

The Tribal LifeLine Project

Exposure and Risk Assessment Tools
for Indigenous Communities and Other
Unique Subpopulations



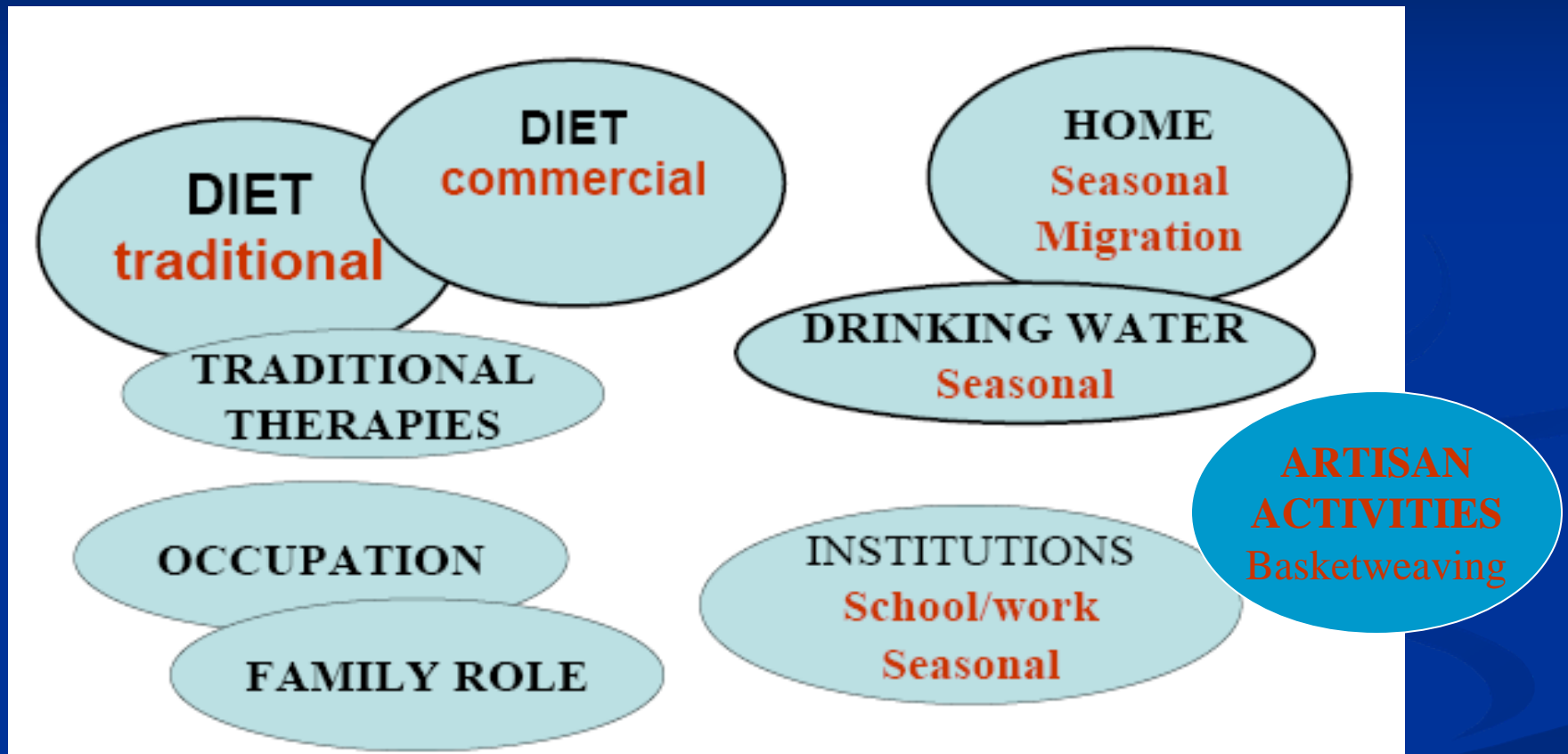
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Background

- As part of pesticide registration process, US Environmental Protection Agency requires assessment of potential effects of pesticide use
- One tool for this is modeling
 - How might pesticides be encountered?
 - What effects may result?
 - Who might be at risk if a contaminant is found?
- Need existed to expand on EPA's capacity when considering focused populations as part of the pesticide registration process



What's missing from the existing LifeLine model?



What Is Tribal LifeLine?

- LifeLine™ is a software tool for modeling exposure and risk
- *Tribal* LifeLine will amend existing tool to:
 - Reflect real diets and activities of
 - Tribes
 - other unique subpopulations
 - Accept new information outside of standard databases
 - Consider seasonality, blending of subsistence and commercial diets, etc.
- Free & available to the public



Objectives of the Tribal LifeLine (TLL) Project

- To create exposure and risk assessment software that realistically reflects diets & activities of indigenous communities and other unique sub-populations
(Initial focus on Tribal & Alaska Native communities)
- To build capacity of communities for informed decision-making about health and environmental concerns



Background re: Tribal LifeLine

- Tribal LifeLine Project involves creating a suite of models that are enhancements or have new capabilities - building on the existing, peer-reviewed LifeLine™ software currently being used for registration of pesticides
- All versions of LifeLine™ software are probabilistic, person-oriented models
 - Dietary exposure assessments
 - Residential exposure assessments
 - Drinking water exposure assessments



Why Tribal Lifeline?



Data In the LifeLine™ Model

Describing People in the “General Population”

- Natality data (Birth records); National Center for Health Statistics [NCHS]
- Residential patterns;
Current Population Statistics, US Census
- The Third National Health and Nutrition Examination Survey (NHANES III); also maintained by NCHS)
- American Housing Survey; US Census and Department of Housing and Urban Development
- National Human Activity Pattern Survey (US EPA, 1994)
- The Continuing Survey of Food Intake by Individuals (CSFII) US Department of Agriculture (USDA)



Why Tribal Lifeline?



Data In the LifeLine™ Model

Describing Activities of the “General Population”

■ Activities in the home

- National Human Activity Pattern Survey (1996)
 - 9,386 individuals' activity over a 24 hour period
 - Duration, location, and behavior of more than 60 different behaviors
 - Include demographic and residential characteristics
- EPA Standard Operating Procedures
- *Exposure Factors Handbook* and supporting studies



Unique Activities (12:30 A.M.)



Alaska Native Villages

Why Focus in Alaska First?

- Great Amount of Subsistence
- Unique Activities
- High Incidence of Cancer
- Open Dumps
- Formerly Used Defense Sites



Unique Dietary Considerations



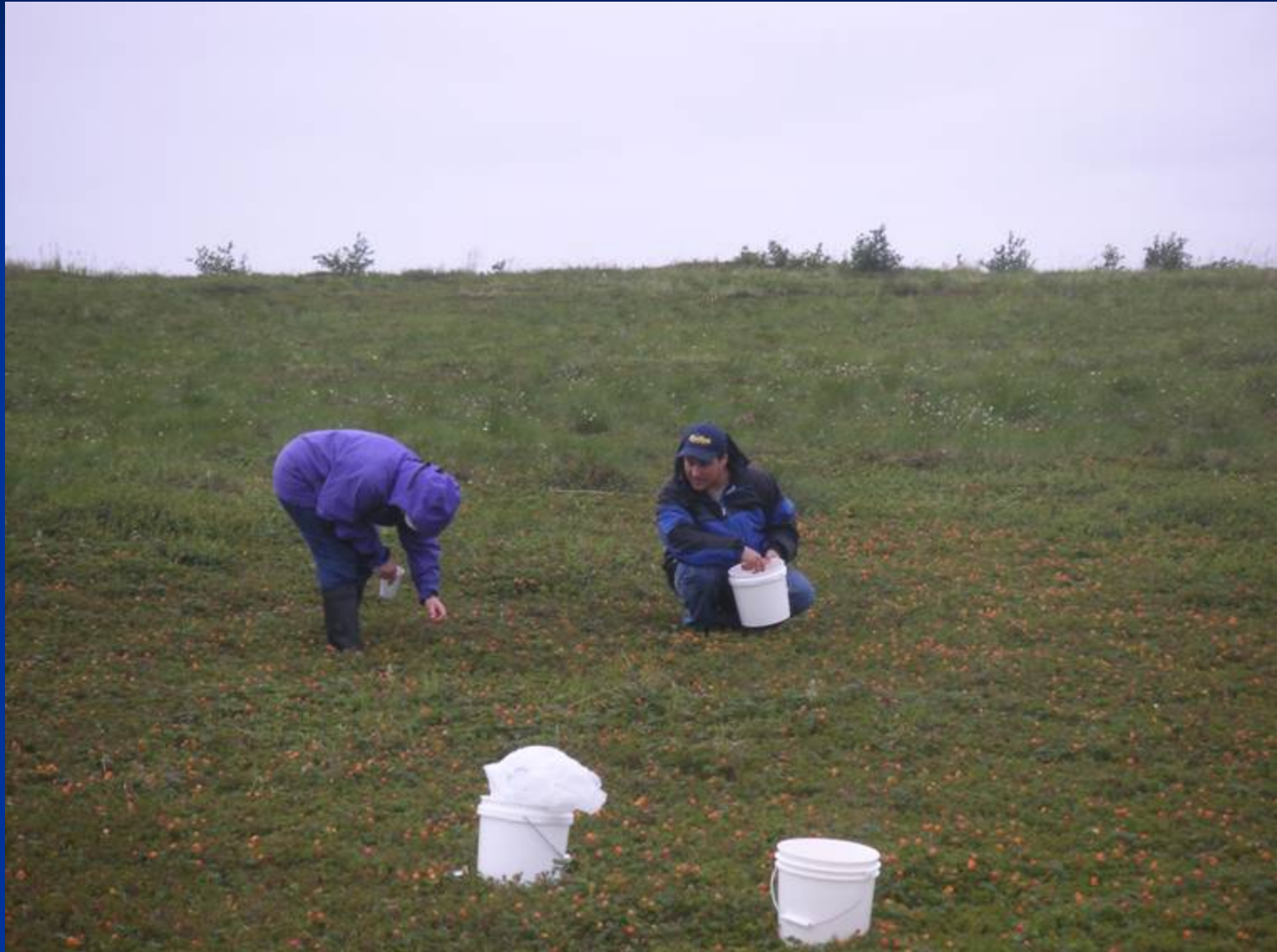
Beyond Tribal Communities

- Model can be used for any subpopulation
 - Farm worker families
 - Sport fishermen
 - Coastal communities with higher fish consumption
- Model can include findings from ongoing monitoring studies
- Risk consequences can be assessed as diets, ecosystems, human activity profiles change (e.g., climate change)



Berry Picking – Subsistence Gathering

(Note: permafrost in tundra melting – tools like TLL that are adaptable and can capture changes are needed)



Collaborative effort

- A North American effort
 - Health Canada
 - Universidad Autónoma de San Luis Potosí, México
- Collaborating with:
 - Tribes & Alaska Native Villages
 - other agencies & organizations
 - Smithsonian Institution, Canadian Conservation Institute
 - CDC/ATSDR (Centers for Disease Control & Prevention/ Agency for Toxic Substances and Disease Registry)
 - State of Alaska



New tools for dietary assessments

- * Dietary Record Generator™
 - * Can capture dietary information from many sources
- * Customized Dietary Assessment Software™
 - * Uses dietary information—such as that captured with the DRG™—to perform exposure and risk analyses
- * The Compendium of Alaska Traditional and Subsistence Dietary Files©
 - * Compilation of dietary profiles for Alaska, divided into five ecozones
- * Complete model—including activities—in 2008...



Tsin'aen! Qaqaasakuq! Wliwni!
Tlazohcamati! Quyanaa!
Wokolix awölö! Mahsi' choo!
Nakorami! Qujanaq!
Merci! ¡Gracias! Thank you!

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