



GENETICS EDUCATION AND  
TRAINING  
for the  
PUBLIC HEALTH WORKFORCE

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SACGHS Roundtable  
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# PRESENTATION OUTLINE

- Genomics in Public Health
- What's the demand?
  - Current and Future Public Health Practice
  - Public Health Teaching
- What are the barriers
- What are the facilitators
- Progress to date
- Recommendations



# GENOMICS IN PUBLIC HEALTH

- Genomics vs Genetics:
  - Recognition in SACGHS Resolution, June 2004
  - See also, [www.cdc.gov/genomics](http://www.cdc.gov/genomics)
  - Relationship to the Ecological Model
    - IOM Reports on the Teaching and Practice of Public Health (2003)
- Shift from *genetics* as a separate field of public health teaching and practice to *genomics* as a component of all fields of teaching and practice



# WHAT'S THE DEMAND?

## Public Health Practice - Current

- Traditional newborn screening
- Expanded genetic testing
- Family health history and chronic disease
- Genetics and health education



# WHAT'S THE DEMAND?

## Public Health Practice - Future

- “Individualized Public Health”
- 4-Steps from
  - Gene discovery to health application
  - Application to guideline
  - Guideline to practice
  - Practice to health impact
    - Khoury et al, “The continuum of translation research in genomic medicine”, *Genetics IN Medicine* (October 2007)



# WHAT'S THE DEMAND?

## Public Health Teaching

Genomics as one of 8 content areas cross-cutting the traditional 5 core areas of public health teaching:

- IOM, *Who Will Keep the Public Healthy* (NAS, 2003)
  - Genetic epidemiology
  - Statistical genetics
  - Genetics and environmental health
  - Genetics policy, including ELSI
  - Genetics and behavior



# WHAT ARE THE BARRIERS?

## Public Health Teaching

- Resistance to any change
- Insufficient available time in degree programs
- Lack of expertise of faculty
- Non-recognition of significance
  - Resistance of some faculty

# WHAT ARE THE BARRIERS?

## Public Health Practice

- Resistance to any change
- Programs locked in by tight budgets
  - Deborah Klein Walker, APHA
- Continued narrow view of genetics
  - Component of MCH programs
- Lack of “off the shelf” evidence-based tools



# WHAT ARE THE FACILITATORS?

- CDC's National Office of Public Health Genomics
  - [www.cdc.gov/genomics](http://www.cdc.gov/genomics)
- Two Centers for Genomics and Public Health
  - <http://depts.washington.edu/cgph>
  - [www.sph.umich.edu/genomics](http://www.sph.umich.edu/genomics)
- CDC-funded States (MI, MN, OR, UT)
- APHA Genomics Forum
  - [www.genomicsforum.org](http://www.genomicsforum.org)



# WHAT ARE THE FACILITATORS?

## Efforts at Standardizing Competencies

- Genomic competencies for the public health workforce
  - [www.cdc.gov/genomics/training/competencies/comps.htm](http://www.cdc.gov/genomics/training/competencies/comps.htm)
- Genomic competencies for the M.P.H. Degree
  - Included in “Public Health Biology” area
- Certification in Public Health



# PROGRESS TO DATE

## June, 2004 Roundtable Report

- 10 SPH's identified genetics "programs" (mostly research)
- 12 SPH's identifying genetics courses
- Small minority of schools with ELSI courses



# PROGRESS TO DATE

## Web Survey – November, 2007

- All but 6 SPH's (out of 38 searched) have genetics courses
- 10 centers focusing on genetics
- 7 “tracks” focusing on genetics
- 193 genetics courses
- Only 21 genetics courses are in health management, law, or ethics
  - Compilation by Ashley DeHudy and Sarah Jones, University of Michigan School of Public Health Masters Students



# PROGRESS TO DATE

## On Line Training Materials

- CDC/NOPHG Compilation
  - [www.cdc.gov/genomics](http://www.cdc.gov/genomics)
- Genetic Alliance Compilation
  - Sim Wimbush & James C. O'Leary
- ASPH Public Health Training Center Network
  - [www.asph.org/phtc](http://www.asph.org/phtc)



# PROGRESS TO DATE

## Diversity

- Genetics is still mainly an all-white field in study and practice
- Those enrolled in genetics courses and programs do not reflect the diversity of students in schools of public health
- For genomics to realize its potential in achieving public health goals, research, learning and practice must reflect America's diversity



# RECOMMENDATIONS

- Implementation of recommendations on genomics in IOM reports
- Systematic data gathering on inclusion of genomics in public health education
- Sharing of models of genomics teaching
- Incorporation of genomics in CEPH standards for public health education
- Increased focus on genetics ELSI in public health education
- Expansion of network of CDC-supported centers for genomics and public health

