VIRAL ETIOLOGY OF PANCREATIC CANCER: A POPULATION-BASED CASE-CONTROL STUDY

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MPH Symposium November 11, 2011
Overview

- Pancreatic Cancer
  - Risk Factors
- Enterovirus Infections and Pancreatitis
- Case Control Study
  - Study Process Flow
  - Preliminary Steps
  - Clinical Testing
- Summary and Future Directions
Pancreatic Cancer

- 4th leading cause of cancer deaths in the U.S. (~37000 deaths/year)
- 5 year survival rate <6%
- Age-adjusted incidence
  - Higher in African Americans and Men
- Diagnosis
  - >40 years,
  - median age = 73
Identified Risk Factors

- Age, Sex, Race / Ethnicity
- Cigarette Smoking
- Family History / Genetics
- Abnormal glucose metabolism
- Physical Activity / Obesity / Fructose intake
- Diet
- Chronic Pancreatitis
Non-Polio Enterovirus Infections

- **Picornavirus** - Smallest RNA virus
- 100 serotypes recognized
- Symptoms - mild to serious
- 10-15 million symptomatic infections each year in the United States

- **Coxsackie B**
  - 6 of 68 known enterovirus: B1 – B6
  - Pancreatitis, type 1 insulin-dependent diabetes mellitus, myocarditis, myositis, severe systemic disease in infants, aseptic meningitis and respiratory illnesses
Case Control Study

- **Hypothesis:** Coxsackie B virus infections lead to acute and/or chronic pancreatitis that increase the risk for developing pancreatic cancer.

- **First population-based study** to determine a possible link between serum antibody titers for known viral infections and pancreatic cancer.
  - Approximately 160 cases/year at UWHC
  - Age-matched controls from the WI population.
Study Process Flow

UWHC Oncology and Surgery Clinics lists
- UWHC Staff
  - Identify
  - Cases
    - Recruit
      - Informed Consent
        - Interview
          - Blood sample
            - UWCCC BioCore
              - Data Collection
                - Analysis and Results

Wisconsin Driver’s License lists
- Survey Center
  - Identify
  - Controls
    - Recruit
      - Informed Consent
        - Blood sample
          - Interview
            - Data

Pancreatic Cancer Study

Clinical Testing

Analysis and Results
Preliminary Steps

- Literature Survey
- IRB protocol
  - ARROW
- Questionnaire Design
  - Based on Pancreatic Cancer Risk Factor questionnaire developed at Mayo clinic
  - Multi-modal
    - Paper
    - Online
    - Telephone
- Qualtrics
Clinical Testing

- Sample collection – cases and controls
- Sample Storage - BioCore
- Tests
  - Antibodies – IgG/IgM
  - PCR
- Laboratories
Summary

Program Planning
- Identifying needs – recruitment and data collection
- Developing tools – IRB preparation, Questionnaire
- Investigating resources – BioCore, Survey Center, Labs

Future Directions
- Implementing strategies
  - Feasibility study – response rate evaluation
  - Test questionnaire
- Develop detailed work flow and project timelines