

Poisons in the Water: First Nations community-based participatory research partnership

**Carol P. Herbert
Royal College Visiting Professorship in Medical Research
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Outline

- 1) **Why participatory research?**
- 2) **Brief overview of Walpole Island First Nation-UWO Ecosystem Research Group collaborative projects**
- 3) **Current project: Baseline Biomonitoring Study**
- 4) **Benefits to the Community**
- 5) **Attawapiskat Project**



Many minority communities do not trust traditional research because:

- § Community knowledge has been used inappropriately, out of context, or for financial or professional profit with no community benefit
- § Destructive notoriety or stigmatisation has been caused by public reporting of research results





“outside research teams swooped down from the skies, swarmed all over town, asked nosey questions that were none of their business and then disappeared never to be heard of again”

Aboriginal physician Dr Louis Montour 1987



Participatory (Action) Research:

“The systematic enquiry, with the collaboration of those affected by the issue being studied, for the purpose of education and taking action or effecting social change...”

The Royal Society of Canada - Study of Participatory Research in Health Promotion. Green LW, George MA, Daniel M, Frankish CJ, Herbert CP, Bowie WR, O'Neill M. 1995.



Community is a group of people sharing a common interest. Cultural, social, political, health, and/or economic interests link the individuals, who may or may not share a particular geographic association.

The Royal Society of Canada - Study of Participatory Research in Health Promotion. Green LW, George MA, Daniel M, Frankish CJ, Herbert CP, Bowie WR, O'Neill M. 1995.



Participatory Research Principles (1)

- All partners are experts
- Power differentials among partners are acknowledged and sensitively addressed (political, gender, age, cultural)
- Communities are informed of potential harm as well as potential benefits of research

Macaulay AC, Commanda LE, Freeman WL, Gibson N, McCabe ML, Robbins CM, Twohig PL North American Primary Care Research Group Policy Statement on Participatory Research
www.napcrg.org/exec.html



Participatory Research Principles (2)

- Research is an ongoing collaborative process
- Research questions and designs are developed by researchers and communities
- Results are shared with all participants
- Capacity building is a central focus for all partners



**Environmental Contaminants and
Human Health
Collaborative Research Program of
Walpole Island First Nation Heritage Centre
and
Ecosystem Health Research Group
Schulich School of Medicine & Dentistry
University of Western Ontario**



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Walpole Island First Nation Near “Chemical Valley”

Sarnia



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WIFN-UWO Collaborative Research

Ø Partnership formed because of a mutual interest of members of the WIFN and members of the UWO Ecosystem Health Group in the relationships between exposures to environmental pollutants and potential for damage to human/ecosystem health.



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Strengths of WIFN

- Heritage Centre
- Health Centre – records
- Well-organized community around health and environment
- Continuity and stability of community
- Existing governance and decision-making
- Integrated approach is normal practice
- Research question came from community

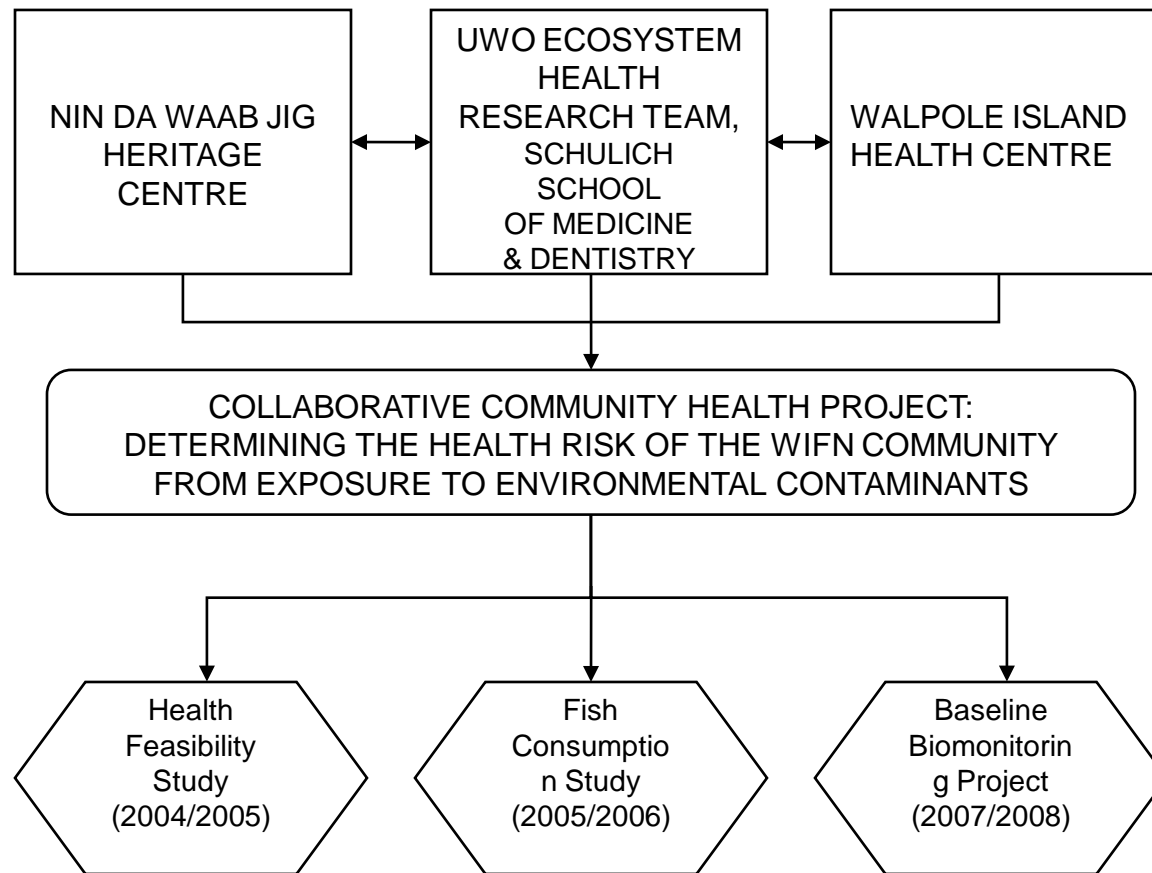


Relationship with Western

- Longstanding relationship with UWO anthropologist Regna Darnell and her students
- UWO research team committed to participatory research approach



WIFN and UWO Ecosystem Health Partnership



WIFN-UWO Collaborative Research

- ∅ **The first partnered collaborative community-based research project of these two groups was the 2004-05 “Feasibility study”.**
- ∅ **This evolved into the 2005-2006 Mercury Exposure through Fish Consumption Study.**
- ∅ **The 2004-05 “Feasibility study” provided the scientific basis for the current 2007-2008 project, for some baseline biomonitoring of mercury in blood and hair; and of persistent organic pollutants (POPs) in blood lipids of volunteer community members.**



Results from 2005 study

- Water pollution is a major problem
- Perceived effects of environmental degradation on human health
- Psychosocial stress associated with fear of exposure
- Willing to participate in epidemiologic study using biomarkers



Results from 2006 Study

- 72% of community participants are no local fish during 3 month survey period
- 11 WIFN members (of 91 participants) had estimated higher than WHO allowed mercury intake of 1.6 micrograms/kg body weight per week
- Mercury concentrations exceeded guidelines in 18% of fish sampled and 30% of predatory fish (bass, pickerel, bowfin)
- Cortisol content higher than reference population



Objectives of 2007-08 Study (Funded by AFN-Health Canada)

1. BASELINE MONITORING

- a) To determine concentrations of selected POPs (persistent organic pollutants) in the lipids of plasma from blood of 20 adult volunteers from the WIFN Community.

POPs assayed include: trace quantities of 20 organochlorine pesticides (e.g. HCB, chlordane, p,p'-DDE, p,p'-DDD, p,p'-DDT, dieldrin, mirex); plus 71 polychlorinated biphenyl (PCB) congeners



Objectives of 2007-08 Study (Funded by AFN-Health Canada)

1. BASELINE MONITORING

- b) To determine the concentration of total mercury in blood and hair of 50 volunteers from the WIFN Community. (Almost all of the total mercury in blood and hair is in the form of methylmercury.)

Of the 50 volunteers, 45 are adults of all ages, and 5 youths, 17 or 18 years of age



Objectives of 2007-08 Study, Cont'd

2. **To determine, from existing health records held at the WIFN Health Centre and from individuals surveyed in the Community, the health status of WIFN children and youths (less than 19 years of age) with regard to:**
 - incidence of malformation and prematurity at birth;
 - incidence of cerebral palsy in males versus females;
 - incidence of epilepsy;
 - ratio of male to female children born per year;
 - the incidence of diabetes and cardiovascular diseases in the children and youths, and also in the parents and grand parents of these children



Objectives of 2007-08 Study, Cont'd

3. To continue our study of the psychosocial and cultural dimensions of environmental exposure in the WIFN community (e.g. “chemophobia”).



Community Benefits

1) *The creation of community data bases*

- **The consolidation of health data will help the team assess whether there are any statistically significant associations between exposure to environmental contaminants and morbidity and mortality trends in the community.**
- **Data bases created through this research will serve as an important resource tool for future community health research.**



Community Benefits

2) Capacity building and skills transfer

- **Every effort has been made to promote skills transfer and the training of community members throughout the duration/at all stages of this research project.**

3) Utility and application of research findings

- **The documentation of negative health effects associated with exposure to environmental contaminants can help initiate remedial action in health risk assessment and preventative care. Research findings can also form the basis for remedial action in enforcing environmental protection measures and changing existing policy.**



Community Benefits

4) Documentation of Aboriginal Traditional Knowledge/Traditional Ecological Knowledge

- **Aboriginal Traditional Knowledge about links between health and the environment is being collected through interviews with WIFN members. Oral histories will be made explicit and recorded for future community use. The collection and documentation of community narratives will aid in the preservation of cultural teachings and traditional ecological knowledge.**

5) Community-based, participatory action research (PAR)

- **Research conducted in the WIFN community includes community input and participation. Members of the research team are committed to knowledge transfer/translation and are ensuring that information from this study is made available to community members at all stages of the study.**



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Collaborative Research Team Members

WIFN

Ø ***Current: Dean Jacobs ; Rosemary Williams; Naomi C. Williams***

Ø ***First project: Lucy Harrison; Judy Peters; David White***



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Collaborative Research Team Members

UWO

Ø Jack Bend; Jorge Burneo; Bradley Corbett; Regna Darnell; Carol Herbert; Julie Hill; Gideon Koren; Noel Kowal; Michael Rieder; Katie Schoeman; Kathy Speechley; Christianne Stephens; Charlie Trick; and Dana Winterburn



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Key Terms

- ∅ **Ecosystem**- a system consisting of a community of animals, plants and microorganisms and the physical and chemical environment in which they interrelate.
- ∅ **Environment**- the combination of external physical conditions that affect and influence the growth, development, and survival of organisms.
- ∅ **Epidemiology**- from the Greek words *epi-* upon, among; *demos-* people, district; and *logos-* study, word, discourse. Literally, “*the study of what is upon the people*”; the study of population health.



Key Terms

- ∅ **Human Biomonitoring**- the direct measurement of people's exposure to toxic substances in the environment. It assays the amount of persistent environmental chemicals in the body to determine how much of these chemicals are absorbed into the body.
- ∅ **Measurements** are usually taken in blood, but sometimes use hair, saliva or breast milk.
- ∅ **Contaminant**- A substance, element, or compound that may harm humans or other forms of life if released into the environment. The term 'contaminant' refers to concentrations that are above acceptable levels and/or are in a location where they should not be found.



Key Terms

- ∅ **Bioaccumulation** - A general term for the accumulation of substances, such as pesticides (e.g. DDT), methylmercury, or other organic chemicals in an organism or part of an organism.
- ∅ **Methylmercury**- An organic form of mercury that is easily absorbed into the living tissues of aquatic organisms and accumulates in fish that are predators. Methylmercury is highly toxic to mammals; it can penetrate the brain and crosses the placenta of pregnant women.
- ∅ At higher levels of exposure, it can cause severe adverse health effects. The developing embryo is the most sensitive period for methylmercury toxicity.



Key Terms

- Ø **Persistent Organic Chemicals (POPs)**- Are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. Many POPs are highly chlorinated compounds like the PCBs and insecticides such as DDT.
- Ø **Traditional Ecological Knowledge (TEK, also ATK/ITK)**- a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.



Key Terms

- Ø **Risk**- the likelihood an individual will experience the effects of a given threat or danger. **Risk perception** refers to a person's assessment of the probability of a specific type of accident/event happening, and how concerned that individual is with the consequences.
- Ø **Chemophobia**- a term that describes the fear an individual or population experiences as a result of confusion or uncertainty as to the reality of environmental risks, and what they mean to them and their families.

