Public Health Genomics in Action: State-Based Approach to Genomics and Precision Health

CDC Office of Genomics and Precision Public Health Webinar

North Carolina Biotechnology Center

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North Carolina Precision Health Collaborative

Presentation overview

• What is it?
• Who are we?
• Highlighted priorities and projects
• North Carolina’s thriving – and growing – precision health industrial ecosystem
North Carolina Precision Health Collaborative

Advancing transformative, data-driven precision health through innovation and partnership
Precision Health

Precision Health combines data about an individual’s genes, environment, and lifestyle with innovation and diverse partnerships to more precisely predict and diagnose disease, target therapies, and personalize health and wellness plans.
**WHAT IS PRECISION HEALTH?**

**Precision Health** combines data about an individual’s genes, environment, and lifestyle with innovation and diverse partnerships to more precisely predict and diagnose disease, target therapies, and personalize health and wellness plans.

**Innovation**

- **Analytics**
  - Data analytics, AI, and digital health to enhance clinical prediction, tailor treatments, improve quality, and optimize resource utilization.

- **Life Science Innovation**
  - End-to-end support of Precision Health: discovery research, product development, translation, delivery and impact.

- **Clinical Research**
  - Clinical and pragmatic trials on subpopulations to increase intervention effectiveness and safety, new indications, and generate real-world evidence.

- **Targeted Therapies**
  - Targeted therapies based on multiple data, including an individual’s or population’s genetic makeup and disease subtype.

- **Pharmacogenomics**
  - Right patient, right dose, right drug, right time: greatest impact with integrated clinical decision support.

**Diverse Partnerships**

- **Healthcare Providers**
  - Engage patients, and utilize precision health tools and bioinformatics, for point-of-care personalized medicine.

- **Hospitals/Clinics**
  - Implement precision health technologies, including clinical decision support, to more precisely stratify and treat patients.

- **Public Health**
  - Apply precision health tools to target disease prevention and improve population health: right intervention, right time, to right population.

- **Policy Influencers**
  - Work with regulators, industry, payers and policy influencers to advance precision health innovation through impact and reimbursement.

- **Healthcare Purchasers**
  - Involve employers and consumers of healthcare in actionable precision population health strategies for improved outcomes.

**Data on Individual Variability**

- Genetic Predisposition
- Socioeconomic Factors
- Environmental Exposures
- Genomics/ -Omi cs/ -Microbiome
- Mobile Device and Sensor Data
- Clinical Labs & Scans
- Drug Response
- Health/Meds Profile

**Outcomes:**

- Precise Prediction and Diagnosis of Disease
- Targeted Therapies
- Personalized Care Plans

**NC Precision Health Collaborative**

- Jointly NCBIOTECH in partnership with DHIT
NCPHC Priorities / Projects

Precision Population/Public Health
  • **CHAMPPS**: Cancer & Hereditary disease Management & Pharmacogenomics - Population Screening

Pharmacogenomics (PGx)
  • Strong team statewide, focus on research, implementation and education

Education * Policy
  • Convening; produce educational materials; engage Duke Margolis Ctr for Health Policy/PMC; NC DHHS state genetics plan

Data * Analytics/Informatics * Digital Health
  • Coalesce assets, coordinate projects, embark on data sharing/standards

Economic Development
  • Recruit collaborators and companies to NC
North Carolina’s multi-institutional PGx efforts with the NC precision health collaborative

Pharmacogenomics, Vol. 22, No. 2 Institutional Profile: I  
NC Precision Health Industrial Ecosystem – by Organization Type

- Clinical Research
- Consulting
- Data, Informatics and Digital Health
- Diagnostics
- Education and Advocacy
- Other
- Research Tools
- Targeted Therapeutics – Biomanufacturing
- Targeted Therapeutics – R&D
NC Precision Health Industrial Ecosystem – by Geography
North Carolina Biotechnology Center

Questions?