A Population Health Perspective on Birth Defects Research and Prevention

Esther Sumartojo, PhD, MSc

National Center on Birth Defects and Developmental Disabilities
Centers for Disease Control and Prevention

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Summary

Birth defects research and prevention must include a population health perspective

Individual-level behavioral and clinical interventions are important – but not enough

We need to learn about:
- *Population determinants* associated with birth outcomes
- *Population approaches* to improve birth outcomes
- Methods for *measurement and research* at a population level

We also need to be aware of the limitations of a population health perspective
“It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change. If successful programs are to be developed to prevent disease and improve health, attention must be given not only to the behavior of individuals, but also to the environmental context within which people live.”

Population vs. High Risk Strategies

“...a large number of people at a small risk may give rise to more cases of disease than the small number who are at a high risk.”

Geoffrey Rose, 1985
Determinants and Approaches
Examples
Strengths & Limitations
Actions
NOTES: Adapted from Dahlgren and Whitehead, 1991. The dotted lines denote interaction effects between and among the various levels of health determinants.

Living and working conditions may include:
- Psychosocial factors
- Employment status and occupational factors
- Socioeconomic status (income, education, occupation)
- The natural and built environments
- Public health services
- Health care services

Approaches to Population Health

Maintain and improve the health of the entire population and reduce inequalities in health between population groups.*

To improve health through policies, systems, or the environment rather than strategies focused solely on individuals.  **

Determinants and Approaches
Examples
Strengths & Limitations
Actions
National Policies

- Immunization
- Fortification: folic acid, iodine, iron,
- Elimination of lead products
- Tobacco control and taxation
- Newborn screening
- National guidelines and recommendations
Cross-Government Collaboration

Central American Micronutrient Initiative

- Promote harmonization of policies, standards, and regulations in participating countries
- Establish regional legislation and regulation
- Implement reciprocal quality control of foods
- Establish regional surveillance of NTDs and folate
- Establish regional reference laboratory

Personal communication: Jorge Rosenthal, CDC
Cross-Sector Collaboration

University of Nebraska – Lincoln Program to Reduce Student Alcohol Use

Target
- At-risk drinkers, student population, local community

Strategies
- Legislation of locations of liquor retailers
- Media campaigns
- Web-based training for hospitality and retail workers
- Involvement of student organizations, community leaders, police, bar owners, prevention specialists, educators, parents

Outcome: Binge drinking dropped from 62% to 47%

Sources: Milbank Memorial Fund, CDC, 2007; Newman et al., 2006
• Health = public good
• Government has fundamental, statutory duty to assure the health of the public, *but*
• Government cannot do it alone
• Need for intersectoral engagement in partnership with government.
• Health = social goal of many sectors and communities

Legal Intervention

Provision of Antiretroviral Drugs to Pregnant HIV-positive Women in South African

- Constitution assures the right of access to health care for children and pregnant women
- Government limited nevirapine to research sites
- AIDS advocacy group argued that nevirapine is required to assure the child’s right to health
- 2002 constitutional court case ruled that government must work towards provision of drugs to prevent mother-to-child transmission

Source: Singh, et al., 2007
Determinants and Approaches
Examples
Strengths & Limitations
Actions
Advantages and Disadvantages to a Population Health Approach

Advantages
• Large potential for impact
• Potential to ameliorate if not prevent poor health outcomes

Disadvantages
• Limited individual benefits but broad social benefits
• Limited motivation for change among health care providers

Source: Rose, 1985
Barriers to a Population Health Approach

- Difficult to identify and measure population-level determinants
- Difficult to evaluate and implement effective population-level interventions
- Difficult to establish causality
- Not traditional public health
- Not traditional epidemiology
- Challenges role of individual choice
- Challenges role of individual responsibility
Getting There: Creating a Population Health Approach

Prerequisites for Change
• Leadership
• Incentives
• Science

Creating Political Will
• Knowledge base
• Strategies for action

Sources: McGinnis et al., 2002; Lezine & Reed, 2007
Reasons for Optimism

- Increasing interest
- A few good examples
- Recognized need for innovations in research
- Recognized need for innovative approaches to reduce birth defects
Areas for Action

Development of research methods

Studies of population-health approaches

Education of decision makers and development of political will

Communication

Collaboration

Coordination
The Challenge

What can you do?
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The End

ESumartojo@cdc.gov

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