Genomics Integration and State Chronic Disease Plans

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Background

The emerging importance of genomics in chronic disease was first identified and integrated in some state genetics plans beginning in 2000. Subsequently, the Center for Genomics and Public Health at the University of North Carolina (CGPH-UNC) in 2005 conducted a review of the 30 existing comprehensive cancer control state plans, and found that 18 had terms related to genomics. At that time, most states emphasized educating providers and the public about the role of genomics in cancer control. [a]

Objective

To evaluate existing chronic disease state plans (i.e. Alzheimer's disease, asthma, comprehensive cancer control, diabetes, heart disease & stroke) for genomic integration

Methods

Using a similar process as published by CGPH-UNC[a], Wayne State University (WSU) Genetic Counseling Program and Michigan Department of Community Health Genomics Program (MDCH) in 2010 collaborated to review existing Comprehensive Cancer Control (CCC) state plans for the presence of over 15 key genomic terms. The context and the phrasing of the genomic terms within the CCC state plans were documented and qualitatively assessed.

The Connecticut Department of Public Health-Genomics Office (CT DPH-GO) and University of Connecticut (UCONN) also collaborated with WSU and MDCH in 2010 to evaluate existing asthma, Alzheimer's disease, diabetes and heart disease & stroke state plans for genomic integration.

The Centers for Disease Control & Prevention, Office of Public Health Genomics (OPHG) independently assessed asthma, comprehensive cancer, diabetes, and heart disease & stroke state plans in nine key states for genomic integration. The findings from OPHG were compared to the WSU, MDCH, CT DPH-GO and UCONN findings.

Reference:
[a] Irwin DE et al. Review of State Comprehensive Cancer Control Plans for Genomics Content. Preventing Chronic Disease. April 2005.

Results

The number of Comprehensive Cancer Control (CCC) state plans has increased from 30 in 2005 to 50 in 2010. **Of the 50 existing CCC state plans, 47 have terms related to genomics.** This is a significant increase from the 18 CCC state plans in 2005 that had terms related to genomics. **Twenty-four of the CCC state plans have specific genomic goals/strategies**, many related to public/provider awareness and access to genetic services.

Examples of Specific Genomic Goals/Strategies from State Comprehensive Cancer Control Plans:

- ★ Identify those at high risk for developing cancer due to a genetic susceptibility or inherited syndrome (Alaska)
- ★ Increase knowledge of the significance of a family history of cancer and the usefulness of genetic testing (Colorado)
- ★ Increase public awareness of genetic services (Illinois)
- ★ Increase availability of cancer-related genetic information to the Michigan public and decrease barriers to risk-appropriate services (Michigan)
- ★ Increase number of moderate- and high-risk individuals who receive appropriate screening and referral for cancer genetic services (Minnesota)
- ★ Promote public and health care provider awareness of family history as a potential risk factor (Mississippi)
- ★ By 2010, increase public and provider awareness about prevention studies for persons at high risk of cancer due to family history or genetics to 85% of those surveyed (New York)
- ★ Increase awareness and knowledge of genetic factors that influence individual cancer (Oregon)
- ★ 50% of women with a diagnosis of pre-menopausal breast cancer will meet with a genetics professional (South Carolina)
- ★ Advocate for reimbursement of genetic counseling services (Utah)
- ★ Increase access to genetic risk assessment, testing and counseling (Texas)
- ★ Increase appropriate referrals to genetic counseling (Washington)

Thirty-five existing heart disease & stroke state plans were identified. **Of the 35 existing heart disease & stroke state plans, 30 mention at least one genomic term.** Three states have genomic strategies listed in their heart disease & stroke state plans.

Examples of Specific Genomic Goals/Strategies from Heart Disease & Stroke State Plans:

- ★ Collaborate with partners to provide continuing professional education opportunities related to guidelines, new breakthroughs in care and risk assessment, including genetics…(Michigan)
- ★ By June 2012, increase the percentage of health care providers who discuss genetic risk for certain diseases and provide patients with recommendations based on family history (Ohio)
- ★ Support and expand partnerships to educate youth and adults on the modifiable risk factors for cardiovascular health and the impact of family history… (South Carolina)

Thirty-two diabetes state plans were identified. **Of the 32 existing diabetes state plans, 24 have one or more genomic terms.** Two states have genomic strategies written in their diabetes state plans.

Examples of Specific Genomic Goals/Strategies from Diabetes State Plans:

- ★ Direct funds to the development and testing of new technologies such as monitoring devices and genetic screening methods (Minnesota)
- ★ Promote risk assessment of diabetes through paper screening tests, family history assessment and medical evaluation (Idaho)

Thirty-nine existing state asthma plans were identified. **Of the 39 asthma state plans, 19 mention at least one genomic term.** Two have specific asthma genomic objectives.

Examples of Specific Genomic Goals/Strategies from Asthma State Plans:

- ★ Ensure that genomic discoveries are applied appropriately to populations (Connecticut)
- ★ To promote awareness of genetics and family health histories as a predictor of asthma risk (Utah)

Thirteen Alzheimer's disease (AD) state plans were identified. **Of the 13 existing AD state plans, 7 have one or more genomic terms.** Two states have genomic strategies written in their AD state plans.

Example of Specific Genomic Goals/Strategies from Alzheimer's Disease State Plans:

- ★ By August 31, 2015, increase funding to the Texas Alzheimer's Disease Research Consortium to further understand the biology of Alzheimer's disease [by looking at information on biomarkers, lipid metabolism, and genetics] for improved and early detection and novel approaches for prevention and treatment (Texas)

Discussion

This project represents a unique collaboration between two state health departments, two universities, and a federal agency with the common goal of evaluating genomic integration into chronic disease state plans. **The growth and quality of genomic integration in comprehensive cancer control state plans in five years is remarkable.** The reasons for this growth are not known and are further being explored. Possible explanations include the newly released Healthy People 2020 cancer genomic goals and/or publication of evidence-based recommendations for cancer genomics. **The integration of genomics within comprehensive cancer control state plans serves as a model for other chronic disease state plans**.