Using a Population Health Framework and Big Data to Inform Clinical Decision-Making in Athletic Training

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Outline for Discussion

- How do we define the following terms?
  - Population Health
  - Social Determinants of Health
- Why Athletic Trainers?
- What are the differences between *health disparities* and *health inequities*?
- What is Data? Where does it come from?
- What the data tell us about where we live and how do we use that data to make inferences?
Disclosure

- Nothing to disclose
What do you think of when you hear the term "Population Health?"
Population Health Defined

- Population health is defined as a cohesive, integrated, and comprehensive approach to health care that considers the distribution of health outcomes within a population, the health determinants that influence distribution of care, and the policies and intervention that affect and are affected by the determinants.

- Population Health address multiple components of health:
  - Healthy and unhealthy behaviors and practices
  - Acute and Chronic illnesses
  - Clinical Enterprise (health care delivery)
  - Private and Public Sector collaborations

- The primary goal is focused on developing interprofessional relationships that are focused on improving health outcomes, value, and care for communities and populations.
What do we mean by “Populations?”

- Populations
  - Geography based
  - Employment
  - Health condition
  - Race and Ethnicity
  - Provider organization

Think about the “populations” you belong to… You may be a part of multiple groups of populations that each have an impact on your health and potential health habits, behaviors, and outcomes.
Population Health Focus Areas

- Established in 2015 by the Agency for Healthcare Research and Quality (AHRQ)
  - Patient Safety
  - Person-and-Family-Centered Care
  - Care Coordination
  - Effective Prevention and Treatment
  - Healthy Living
  - Care Affordability

- The six strategies from AHRQ, have shaped much of the population health continuum and foundations
An interdisciplinary population health model suggests that clinicians adopt certain attributes or characteristics that will lead to successful health outcomes. These include taking personalized, patient-centered approaches to health such as shared decision-making about health promotion and case management; using interdisciplinary care teams to address complex health needs; knowledge about determinants of health and their effect on population health and individual health outcomes; and utilization of evidence-based care that provides high quality, value-based, effective care.
Social Determinants of Health (SDoH)

- The conditions in which people are born, grow, live, work, and age, including the health system. Each circumstance can influence the health of a community through the distribution of resources, money, and political power. Communities that are underserved suffer significant health disparities as a result of limited economic opportunities, poor social policies that protect the health and well-being of citizens, and politics (WHO, 2008).
What words come to mind when you hear the term "Social Determinants of Health?"
Order from MOST influential to LEAST influential on determining health status

Medical Care
Physical Environment
Individual Behaviors
Social Factors
Genetics and Biology
Why Athletic Trainers?
Influencing Factors

- **Social**
  - Attitudes and behaviors toward health
  - Community health education opportunities
  - Education

- **Economic**
  - Affordability of health care services
  - Job opportunities
  - Health Insurance affordability
  - Quality/accessibility of health services

- **Environmental**
  - Access to good food
  - Access to health services
  - Crime, violence, education
  - Community outreach
  - Leadership
LIFE EXPECTANCY AT 25

SOCIAL FACTORS THAT PATTERN OUTCOMES FROM LIFE TO DEATH
Income Gradient and Health

Discrimination and Health

- Economic and social deprivation
  - Labor market studies: “Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination”

- Exposure to toxic substances or hazardous conditions
  - Segregated neighborhoods
  - Native Hawaiians have highest breast cancer rates due to DDT dumping

- Socially inflicted trauma
  - Interactions with racism

- Targeted marking of legal and psychoactive substances
  - Alcohol, tobacco, fast food

- Inadequate health care, by health care facilities and specific providers
  - Under-represented minorities (URM) less likely to get CVD intervention than Whites; MDs thought rates were equal

Race as a Social Determinant of Health

- Inherited disadvantage
  - Historical discrimination that has been passed down through material inheritance

- Racial residential and educational segregation had led to unequal accumulation of capital, unequal educational resources, lack of access to quality food and recreation

- Discrimination
  - Socially defined groups are treated differently based on their membership in that group
Neighborhood Factors

- Area or place effects
- Collective or compositional effect
  - Aggregates of individual traits that influence health over and above individual characteristics
- Contextual effect
  - Presence or absence of characteristics that are intrinsic to places (infrastructure, economic policies, social and public support programs).
- Broken Window Hypothesis (Wilson and Kelling, 1982)
  - “Minor forms of public disorder lead to serious crime and a downward spiral of urban decay... visual cues such as graffiti, public intoxication, garbage, and abandoned cars are through to attract criminal offenders who assume from the cues that residents are indifferent to what goes on in the neighborhood”
- Neighborhoods form a context for health outcomes and health behaviors; however, defining neighborhoods is an ongoing challenge and dependent on the exposure and outcome (Dean, 2020).

- US Census Data
- Census Tract Data
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Defining Community

- Place Based Definition
  - Physical Boundaries
  - Administratively defined boundaries
- People Based Definition
  - How residents interact
  - What resources do residents use
- Physical Environment
  - Built environment
- Social Environment
  - Social capital and networks
- Service Environment
  - Access to healthy tangible resources

Source: Philaworks 2020
Does everyone who seeks health care receive the same care?

YES

NO

UNSURE
Health Disparities vs. Health Equity

**Health Disparity**
- differences in health that are closely related to social or economic disadvantages (CDC, 2015)

- The term *health disparity* was intended to denote a specific kind of difference in health that focused primarily on worse health among socially disadvantaged people and more specifically members of disadvantaged racial/ethnic groups (Braveman, 2014).

**Health Inequity**
- characterized by an unfair or ethically problematic difference in health and the distribution of health services among a population of people (Asada, Hurley, Norheim, & Mira, 2014).

- Health inequity is not observable
What do we mean when we say "Health Equity?"
EQUALITY

EQUITY
Population Health Data

Three core components to population health

- Population health is a care delivery model focused on improving health and wellness for a homogeneous group of people.
- It is a type of reimbursement payment model where VALUE is emphasized and incentivized. We want to maximize health outcomes while also keeping cost low and value high.
- Supported by a large data infrastructure that tracks, targets, and manages care delivery, utilization, performance, and health outcomes. Goal-oriented.

Data can tell us a lot about the health of populations. It can help us understand the causes and conditions that influence behaviors, health outcomes, trends and patterns in disease and illness, and other determinants of health. It also provides us with the ability to determine how to engage with patients, manage care, and develop appropriate studies.
Where does data come from?
2009 Congress approved a stimulus American Recovery and Reimbursement Act to support the development of EHR.

- 1% of physicians use paper files
- Many features of EHRs that reduce waste, errors; improve communication, access, interoperability with health systems, and improve safety and quality
Health Information Exchange

- Organizations that manage and enable the exchange of health information for regions and states.
- This allows for hospitals in competing systems and geographically dispersed to access patient data when patients visit a different health system.
- Data from healthcare systems, physicians, long-term care facilities, payers, and social service organizations are shared.
- Helps to reduce readmissions, improves quality of care through continuity, and allows for the sharing of critical health information.
- Public and privately funded
- EPIC – Care Everywhere
Surveillance Data

- Public Health Surveillance
  - the “continuous, systematic collection, analysis and interpretation of health-related data needed for planning, implementation, and evaluation of public health practice” (WHO, 2012)

- Passive Surveillance
  - Passive surveillance often gathers disease data from all potential reporting health care providers

- Active Surveillance
  - Collect directly health event information from health care providers and other sources

Sentinel Surveillance

- Instead of attempting to gather surveillance data from all health care providers, a sentinel surveillance system selects, either randomly or intentionally, a small group of health providers from whom to gather data
Patient-generated Data
What does “real data” look like?
Why it Matters

The quality of health of a nation is a social matter, not just a personal one...social cognitive theory extends the conception of human agency to collective agency. People do not operate as isolates. They work together to improve the quality of their lives” (Bandura, 2004, p. 159). “To simply tell people with intractable problems to fend for themselves is an evasion of societal responsibility” (Bandura, 2004, p. 162).