International breast cancer & nutrition (IBCN): A global venture

Sophie A. Lelièvre, DVM, LLM (Public Health), PhD
Department of Basic Medical Sciences
Associate Director, Discovery Groups, Purdue Center for Cancer Research
Leader, International Breast Cancer & Nutrition (IBCN)

Ellen Gruenbaum, PhD
Department Head, Anthropology
IBCN Core Committee member

Laurence Gabriel, MA, LLM (public health)
Graduate Student, Public Law, Faculty of Law & Political Science, University of Rennes 1
IBCN International Liaison Committee member
Breast cancer incidence is rising all over the world, predominantly among young women

2002

“Societies need to switch the priorities from detection and treatment to prevention”

International Agency for Research on Cancer (IARC) - 2003

Breast cancer incidence worldwide: age-standardized rates (world population)

Primary Prevention for Breast Cancer: TO BE DONE

- Some of the risk factors:
  - Nulliparity
  - Late age at first birth
  - Early menarche
  - Late menopause
  - *Short duration of breast feeding*
  - Family history of breast cancer
  - Alcohol
  - Genetic background
  - Being overweight
  - Height
  - *Night work, smoking?*

Current Prevention “Methods”

- Double Radical Mastectomy (potentially ovariectomy)
- Estrogen modulator: Tamoxifen
- Follow-up

Several breast cancer risk factors are influenced by nutrition
VISION: The international breast cancer and nutrition (IBCN) project will be a model for primary prevention of noncommunicable diseases. It will advance science and inform health communication, provide strategies, and improve public policy on breast cancer prevention. The IBCN will forge global collaborations on research that takes culture, environment, including nutrition and lifestyle, into account. This research-based initiative will transcend political, social and economic factors.

DIVERSITY AND INTEGRATION

http://www.purdue.edu/dp/oncological/ibcn.php
Public policy has to be integrated into the project from day 1 because:

1. Breast cancer is an international public health concern
2. There are international recommendations on breast cancer (international “law”) that are implemented differently by WHO country members.
3. IBCN includes a common project that involves breast cancer-free human subjects and epigenetics - Novel issues in ETHICS
4. IBCN should lead to a mind-shift among scientists, clinicians, the population, and public policy makers in terms of primary prevention
Dietary compounds
Epigenetic changes
Type of breast cancer
nutrigenomics
Alterations in gene expression
Common Project
WORKING CONCEPT
Translational research
Anthropology
Economics
Engineering
Public policy
Technologies
communication
population studies
Dietary compounds
Type of breast cancer
Infrastructure to support the IBCN project at Purdue University

Women’s Global Health Institute

Oncological Sciences Center

Administrative and logistic support
HUBzero (Discovery Park)

IUSCC researchers and clinicians

Global Policy Research Institute

Create synergism across disciplinary lines in order to address global challenges
Research team
- Nutrition
- Epigenetics
- Communication
- Epidemiology
- Breast cancer
- Economics/Public Policy/Anthropology

Selection Criteria:
- Government and population interest in breast cancer management
- Breast cancer screening
- Interest in nutrition research
- Cancer registries
- Different incidence and dietary patterns
The GPRI project team: international, culturally and professionally diverse, multidisciplinary

Goal of GPRI project: To set the stage for international collaborations by understanding how legal and cultural aspects impact policy decisions in terms of breast health.
Aim 1: To engage with local anthropologists and public health experts in selected country contexts to develop basic understandings and comparable research strategies to elucidate 1) the imagery, values, and cultural practices related to breasts and 2) food practices by gender and age that we should take into account in developing multicountry breast research.

Why anthropology?
Nutrition infrastructure (Childhood, pregnancy, older women)
Women’s body image
Place of ‘breast’ in the society

Aim 2: To further develop knowledge to implement the IBCN research project in partner countries and lead to global policy in breast cancer prevention by 1) determining the common rules between selected countries in terms of national laws governing health, 2) addressing how the project will integrate the respect of human dignity, and 3) study the impact of international recommendations in breast health in each selected country.

Why law? Genome, human subject, public health
Laws are grounded on cultural and political backgrounds. Many laws were first development from ethical concerns especially when it comes to health and research on human subjects.

International recommendations are implemented in a particular countries based on public policies that are voted into laws at different levels (funding, applications, etc)

Different forms of law exist depending on the country
Preparation of encounters with selected countries

- Contact with proper authorities (search initiated three years ago, then contact by email, on the phone, in person at the first international breast cancer prevention symposium)
- Background research on the selected countries
- Preparation of documents:
  - The three main goals of IBCN. “We wish to work collaboratively starting from the design of the project”
  - Specific requests necessary for the formation of IBCN country teams (SL)
  - Specific requests necessary for the anthropology aspect of the project (EG)
  - Specific request necessary for the health law, public policy aspect of the project (LG)
- Preparation of an itinerary by the leader of the country team based on information given by us
URUGUAY
Public policy and health care system

- Very well organized health care system and research
  - Minister of Public Health (endorsed IBCN project)
  - Cancer registry and cancer surveillance statistics and publication
  - Well developed system of health education.

- Interesting model: Honorary Commission for the Fight against Cancer that links health care providers, public health system and researchers.

- Clear ethics rules for tissue collection (may be possible from contralateral breast of cancer patients, if well presented).

Sophisticated communication system (for future implementation of projects)

- Public health education on nutrition, exercise utilizes mass media;
- Research and program implementation is easier because cultural and linguistic homogeneity.
- Research is highly promoted (universities; Pasteur Institute) and published.

Entrepreneurial activities in health

- We found entrepreneurial activity about prevention, such as work on nutrition, marketing of fish oil for Omega-3 fatty acids.
Cultural Factors

- Relatively homogeneous, European-based cultural backgrounds, single language
- Widespread acceptance of international biomedical services and attitudes toward health and the body
- Because of the well established health care system, women are accustomed to mammograms and regular screenings. This makes it more likely they will understand and cooperate with prevention initiatives.
- European styles of family residence, dress, attitudes toward body

Nutrition:
- European influence on cuisine, especially Spanish and Italian influences, including salads, wines, seafood, meats
- Meat industry is significant in Uruguay, related to the high consumption of barbequed, charred meat.
- Traditional drinking of yerba mate should be investigated for its positive and negative effects.

Physical exercise:
- “sitting Uruguay”—too much sedentarism and not enough physical activity
Public policy, research and health care system

- National Cancer Registry coordinated by AUB
- Research: international standards and very active
- Faculty of Health Science leads a regional network of public health schools. The goal is to connect researchers to policy makers
- AUB is the first University to introduce nutrition research in the Middle East region; worked on public consciousness about smoking, other public health issues—supportive of prevention
- Sensitive issues: repository, genetic testing and confidentiality of data.
  
  Religious authorities are usually not involved in IRB except for research related to genetics
  
  Tissue Collection: Patient/Doctor relationship important to obtain consent. We will need to contact the ministry of Health and WHO Ethics committee for the region.
Cultural Factors

- Cosmopolitan Influence is strong
- Currently a shift in dietary pattern with an increase in western diet (increase in metabolic syndrome); Obesity on the rise;
- Bodily issues, notably women’s reproductive capacities are important. Body image is a big concern for young women (urban middle class). Breast health is reported to be difficult for people to discuss—considerable stigma for cancer and for women discussing their bodies
- Environmental impact on cancer is a concern because of war and displacement of populations who were exposed.
- Long-term poverty in Palestinian refugee camps/neighborhoods; Bedouin life
Cultural Factors

- Strong fears regarding breast cancer; shame and stigma mean that breast cancer can have a huge negative social impact on affected women. Cases of rejection by husbands, suspicion of witchcraft, etc;
- Obesity more culturally accepted; breasts valued as symbols of motherhood, nurturance, and sexuality
- Strong potential for outreach via religious organizations (because of feeling of protection and loyalty)

Nutrition

- Traditional foods high in starch; less obvious evidence of global high-fat fast food consumption, but Ghanaian fast food sold on side of the road, with a lot of fried foods.

Communication models:

- Communication plan via educational and screening events with churches and community groups
- Effective use of celebrities, journalists, and media for outreach on breast cancer
PUBLIC POLICY AND OUTREACH

- National health insurance program in the process of being implemented which opens possibilities for private hospitals if accredited (e.g., Peace & Love)
- Teaching hospitals
- Research: University with some new facilities and some needing improvement but limited ongoing research due to funding constraints.
- Tissue Collection: No specific policy from the government but well-established ethics committee at the University. Relatively easy to obtain tissue from researchers’ standpoint but how would the population respond because of fear towards breast cancer (“harm to the breast”)- Hope: there is trust towards Drs. and educated people
BREAST CARE INTERNATIONAL: THE POWER OF COMMUNICATION
The cultural aspects of moving breast cancer prevention forward...

- Attitude toward the breast and the body, which vary by country, will have an important role in plans for communication about primary prevention of breast cancer.

- Variation and dynamics of food consumption by social class, age, sex could have an impact on nutritional risk and recommendations.

- Dietary transition and globalization will need to be traced.
Breast cancer

Epigenome

Life environment

Culture & socioeconomic level

Health disparities

stress

nutrition

pollutants
The legal issues for international research in primary prevention

- Understanding who has the power to influence public health policy and provide research project authorization requires direct interaction.

- Consent procedures must be tailored to a specific country regarding postdonation information & must indicate the possibility of international transfer of donated tissue.

- There is an absolute need for an international biomedical ethics charter to regulate tissues donation from breast cancer-free women.
Connections between Academia and Public Health

**FRANCE**
- Ecole des Hautes Etudes en Santé Publique
- University of Rennes 1
- Hopital Cochin
- CHU Point-A-Pitre

**LEBANON**
- American University of Beirut

**USA**
- Purdue University
- Indiana School of Medicine
- IU Simon Cancer Center

**GHANA**
- Peace & Love hospital
- University of Kumasi (KNUST)/Teaching hospital (KATH)
- Breast Care Intl (NGO)

**URUGUAY**
- University of Montevideo
- Women’s hospital
- Honorary Commission for the Fight against Cancer

**FRANCE**
- National Institute for Prevention and Health Education (INPES)

**LEBANON**
- Ministry of Public Health
- American University of Beirut

**USA**
- Ministry of Public Health
- National Institutes of Health
- Center for Disease Control and Prevention

**GHANA**
- Ministry of Public Health (Cancer control program; Cancer Registry)

**URUGUAY**
- Ministry of Public Health (Cancer control program; Cancer Registry)
PROJECT OUTCOMES

FUNDING: $60,000
• CPIP-NCI program fellowship
• UNESCO-L’OREAL fellowship
• EHESP investment (France)

Under preparation:
• International training in primary prevention of chronic diseases (NIH/Fogarty D43) - September 2012
• Master of Ethics for primary prevention research (2013)

TRAINING
• Two graduate students (Law; Biomedical Research)
• One premed undergraduate student (anthropology/nutrition)
• International breast cancer prevention course (BMS/ANTH)
• Student mobility for research: France/USA; USA/Lebanon

PRESENTATIONS
• Student programs on campus: posters
• Oral presentations: Lelièvre (USA, France, Japan), Gruenbaum (USA)

PUBLICATIONS
• Lelièvre & Moquet-Anger (public policy & law; to be submitted)
• Gruenbaum et al (body image)
• Bazzoun, Lelièvre, Talhouk (biomedical review on mechanisms of breast cancer onset)

SNOW BALL EFFECT
• Formation of IBCN regional satellites (pilot teams) and connection with other countries
• 2013 International Breast Cancer Prevention Symposium in Lebanon
• Network of media for worldwide information on IBCN project
DIVERSITY AND SYNERGISM

Research team
- Clinicians
- Researchers (life sciences)
- Researchers (social sciences)
- Public Health/Policy experts
- Nutritionists
GPRI grant to benefit primary prevention research: Future Plan

- Build the ethics charter with appropriate external ethics committee
- Develop literature and tools to translate scientific information for policy makers worldwide to convey the importance of primary prevention research
- Promote a policy advisory framework for primary prevention of noncommunicable diseases.
Support Related to the set up of the IBCN project

- Global Policy Research Institute
- Purdue Entrepreneurial Leadership Program/Kaufman foundation
- Purdue Center for Cancer Research

**IBCN core committee at Purdue University:**

- **Rebecca W. Doerge**, Distinguished Professor of Statistics, Head, Department of Statistics; Director, Statistical Bioinformatics
- **Ellen Gruenbaum**, Professor of Anthropology, Head, Department of Anthropology
- **Joseph Irudayaraj**, Professor of Agricultural and Biological Engineering
- **Perry Kirkham**, Project Coordinator, Office of the Vice President for Research
- **Sandra Liu**, Professor of Consumer Sciences and Retailing, Director, Center for Global Urban Sustainability
- **Meghan McDonough**, Assistant Professor of Health & Kinesiology
- **Dorothy Teegarden**, Professor of Nutrition Science Leader, Cancer Prevention and Control Branch, Oncological Sciences Center
- **Candiss Vibbert**, Associate Director for Discovery Park Engagement
- **Connie Weaver**, Distinguished Professor and Head, Nutrition Science, Purdue University; Deputy Director, Clinical and Translational Sciences Institute-CTSI
- **Kristine Swank** (OSC): project coordinator
- **Luanne Bermel** (managing director. OSC/WGHI)

**IBCN International Liaison Committee:**

- Titilayo Okoror (assistant professor of health and Kinesiology), **Patricia Boling** (associate Professor of political science); **Laurence Gabriel** (University of Law and Political Science, Rennes, France)