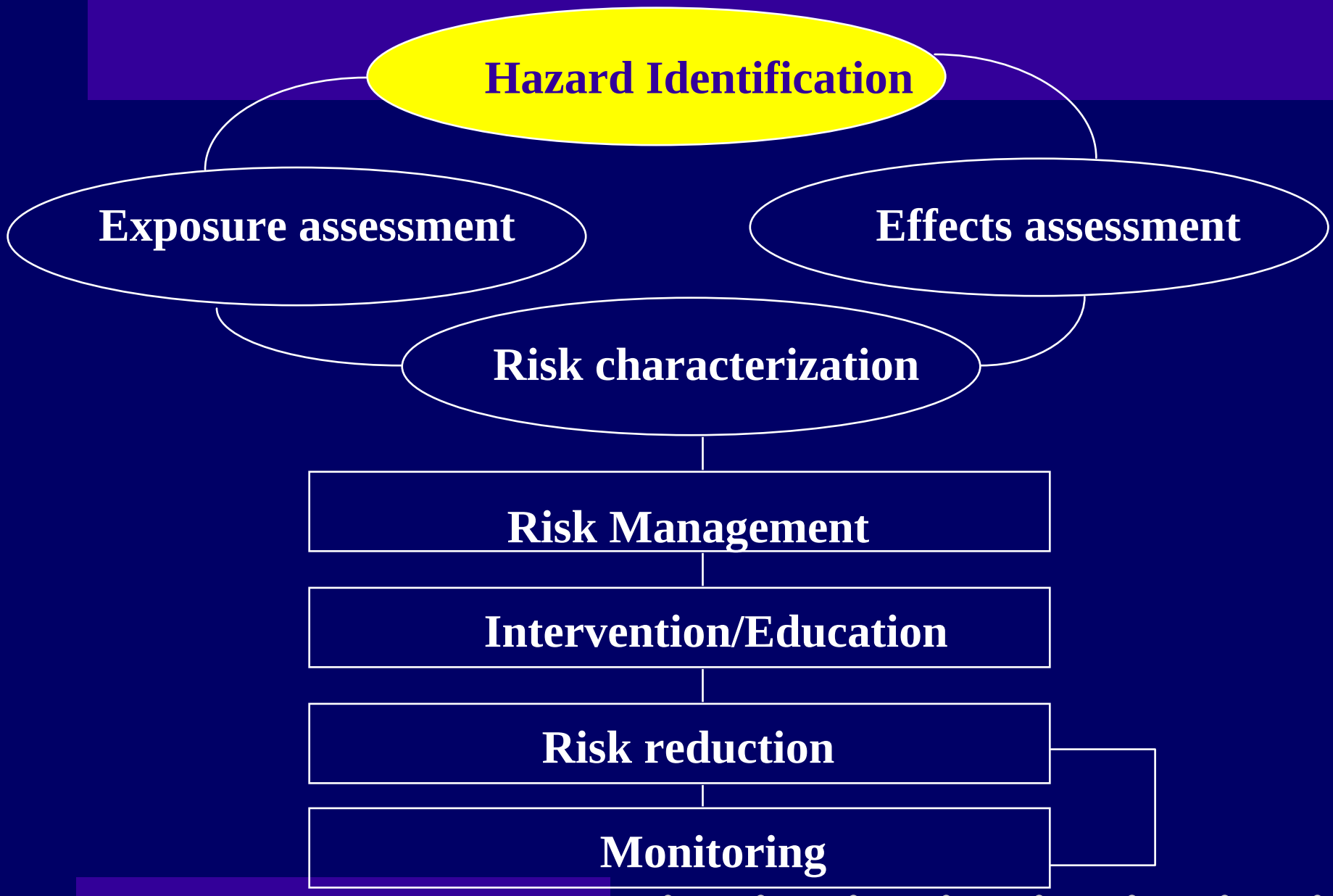
Research Question

Is Our Food Safe to Eat?

Risk Management



Communities where samples were collected

Lindane Concentrations in Food Samples

(ng/g wet weight)

	N	Average	Median	Min	Max
Marine Mammal Meat	32	14	9	0	77
Marine Mammal Organ	26	84	54	0	391
Fish	138	6	1	0	348
Land Mammal Meat	78	4	1	0	58
Land Mammal Organ	40	1	0	0	93
Bird	23	3	2	0	11
Plants	4	3	1	1	10

HCH in Marine Mammal Blubber

(ng/g wet weight)

	Total HCH	γ-HCH
Beluga	423	135
Narwhal	118	111
Walrus	144	130
Ringed Seal	220	170

HCH in Marine Mammal Meat

(ng/g wet weight)

	Total HCH	γ-HCH
Beluga	21	1
Walrus	4	3
Ringed Seal	4	3

HCH in Fish Meat

(ng/g wet weight)

	Total HCH	γ-HCH
Arctic Char	6	3
Arctic Cod	3	1
Lake Trout	2	2
Salmon	4	5
Rock Cod	3	0
Whitefish	1	1
Pacific Herring	11	1
Cisco	1	2

HCH in Land Mammals

(ng/g wet weight)

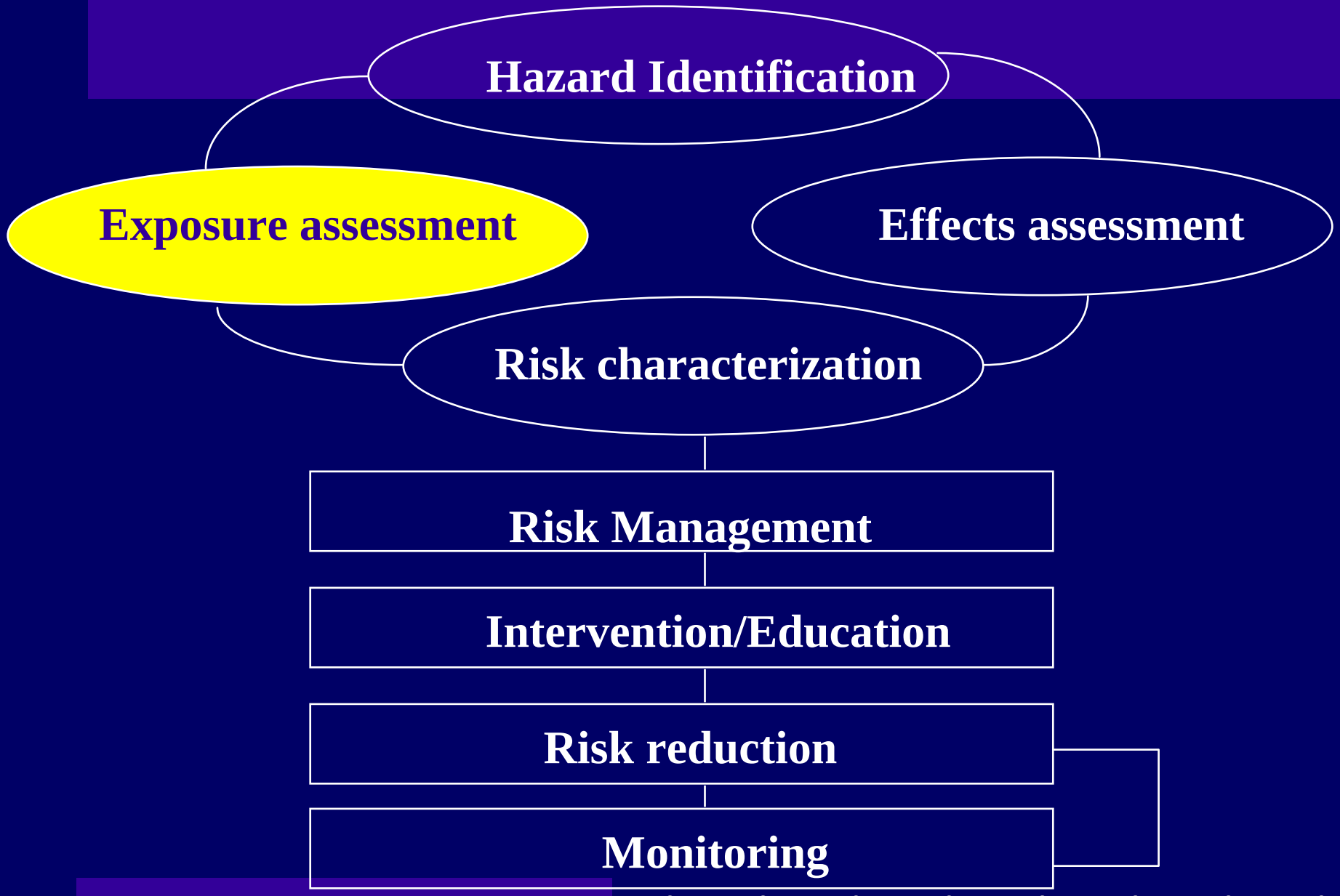
	Total HCH	γ-HCH
Caribou fat	20	17
Caribou meat	3	0
Moose Meat	3	2
Rabbit	2	0

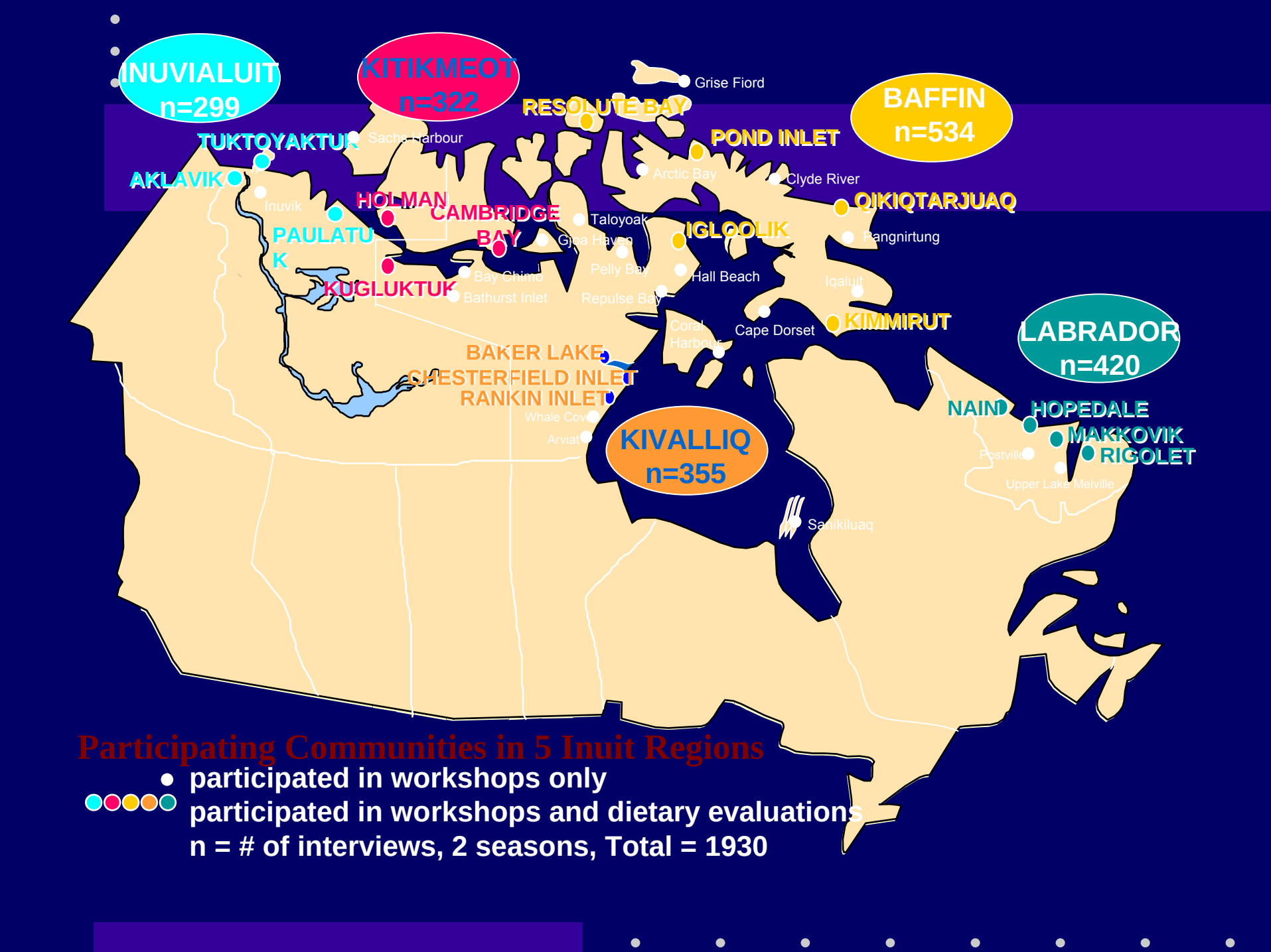
HCH in Bird Flesh

(ng/g wet weight)

	Total HCH	γ-HCH
Canada Goose	1	1
Duck	23	2
Eider	2	1
King Eider	23	2
Ptarmigan	1	1

Risk Management





Participating Communities in 5 Inuit Regions

- participated in workshops only
- participated in workshops and dietary evaluations

n = # of interviews, 2 seasons, Total = 1930

CINE's Inuit Dietary Surveys: 1997 to 1999

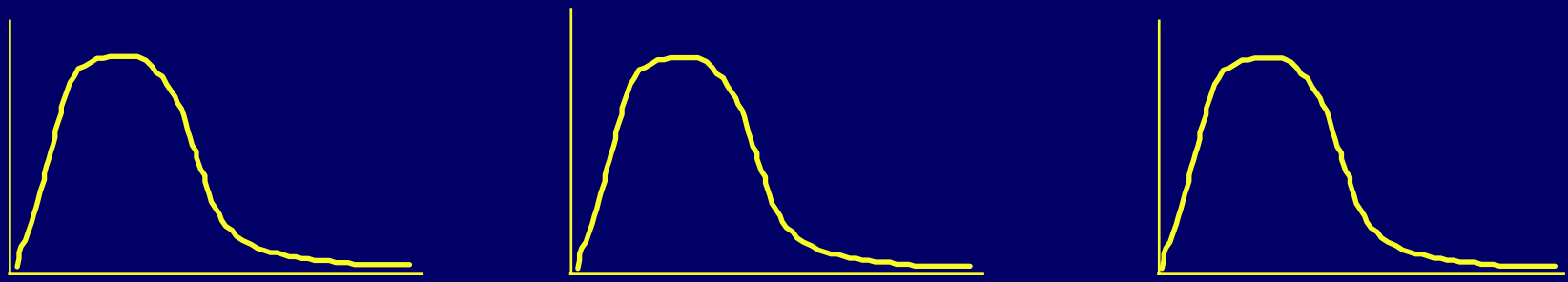
	Total Population	Participating / Total Communities.	Individual Interviews*
Inuit	29,826	18 / 53	1,875

*Randomly selected individuals, 24-hr recalls

Contaminant Exposure Assessment

Food intake g/d	x	[Contaminants] µg/g	=	Exposure µg/d

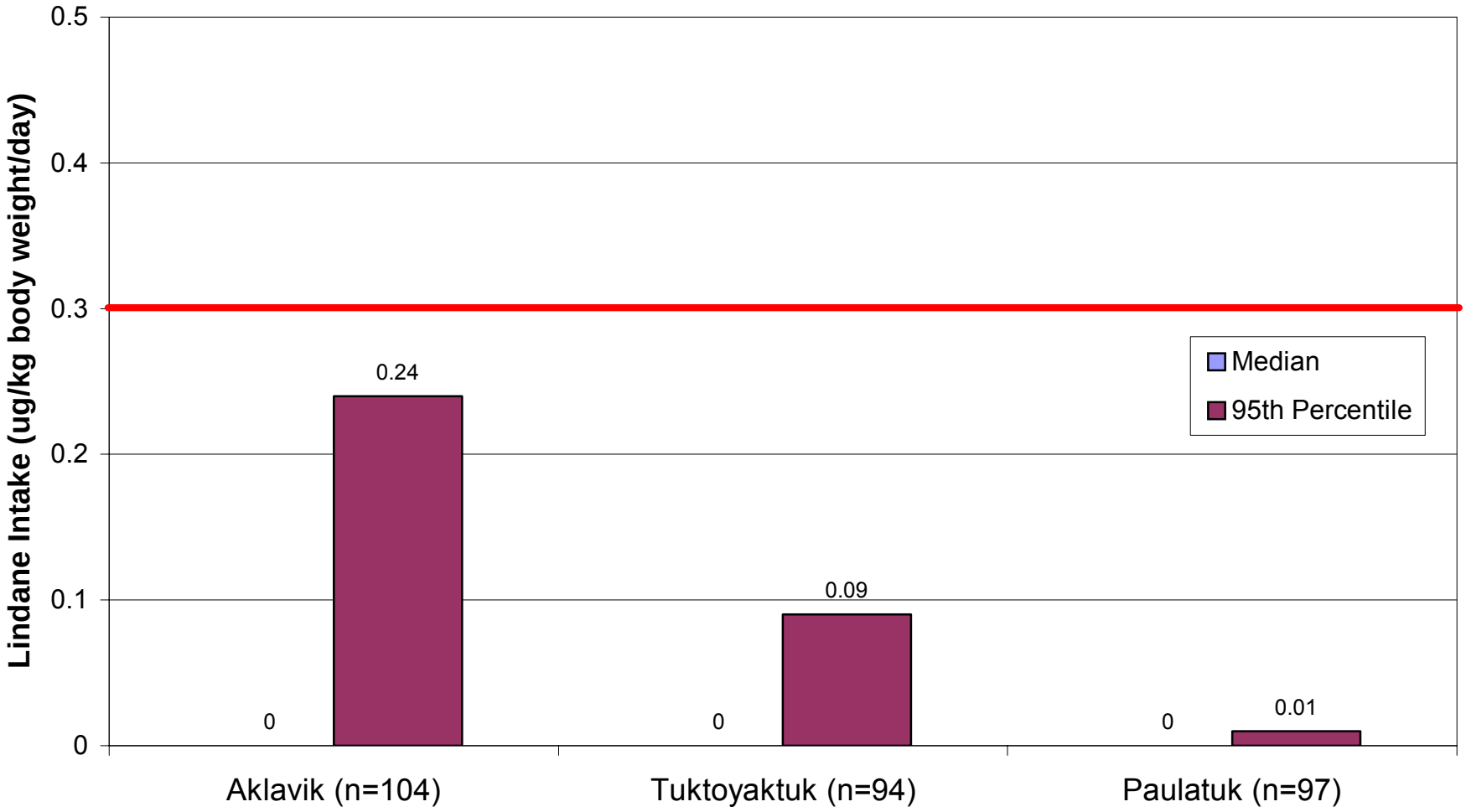
mean mean mean



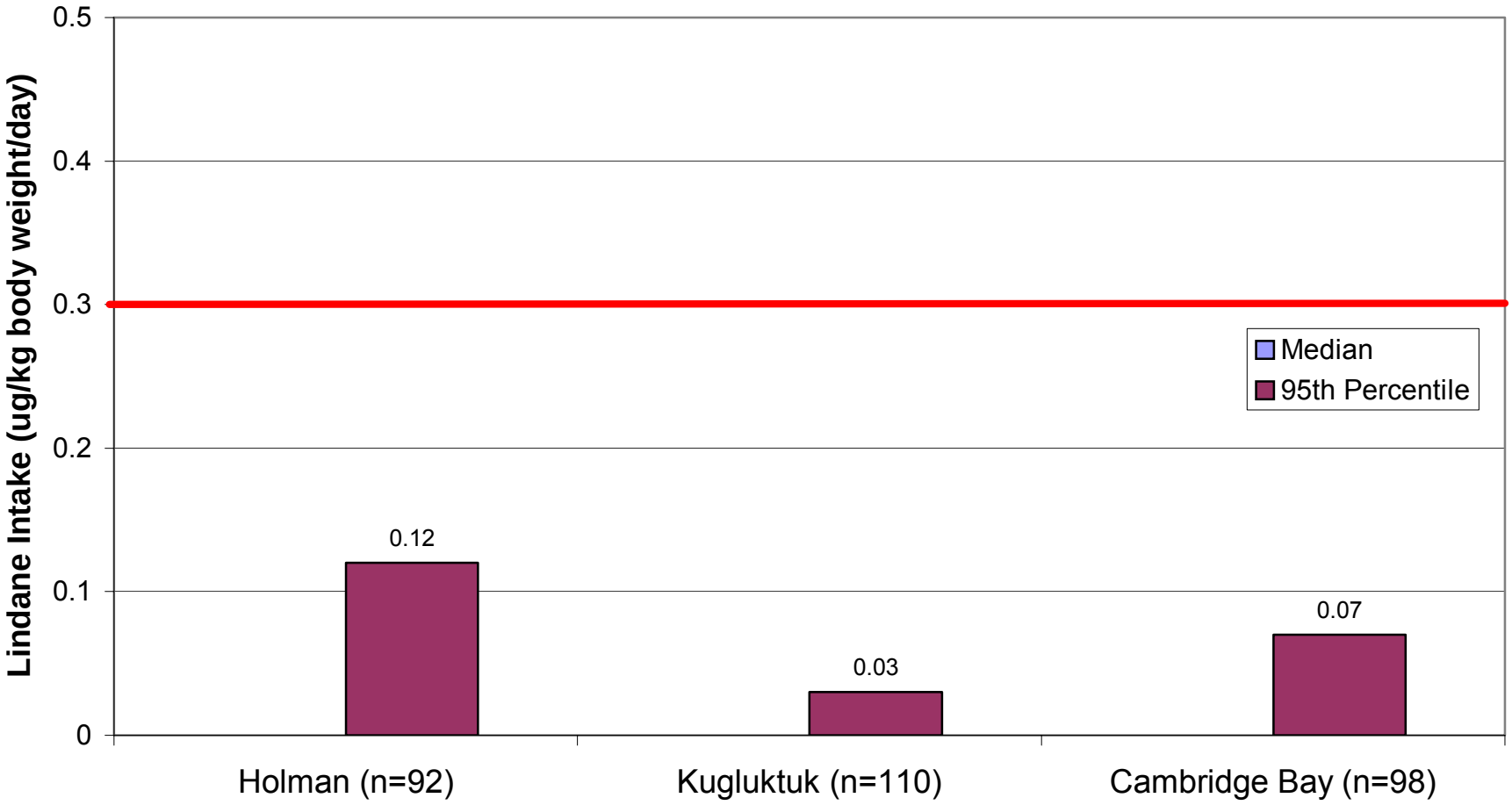
Population distribution of OC intake (ug/kg body weight/day) (n=1875)

OCs	PTDI (ug/kg/d)	n > PTDI	Mean	Median	95th	95th/PTDI
PCB	1	1090	0.4	0.0	1.7	1.7
DDT	20	1088	0.3	0.0	1.1	0.1
Lindane	0.3	696	0.0	0.0	0.1	0.5
Chlordane	0.05	1067	0.2	0.0	0.5	9.4

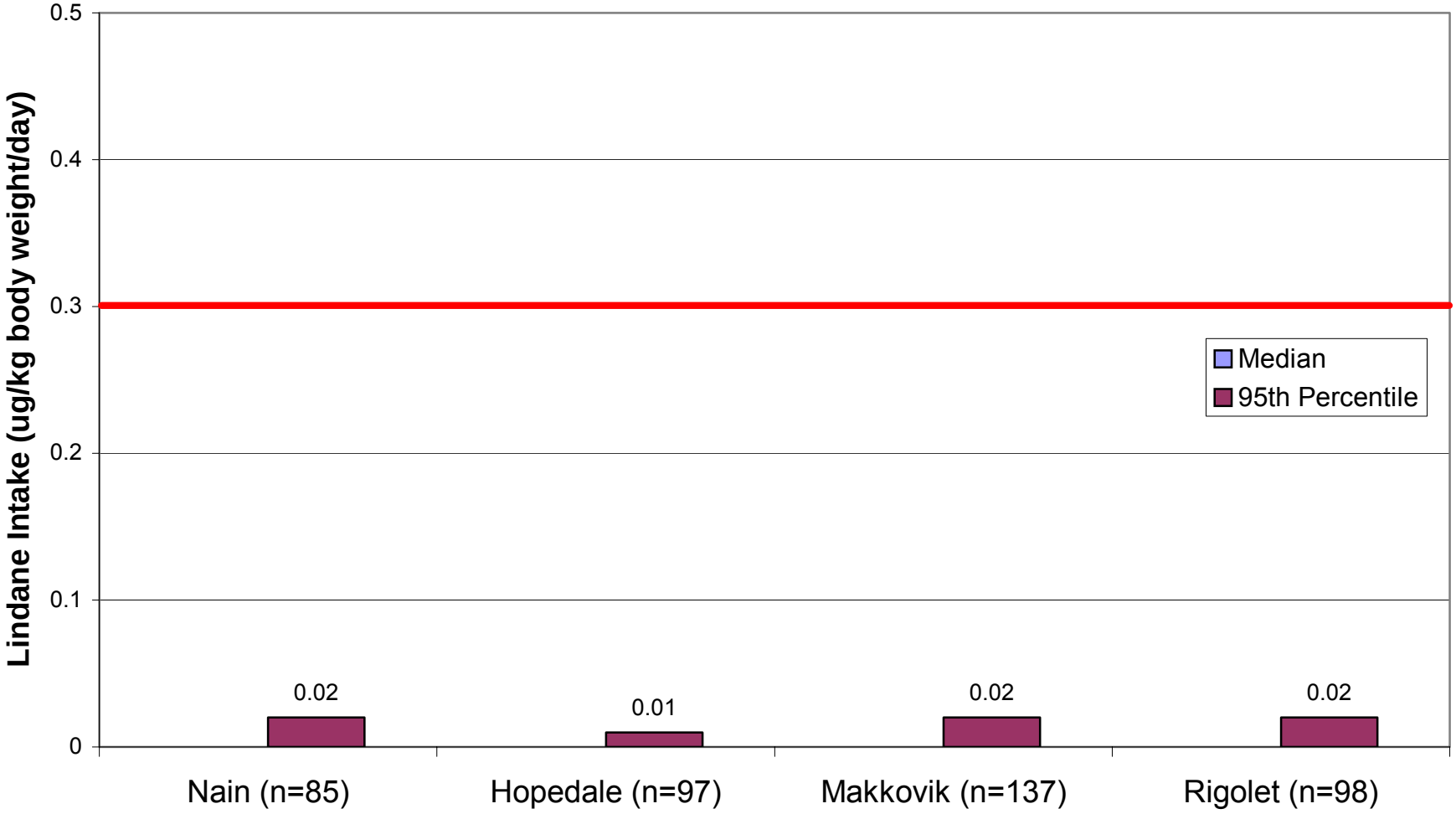
Population Distribution of Lindane intake by community (ug/kg body weight/day) Communities of Inuvialuit



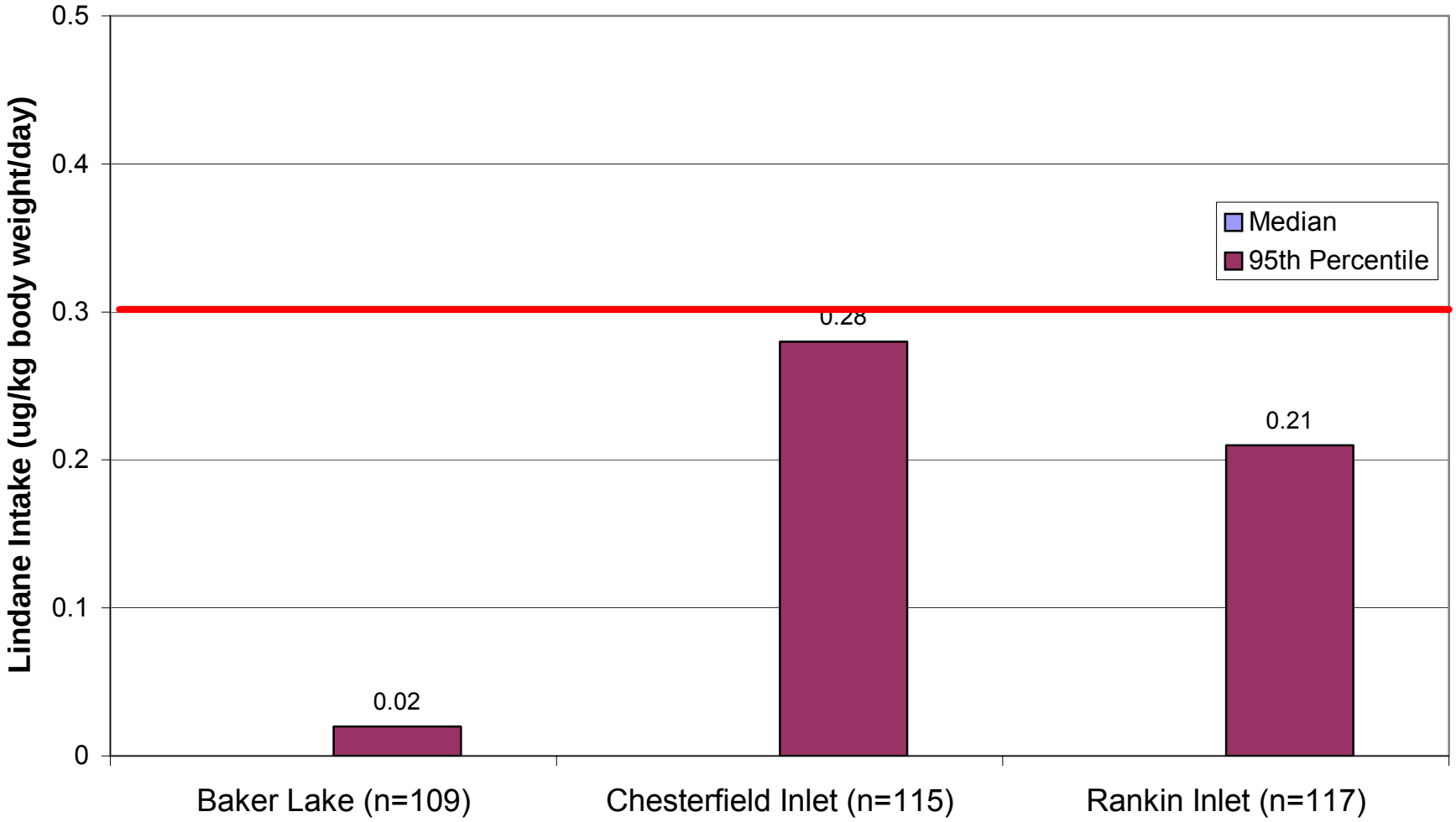
Population Distribution of Lindane intake by community (ug/kg body weight/day) Communities of Kitikmeot



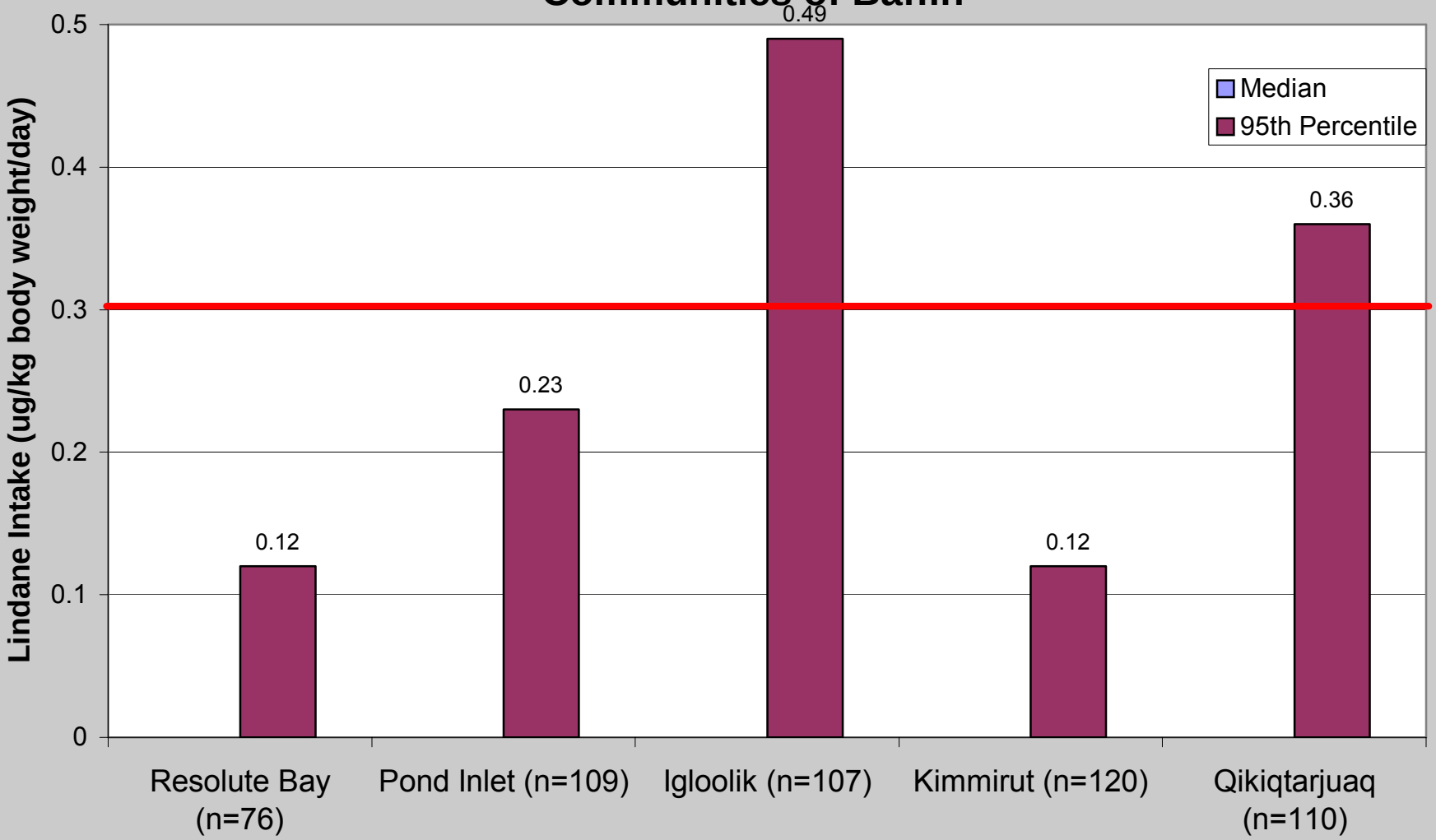
Population Distribution of Lindane intake by community (ug/kg body weight/day) Communities of Labrador



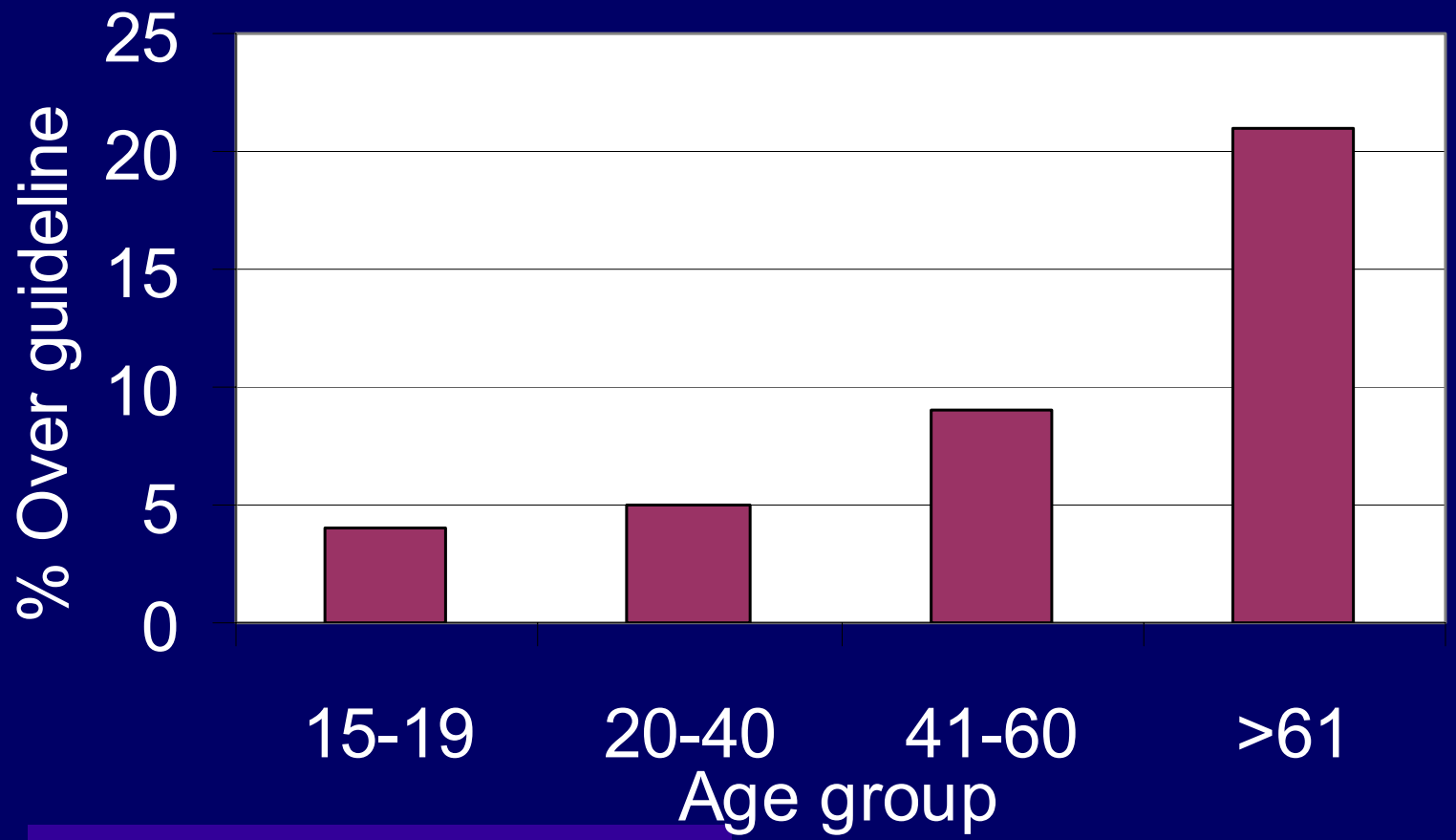
Population Distribution of Lindane intake by community (ug/kg body weight/day) Communities of Kivalliq



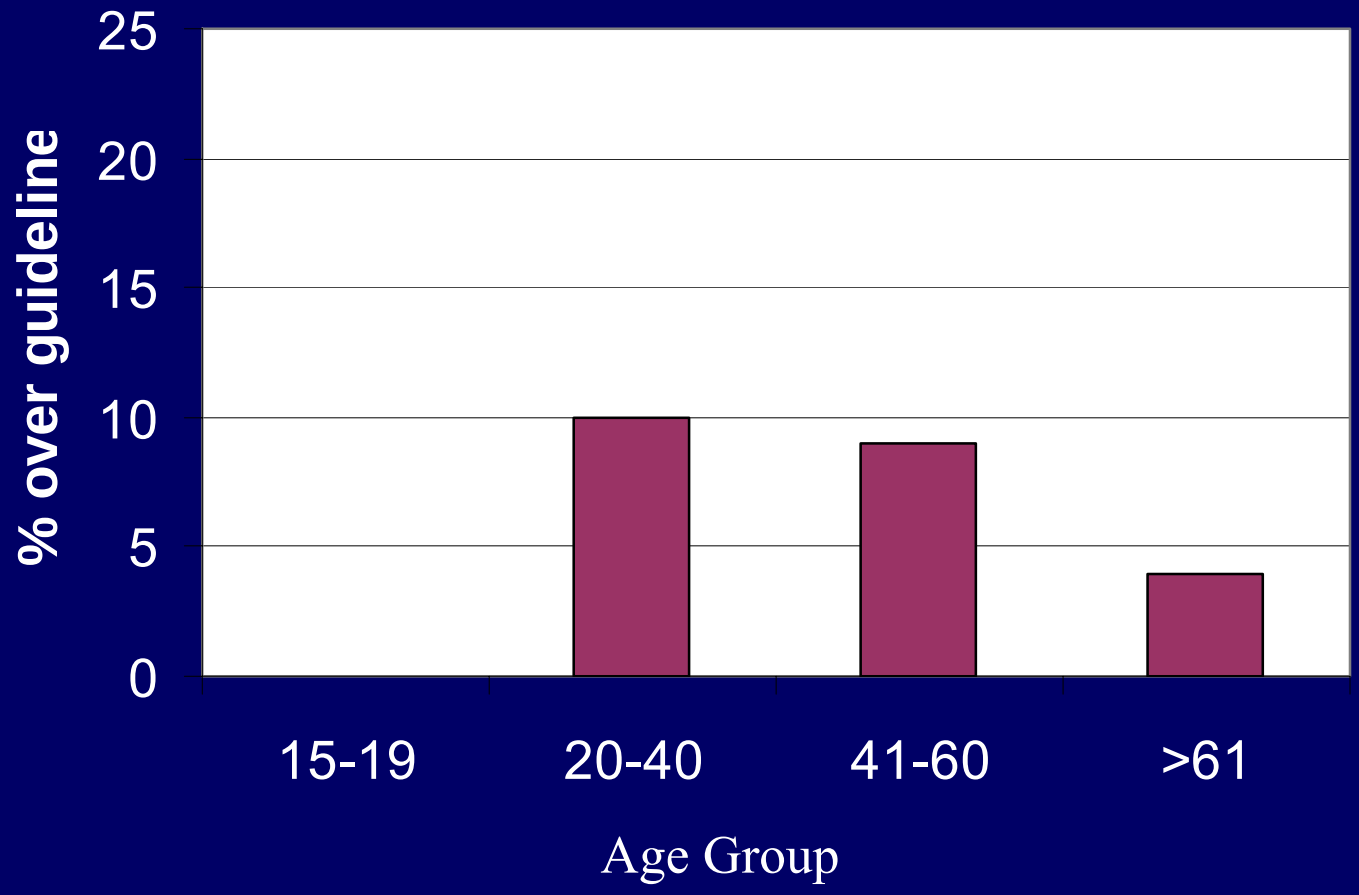
Population Distribution of Lindane intake by community (ug/kg body weight/day) Communities of Baffin



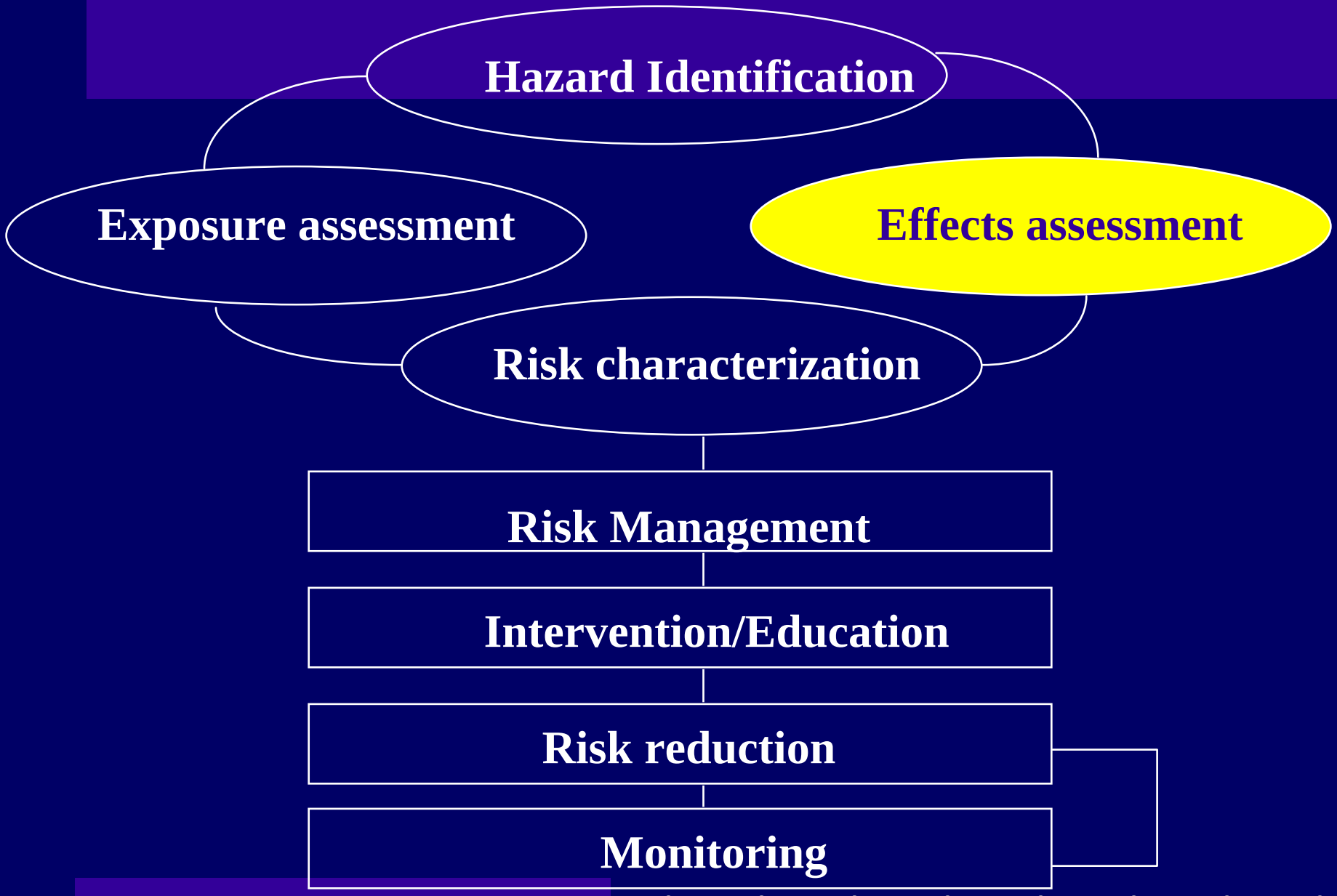
Percentage of participants that had intake higher than the guideline level Baffin Community in the Fall



Percentage of participants that had intake higher than the guideline level Baffin Community in Late Winter

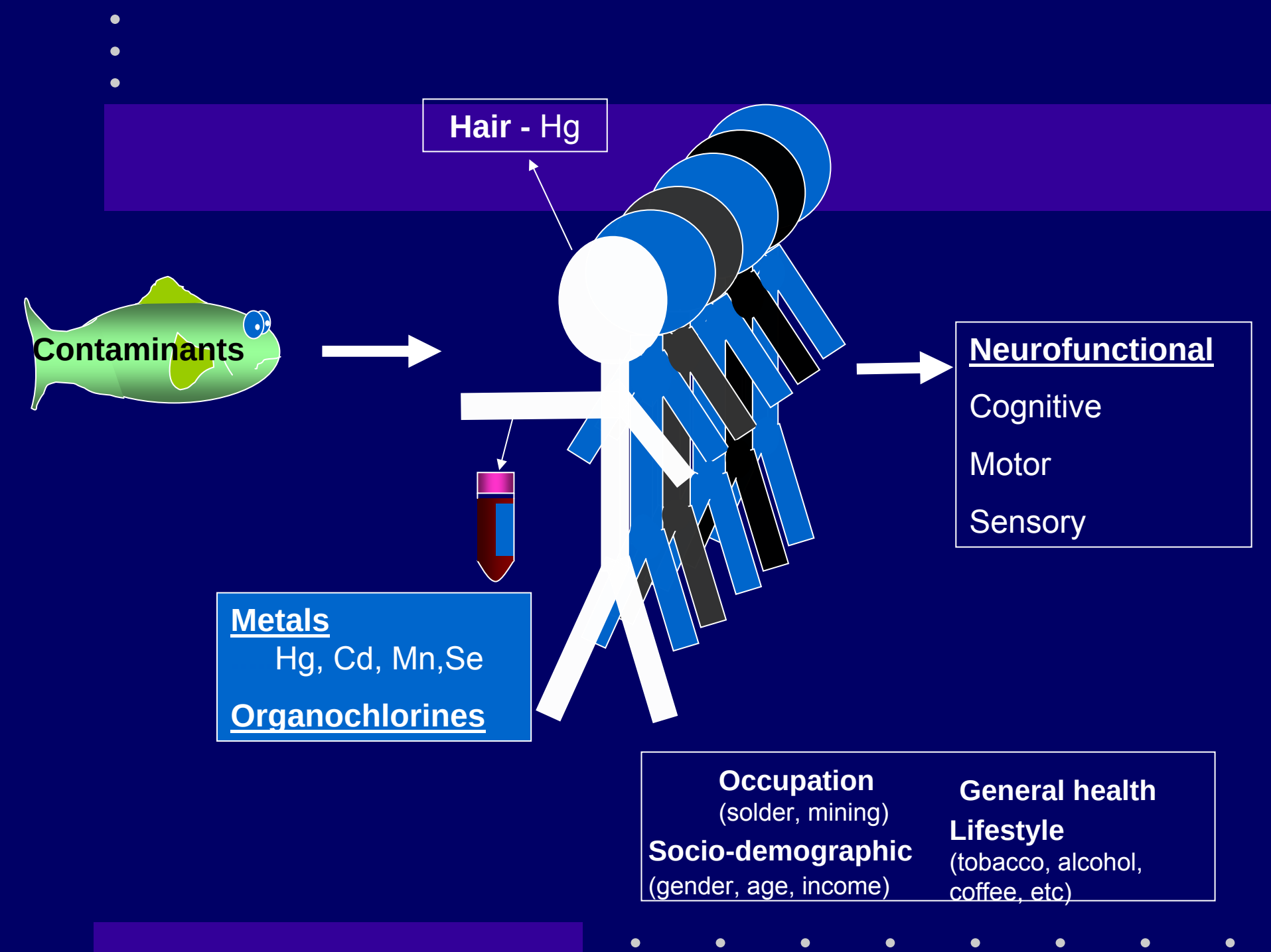


Risk Management

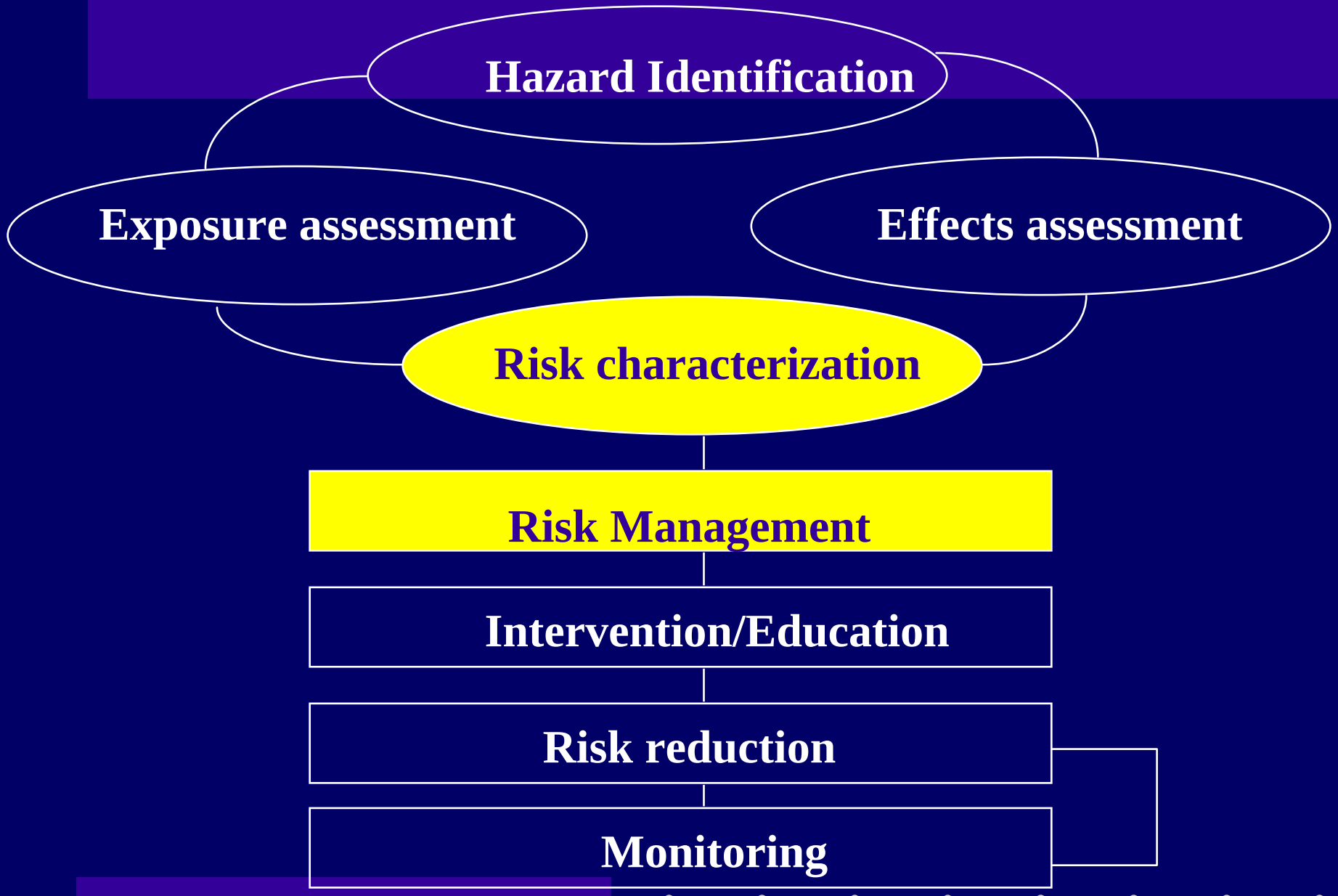


Animal Experiment Data

- LOAEL of 1 mg/kg/day for developmental/reproductive effects in male offspring of rats exposed during lactation (Dalsenter et al. 1997)
- ATSDR sets MRL of 0.003 mg/kg/day was for acute-duration oral exposure
- LOAEL of 0.012 mg/kg/day for immunological effects in mice (Meera et al. 1992)
- ATSDR sets MRL of 0.00001 mg/kg/day for intermediate-duration oral exposure.


Hair - Hg
Contaminants
Neurofunctional
Cognitive
Motor
Sensory
Metals
Hg, Cd, Mn,Se
Organochlorines
Occupation
(solder, mining)
Socio-demographic
(gender, age, income)
General health
Lifestyle
(tobacco, alcohol, coffee, etc)

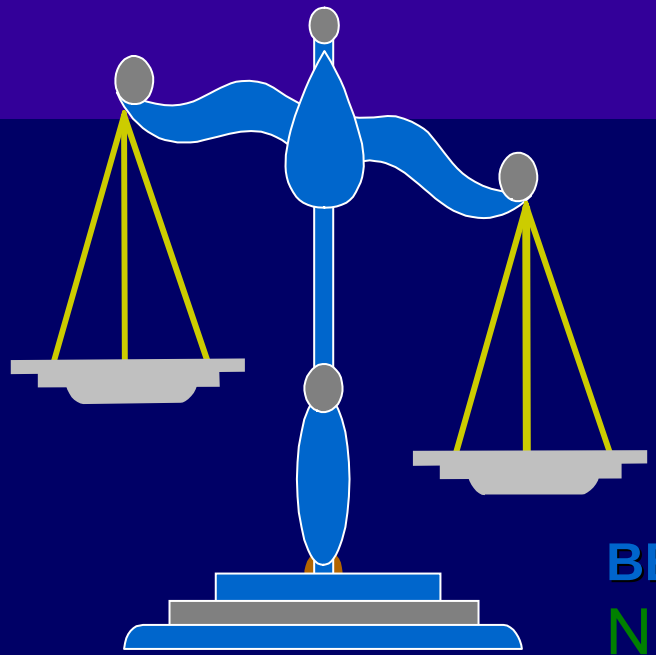
Risk Management



Niqiit Avatittinni Committee

November 2003

Eat traditional food?



RISKS

Contaminants

BENEFITS

Nutrition

Taste

Social + cultural values

Health (fitness, etc.)

Saves $

Protect our Environment!