POPULATION HEALTH: WHAT IS IT? WHY IS IT IMPORTANT?

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Brody School of Medicine, East Carolina University
4th Annual Unified Quality Improvement Symposium
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Objectives:

- By the end of this session, participants will be able to:
- Identify the basic elements and definitions of population health,
- Discuss successful population health initiatives, and
- Learn strategies for implementing and testing population health initiatives
Definition of Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

What is “Population Health?”

The health outcomes of a group of individuals, including the distribution of such outcomes within the group.

What “Health Outcomes” are we Interested In Most?

- Mortality (early death)
- Morbidity (illness)
  - **Chronic** diseases (diabetes, cancer, heart disease, stroke, kidney disease, etc.)
  - **Acute** diseases (pneumonia, influenza, hepatitis, sexually transmitted diseases, sepsis, etc.)
- Quality of Care/Quality of Life
- Excess Health Care Costs (Hospital Readmission)
What ”Groups” are We Interested in Most?

• Racial/ethnic groups
• Geographic groups (urban/rural, cities, counties, states, nations)
• Gender groups
• Socioeconomic status groups
• Age Groups
How do we Consider the “Distribution of Health Outcomes”?

- Descriptive Epidemiology
- Calculation of rates (e.g., deaths per 100,000 population) of deaths and/or diseases in a population from state/national databases
- Per patient health care costs from electronic health records
- GIS mapping of health outcomes
Start with Demographic of NC
Infant Mortality

U.S. 2016 – IMR 5.9 vs NC 7.2
FIGURE 4
Examples of Health Disparities in North Carolina

<table>
<thead>
<tr>
<th>INFANT MORTALITY</th>
<th>DIABETES MORTALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American babies 2.4 times more likely to die than white babies</td>
<td>African Americans 2.3 times more likely to die than whites from diabetes</td>
</tr>
<tr>
<td>American Indian babies 1.7 times more likely to die than white babies</td>
<td>American Indians 2.4 times more likely to die than whites from diabetes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KIDNEY DISEASE MORTALITY</th>
<th>GEOGRAPHY, LIFE EXPECTANCY, AND RACE</th>
</tr>
</thead>
</table>
| African Americans 2.3 times more likely to die than whites from kidney disease | **Swain County**
  Overall 73.1 years – lowest in NC (67.5 for American Indians; 75.6 for whites) |
| American Indians 1.5 times more likely to die than whites from kidney disease | **Orange County**
  Overall 82.1 years – highest in NC (75.2 for African Americans; 83.1 for whites) |

Sources: NC DHHS, Health Equity Report, 2018; NC DHHS, Life Expectancy, 2016-2018
## North Carolina Resident Population Health Data by Race and Ethnicity

### Mortality Rates, 2014-2018

<table>
<thead>
<tr>
<th>Condition</th>
<th>Total</th>
<th>White, Non-Hispanic</th>
<th>African American, Non-Hispanic</th>
<th>American Indian, Non-Hispanic</th>
<th>Other Races, Non-Hispanic</th>
<th>Hispanic/Latino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate</td>
<td>Rate</td>
<td>Rate</td>
<td>Rate</td>
<td>Rate</td>
<td>Rate</td>
<td>Rate</td>
</tr>
<tr>
<td>Total Deaths, All Causes</td>
<td>781.8</td>
<td>777.0</td>
<td>888.5</td>
<td>856.9</td>
<td>426.0</td>
<td>359.8</td>
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<tr>
<td>Heart disease</td>
<td>158.0</td>
<td>155.9</td>
<td>182.2</td>
<td>176.9</td>
<td>76.9</td>
<td>61.8</td>
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<tr>
<td>- Acute Myocardial Infarction</td>
<td>28.4</td>
<td>28.3</td>
<td>32.5</td>
<td>43.0</td>
<td>13.2</td>
<td>10.3</td>
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<tr>
<td>- Other Ischemic Heart Disease</td>
<td>59.4</td>
<td>60.3</td>
<td>61.5</td>
<td>70.0</td>
<td>25.9</td>
<td>21.1</td>
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<tr>
<td>Cerebrovascular disease (Stroke)</td>
<td>43.0</td>
<td>40.7</td>
<td>55.1</td>
<td>39.0</td>
<td>35.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Total Cancer</td>
<td>161.3</td>
<td>160.2</td>
<td>183.0</td>
<td>153.4</td>
<td>102.6</td>
<td>82.0</td>
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<tr>
<td>- Colon, Rectum, and Anus</td>
<td>13.6</td>
<td>13.0</td>
<td>17.8</td>
<td>14.6</td>
<td>8.2</td>
<td>6.9</td>
</tr>
<tr>
<td>- Pancreas</td>
<td>11.0</td>
<td>10.6</td>
<td>13.6</td>
<td>11.2</td>
<td>7.3</td>
<td>6.6</td>
</tr>
<tr>
<td>- Trachea, Bronchus, and Lung</td>
<td>44.1</td>
<td>45.9</td>
<td>42.3</td>
<td>50.6</td>
<td>22.0</td>
<td>14.1</td>
</tr>
<tr>
<td>- Breast</td>
<td>20.9</td>
<td>19.7</td>
<td>27.0</td>
<td>20.5</td>
<td>12.4</td>
<td>11.4</td>
</tr>
<tr>
<td>- Prostate</td>
<td>19.7</td>
<td>16.7</td>
<td>39.1</td>
<td>23.1</td>
<td>7.2</td>
<td>9.1</td>
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<tr>
<td>Diabetes</td>
<td>23.7</td>
<td>19.6</td>
<td>44.0</td>
<td>22</td>
<td>22</td>
<td>12.1</td>
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<tr>
<td>Pneumonia/Influenza</td>
<td>17.4</td>
<td>17.8</td>
<td>17.1</td>
<td>17.3</td>
<td>11.4</td>
<td>7.2</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases</td>
<td>44.7</td>
<td>49.8</td>
<td>28.0</td>
<td>45.5</td>
<td>12.6</td>
<td>8.5</td>
</tr>
<tr>
<td>Septicemia</td>
<td>12.8</td>
<td>12.0</td>
<td>18.0</td>
<td>14.6</td>
<td>6.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Chronic liver disease/cirrhosis</td>
<td>10.4</td>
<td>11.6</td>
<td>7.6</td>
<td>16.8</td>
<td>3.9</td>
<td>7.1</td>
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<tr>
<td>Nephritis, nephrosis, and nephrotic syndrome</td>
<td>16.4</td>
<td>13.4</td>
<td>31.3</td>
<td>19.3</td>
<td>12.0</td>
<td>8.4</td>
</tr>
<tr>
<td>Alzheimer's Disease</td>
<td>35.7</td>
<td>36.7</td>
<td>33.1</td>
<td>52.7</td>
<td>15.2</td>
<td>19.3</td>
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<tr>
<td>HIV Disease</td>
<td>1.9</td>
<td>0.7</td>
<td>6.4</td>
<td>1.3*</td>
<td>0.3*</td>
<td>0.9</td>
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<tr>
<td>Unintentional motor vehicle injury</td>
<td>14.5</td>
<td>14.0</td>
<td>16.8</td>
<td>30.6</td>
<td>6.1</td>
<td>12.2</td>
</tr>
<tr>
<td>Other Unintentional injuries</td>
<td>37.0</td>
<td>43.6</td>
<td>25.5</td>
<td>45.2</td>
<td>14.8</td>
<td>14.6</td>
</tr>
<tr>
<td>Suicide</td>
<td>13.5</td>
<td>17.3</td>
<td>5.5</td>
<td>12.4</td>
<td>8.2</td>
<td>5.6</td>
</tr>
<tr>
<td>Homicide</td>
<td>6.5</td>
<td>3.0</td>
<td>17.0</td>
<td>18.0</td>
<td>2.8</td>
<td>3.5</td>
</tr>
</tbody>
</table>
## N.C. 2018 Ranked Leading Causes of Death

### All Ages

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cancer</td>
<td>19,693</td>
</tr>
<tr>
<td>2</td>
<td>Diseases of the heart</td>
<td>19,254</td>
</tr>
<tr>
<td>3</td>
<td>Chronic lower respiratory diseases</td>
<td>5,367</td>
</tr>
<tr>
<td>4</td>
<td>Cerebrovascular disease</td>
<td>5,072</td>
</tr>
<tr>
<td>5</td>
<td>Alzheimer’s disease</td>
<td>4,502</td>
</tr>
<tr>
<td>6</td>
<td>Other Unintentional injuries</td>
<td>4,478</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus</td>
<td>3,021</td>
</tr>
<tr>
<td>8</td>
<td>Pneumonia and influenza</td>
<td>2,067</td>
</tr>
<tr>
<td>9</td>
<td>Nephritis, nephrotic syndrome and nephrosis</td>
<td>1,936</td>
</tr>
<tr>
<td>10</td>
<td>Motor vehicle injuries</td>
<td>1,591</td>
</tr>
</tbody>
</table>

**All other causes (Residual)**

| Total Deaths—All Causes | 94,005 |

### 15–24 Years

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motor vehicle injuries</td>
<td>248</td>
</tr>
<tr>
<td>2</td>
<td>Other unintentional injuries</td>
<td>239</td>
</tr>
<tr>
<td>3</td>
<td>Suicide</td>
<td>185</td>
</tr>
<tr>
<td>4</td>
<td>Homicide</td>
<td>163</td>
</tr>
<tr>
<td>5</td>
<td>Cancer</td>
<td>43</td>
</tr>
<tr>
<td>6</td>
<td>Diseases of the heart</td>
<td>29</td>
</tr>
<tr>
<td>7</td>
<td>Chronic lower respiratory diseases</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Congenital anomalies (birth defects)</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Cerebrovascular disease</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Pneumonia and influenza</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Diabetes mellitus</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Septicemia</td>
<td>5</td>
</tr>
</tbody>
</table>

**All other causes (Residual)**

| Total Deaths—All Causes | 1,062  |
U.S. Years of Potential Life Lost before age 75

Figure 2: Premature death rate within racial and ethnic composition by rural-urban status and majority group

- Non-Hispanic white: 7,217 urban, 8,263 rural
- Non-Hispanic black: 10,337 urban, 11,581 rural
- Hispanic: 6,650 urban, 8,182 rural
- No racial or ethnic group > 50%: 6,983 urban, 9,534 rural
Age-adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

**Obesity (BMI ≥30 kg/m²)**

- **1994**
  - No Data
  - <14.0%
  - 14.0%–17.9%
  - 18.0%–21.9%
  - >22.0%

- **2000**
  - No Data
  - <4.5%
  - 4.5%–7.4%
  - 7.5%–8.9%

- **2015**
  - No Data
  - <4.5%
  - 4.5%–5.9%
  - 6.0%–7.9%
  - 7.5%–8.9%

**Diabetes**

- **1994**
  - No Data
  - <4.5%
  - 4.5%–5.9%
  - 6.0%–7.9%

- **2000**
  - No Data
  - <4.5%
  - 4.5%–5.9%
  - 6.0%–7.9%

- **2015**
  - No Data
  - <4.5%
  - 4.5%–5.9%
  - 6.0%–7.9%

CDC’s Division of Diabetes Translation. United States Surveillance System available at http://www.cdc.gov/diabetes/data
Diabetes Mellitus

Age Adjusted Mortality Rates Per 100,000 Population
- 39.1 - 69.2
- 30.2 - 39.0
- 23.8 - 30.1
- 18.6 - 23.7
- 8.4 - 18.5

North Carolina Resident Data 2014-2018
The Staggering Costs of Diabetes

More than 30 million Americans have diabetes.

Health care costs for Americans with diabetes are 2.3X greater than those without diabetes.

Diagnosed diabetes costs America $327 billion per year.

84 million Americans have prediabetes.

$1 in $7 health care dollars is spent treating diabetes and its complications.

Today, 4110 Americans will be diagnosed with diabetes. Additionally, diabetes will cause 295 Americans to undergo an amputation and 137 will enter end-stage kidney disease treatment.

Learn how to fight this costly disease at diabetes.org/congress.
Life expectancy and health spending

“Population Health” is also a framework

• ‘Population health’ aligns components of the health system.

• Integrates with care delivery and Social systems that contribute to health.

• “Population health” is more than outcomes of care in the care delivery system because includes:
  • Determinants of health
  • Activities that improve population health

• Aligns with Triple Aim – excellent quality care, lower costs, improving health of the population.
Population Health as Framework

“Determinants of Health”

Determinants of Population Health

- Social/societal characteristics
- Health behaviors
- Total ecology
- Medical care
- Genes & biology

Healthcare System

Determinants of Population Health

- Social determinants of health
- Primary prevention
- Secondary prevention
- Tertiary prevention

SDOH

- Economic Stability
- Health and Health Care
- Education
- Social and Community Context

From Steven Woolf, MD
Social Determinants of Health

• The World Health Organization defines the social determinants of health as:

“the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness.

These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics.”
North Carolina Social Determinants of Health by Regions

North Carolina Association of Local Health Department Regions are used to examine Social Determinants of Health at a regional level.

Each Region displays a General Profile of Demographics, followed by Social Determinants of Health divided into 3 categories, or domains.

Z-scores were calculated for each indicator within the domains, so they would be comparable. A final index map of averaged z-scores is displayed in the last panel for each region, titled "Putting it Together".

Use the tabs to select a Region and scroll on the left story board to see all of the indicators, graphs and maps.

Each map is also interactive and will display a pop-up with values for the locations.
Population Health as Framework:

“Activities that improve the health of populations”

• Linked to the primary enterprise of public health:
  • Establish conditions in communities where people live healthy lives

• Public health activities promote healthy lifestyles through:
  • Health education
  • Protecting against environmental hazards
  • Controlling infectious diseases
  • Preparing for and responding to disasters
  • Promoting healthcare equity, quality, and access.
Activities that harm health of populations. Let’s improve these!

Factors we can intervene on!
How to get to Population Health Improvement?

• Collaborate with agencies that have the power to shape the environment, influence behaviors in the target population, and influence policy.
• From a healthcare system perspective, collaborate with the public health system.
  • Support prevention and wellness – Pitt Partners for Health
  • Implement community-based team approaches to coordinate healthcare and other community resources – NCCARES360
  • NC Healthy People 2030
• Invest in education, economic, and workforce development
• Produce long-term health care savings/
What is Public Health?

• The science of **protecting and improving** the health of families and communities through
  • **promotion of healthy lifestyles**
  • **research for disease and injury prevention**
  • **detection and control of infectious diseases.**
Public Health System

NC Healthy People 2030

- US DHHS since 1990
- NC version Healthy People 2030 –
- NC DHHS, Division of Public Health

Long-term sustainable improvements in the health and well-being of North Carolinians will only occur by addressing the social, economic, and place-based challenges that keep people from achieving optimal health. National and state public health leaders are focusing on health equity by shifting focus from individual health topics to overall drivers of health outcomes, including social and economic factors, physical environment, health behaviors, and clinical care.
Population Health Model used by NC Healthy People 2030 NC

Health Outcomes
- Length of Life (50%)
- Quality of Life (50%)

Health Factors
- Health Behaviors (30%)
  - Tobacco Use
  - Diet & Exercise
  - Alcohol & Drug Use
  - Sexual Activity
- Clinical Care (20%)
  - Access to Care
  - Quality of Care
- Social & Economic Factors (40%)
- Physical Environment (10%)
  - Education
  - Employment
  - Income
  - Family & Social Support
  - Community Safety
  - Air & Water Quality
  - Housing & Transit

Policies & Programs

County Health Rankings model © 2014 UWPHI
### HEALTH INDICATORS AND DATA
(TOTAL NC POPULATION, 2030 TARGET, AND DATA BY RACE/ETHNICITY, SEX, AND POVERTY LEVEL)

<table>
<thead>
<tr>
<th>HEALTH INDICATOR</th>
<th>DESIRED RESULT</th>
<th>CURRENT (YEAR)</th>
<th>2030 TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals below 200% FPL</td>
<td>Decrease the number of people living in poverty</td>
<td>36.8% (2013-17)</td>
<td>27.0%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Increase economic security</td>
<td>7.2% (2013-17)</td>
<td></td>
</tr>
<tr>
<td>Short-term suspensions (per 10 students)</td>
<td>Dismantle structural racism</td>
<td>1.39 (2017-18)</td>
<td>0.80</td>
</tr>
<tr>
<td>Incarceration rate (per 100,000 population)</td>
<td></td>
<td>341 (2017)</td>
<td>150</td>
</tr>
<tr>
<td>Adverse childhood experiences</td>
<td>Improve child well-being</td>
<td>23.6% (2016-17)</td>
<td>18.0%</td>
</tr>
<tr>
<td>Third grade reading proficiency</td>
<td>Improve third grade reading proficiency</td>
<td>56.8% (2018-19)</td>
<td>80.0%</td>
</tr>
<tr>
<td>Access to exercise opportunities</td>
<td>Increase physical activity</td>
<td>73% (2018)</td>
<td>92%</td>
</tr>
<tr>
<td>Limited access to healthy food</td>
<td>Improve access to healthy food</td>
<td>7% (2015)</td>
<td>5%</td>
</tr>
<tr>
<td>Severe housing problems</td>
<td>Improve housing quality</td>
<td>16.1% (2011-15)</td>
<td>14.0%</td>
</tr>
<tr>
<td>Drug overdose deaths (per 100,000 population)</td>
<td>Decrease drug overdose deaths</td>
<td>20.4 (2018)</td>
<td>18.0</td>
</tr>
<tr>
<td>Tobacco use</td>
<td>Decrease tobacco use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>Decrease excessive drinking</td>
<td>16.0% (2018)</td>
<td>12.0%</td>
</tr>
<tr>
<td>Sugar-sweetened beverage consumption</td>
<td>Reduce overweight and obesity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV diagnosis (per 100,000 population)</td>
<td>Improve sexual health</td>
<td>13.9 (2018)</td>
<td>6.0</td>
</tr>
<tr>
<td>Teen birth rate (per 1,000 population)</td>
<td>Decrease the uninsured population</td>
<td>13% (2017)</td>
<td>8%</td>
</tr>
<tr>
<td>Primary care clinicians (counties at or below 1:5,000 providers to population)</td>
<td>Increase the primary care workforce</td>
<td>62 (2017)</td>
<td></td>
</tr>
<tr>
<td>Early prenatal care</td>
<td>Improve birth outcomes</td>
<td>68.0% (2018)</td>
<td>80.0%</td>
</tr>
<tr>
<td>Suicide rate (per 100,000 population)</td>
<td>Improve access and treatment for mental health needs</td>
<td>13.8 (2018)</td>
<td>11.1</td>
</tr>
<tr>
<td>Infant mortality (per 1,000 births)</td>
<td>Decrease infant mortality</td>
<td>6.8 (2018)</td>
<td>6.0</td>
</tr>
<tr>
<td>Life expectancy (years)</td>
<td>Increase life expectancy</td>
<td>77.6 (2018)</td>
<td>82.0</td>
</tr>
</tbody>
</table>

Task Groups prioritized
Health Equity – Indicators related to Health Disparities
County Health Rankings

- [www.countyhealthrankings.org](http://www.countyhealthrankings.org)
• Health ENC coordinates a regional Community Health Needs Assessment in 33 counties of eastern North Carolina.
• 22 hospitals, 23 local health departments/districts
• Initiated in 2015 by the Office of Health Access in the Brody School of Medicine at East Carolina University.
• Health ENC grew out of conversations with health care leaders about improving the CHNA process in eastern North Carolina.
• Data!!
• https://www.healthenc.org/
NCCARES360

- Statewide platform
- Coordinate with non-medical drivers of health
- Closes loop on referrals made
- Reports outcomes
- Resource directory using 2-1-1
- Providers only send a referral through the system to other organizations also using NCCARE360.
Focusing on Population Health at Scale — Joining Policy and Technology to Improve Health
Aaron McKethan, Ph.D., Seth A. Berkowitz, M.D., M.P.H., and Mandy Cohen, M.D., M.P.H.

I. OVERVIEW

NCCARE360 is the first statewide coordinated care network that will serve as the core infrastructure for North Carolina as it moves to whole person health and health system transformation. There is growing recognition that better coordination and investment in the non-medical drivers of health, like access to healthy food, safe and affordable housing and well-paying jobs, can improve health and decrease health care costs.
Quality Improvement in Public Health

Overview

Definition of quality improvement in public health:

“Quality improvement in public health is the use of a deliberate and defined improvement process, such as Plan-Do-Check-Act, which is focused on activities that are responsive to community needs and improving population health. It refers to a continuous and ongoing effort to achieve measureable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.”

Quality improvement is useful for professionals, teams, and organizations to improve...
Using Quality Improvement to Promote Breast-feeding in a Local Health Department

Sarah S. Wright, MA; C. Suzanne Lea, PhD; Roxanne Holloman, MA; Amanda Cornett, MPH; Lisa Macon Harrison, MPH; Greg D. Randolph, MD, MPH

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Example of a Series of Plan-Do-Study-Act Cycles to Test Change Ideas by Telephoning New Mothers About Breast-feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong></td>
<td>Test follow-up call script on new mothers.</td>
</tr>
<tr>
<td><strong>Specific questions to address:</strong></td>
<td>Are we asking the right questions? Are there additional things to include in script? Are calls helpful and supportive? Are calls too time intensive?</td>
</tr>
<tr>
<td><strong>Prediction or Hypothesis:</strong></td>
<td>Script will need be tweaked. Overall, will provide correct information. Easy to use. Mothers will find calls helpful and will not be time intensive. Match will conduct follow-up calls with 3-4 breastfeeding WIC clients who recently gave birth by 8/13. Nutritionist and WIC director will conduct follow-up calls with 3-4 breastfeeding WIC clients who recently gave birth by 8/25.</td>
</tr>
<tr>
<td><strong>Plan:</strong></td>
<td>For change or test (who, what, when, how, where): Team coordinator (TC) will develop the script. Give to WIC Director and breastfeeding coordinator (BC) to review by next Wednesday. TC will obtain feedback. BC will conduct follow-up calls with 3-4 breastfeeding WIC clients who recently gave birth by 8/13. Nutritionist and WIC director will conduct follow-up calls with 3-4 breastfeeding WIC clients who recently gave birth by 8/25.</td>
</tr>
<tr>
<td><strong>For data collection (who, what, when, how, how long):</strong></td>
<td>BC will document length of time to conduct calls and inquire if calls are helpful. TC will meet with BC to review data on 8/15. Nutritionist and WIC director will document length of time to conduct calls and inquire if calls are helpful. TC will follow up with both to review data by 8/26.</td>
</tr>
<tr>
<td><strong>Do:</strong></td>
<td>Carry out the change test. Feedback obtained. BC conducted a call, but felt uncomfortable calling clients. Cycle stopped. Calls were conducted.</td>
</tr>
<tr>
<td><strong>Study:</strong></td>
<td>Analyze and summarize data: Feedback affirmed script had correct information but tweaked script based on all feedback. BC conducted 1 call, but thought it was useful. Calls overall went well—were not too time intensive. Clients happy to learn about support offered.</td>
</tr>
<tr>
<td><strong>Act:</strong></td>
<td>Document what was learned and plan next cycle: Script will be tested on a low new breastfeeding mothers to assess usefulness. JC director and nutritionist will conduct calls for next cycle. Continue to do calls. Next cycle will test if WIC director will be responsible for calls instead of QC team.</td>
</tr>
</tbody>
</table>

**Abbreviations:** BC, breastfeeding coordinator; TC, team coordinator; WIC, Women, Infants, and Children
### Research VS QI – Is change and Improvement?

<table>
<thead>
<tr>
<th></th>
<th>Research</th>
<th>Quality Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>Proof of effectiveness</td>
<td>Sustained improvement</td>
</tr>
<tr>
<td><strong>Data Collection</strong></td>
<td>Gather enough data to authoritatively study for effect and control for all known confounders</td>
<td>Gather just enough data to inform improvement, and only collect data on 1–2 confounders as needed (i.e., balancing measures)</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>One large test with a fixed hypothesis; control bias as much as possible</td>
<td>Rapid sequential tests with a hypothesis that changes as learning takes place; no effort to control bias</td>
</tr>
<tr>
<td><strong>Results Evaluation</strong></td>
<td>Pre- and post-assessment</td>
<td>Regular assessment with run charts</td>
</tr>
</tbody>
</table>
How do you know change is an improvement?
Healthiest Cities & Counties Challenge

Request for Proposals

The Opportunity

Through this Request for Proposals, the Challenge partners invite city- and county-level teams to apply to join this effort. The Challenge, which is part of CVS Health’s Building Healthier Communities commitment, aims to accelerate systems-level approaches to improving community health. The Challenge is seeking applications from cross-sector teams that will use upstream approaches to address the program’s two priority topics: (1) increased access to foods that support healthy eating patterns; and (2) improved access to health services. Teams are encouraged to focus on either one or both topic areas in their applications.
Every year, over 5,500 deaths in North Carolina could be avoided if all residents in the state had a fair chance to be healthy.
RECOMMENDATIONS TO ADDRESS HEALTH GAPS IN NORTH CAROLINA

- Tobacco prevention/cessation policies
  - Proactive quitlines
  - Smoke-free policies for indoor areas
  - Restrictions on tobacco marketing
  - Increasing tobacco taxing or point-of-sale fees
- Vaping and E-cigarette use in Youth
RECOMMENDATIONS TO ADDRESS HEALTH GAPS IN NORTH CAROLINA

• Sexual health programs
  • Condom availability programs
  • Partner counseling services
  • School-based reproductive health clinics
  • Comprehensive sexual education risk reduction programs
RECOMMENDATIONS TO ADDRESS HEALTH GAPS IN NORTH CAROLINA

- Access to health care
  - Federally qualified health centers
  - Health insurance enrollment and outreach
  - Telemedicine programs
  - Community health workers
RECOMMENDATIONS TO ADDRESS HEALTH GAPS IN NORTH CAROLINA

• Education
  • Community schools
  • Dropout prevention programs
  • Targeted truancy interventions
  • Universal pre-K programs
RECOMMENDATIONS TO ADDRESS HEALTH GAPS IN NORTH CAROLINA

• Employment/Income
  • Unemployment insurance
  • Vocational training for adults
  • Earned income tax credits
  • Funding for child care subsidies
• Living wage laws
• Paid family leave
What is the Difference between Population Health and Public Health?

https://www.youtube.com/watch?v=GDWDb_G7Hvs&feature=youtu.be
FIGURE 3

Health Status Successes and Challenges in North Carolina

**SUCCESSES**

- Graduation Rate - 85.9% (National Avg. 84.1%, 2015-16)
- Violent Crime - 364 per 100,000 (National Avg. 394 per 100,000, 2017)

**IMPROVEMENTS, STILL ABOVE AVERAGE**

- Infant Mortality - 7.1 per 1,000 live births (National Avg. 5.8 per 1,000 live births, 2017)
- Adult Smoking - 17.2% (National Avg. 17.1%, 2017)
- Children Living in Poverty - 21.2% (National Avg. 18.4%, 2017)
- Uninsured - 13% (National Avg. 8.7%, 2017)

**GROWING CHALLENGES**

- Drug Overdose Deaths - 16.2 per 100,000 (National Avg. 16.9, 2014-16)
- Obesity - 32.1% (National Avg. 31.3%, 2017)
- Youth Tobacco Use - 19.8% (National Avg. 12.6%, 2017)

Sources: America's Health Rankings (https://www.americashealthrankings.org/explore/annual); Kaiser Family Foundation State Health Facts (https://www.kff.org/other/state-indicator/nonelderly-0-64/?currentTimeframe=0&selectedDistributions=uninsured&selectedRows=%7B%22year%22%3A2017%7D&sortModel=%7B%22year%22%3A2017%7D&sortModel=%7B%22state%22%3A%7D); NC DHHS NC Tobacco Prevention and Control Branch analysis of Youth Tobacco Survey

Note: Data presented in this graphic are the most recent available to compare to national average.
Population health has moved upstream
Thank you!
Suzanne Lea, PhD, MPH
LeaC@ecu.edu
252-744-4036
Case Studies