AAMC/CDC/Fullerton Sponsored Population Health Improvement Leadership

Monday, February 2\textsuperscript{nd}, 2015
2:00-3:00 pm
Agenda

Incorporating Population Health into Residency Training
Jewell Carr, MD,
Faculty, Carolinas Medical Center, Family Medicine Residency Program

Safe Communities: A Model for Population Health and Injury Prevention
Herb Garrison, MD, MPH, FACEP
Interim Associate Dean,
Graduate Medical Education, Designated Institutional Official (DIO), and Professor of Emergency Medicine;
East Carolina University
Incorporating Population Health into Residency Training

Jewell P. Carr, MD
Faculty
Carolinas Medical Center
Family Medicine Residency Program
About Charlotte

- Charlotte is the largest city in North Carolina and is the second largest city in the Southeastern US.

- The 2013 US census estimated the population of Charlotte to be 792,862 making it the 16th largest city in the US based on population.

- The Charlotte metropolitan area ranks 23rd largest in the US and had a 2013 population of 2,335,358.
About Carolinas Healthcare System

- 2nd largest hospital system in the country
  - 8 Main hospitals in the Charlotte Metro Area
  - Owns/operates 5 regional hospitals
  - Manages multiple hospital systems from Blue Ridge in western NC to Roper-St. Francis in Charleston, SC
  - 18 urgent care facilities, Carolinas Physicians Network, rehabilitation hospitals, etc.
Carolinias Medical Center
Family Medicine Residency Program

PGY 3 Class
Jessica Grass
St. Louis
Will Haas
ECU
Rachel Knox
Tufis (U)
Kelechi Nduhizu
Duke
Jay Patel
UNC (U)
Pulak Patel
Emory
Tabetha Simpson
ECU
Sybil Sobanjio
MUSC
April Corley
MUSC (Union)
Shannel Pegram
PCOM (Union)
David Small
ECU (Union)

PGY 2 Class
Jason Bothe
Florida State
Shamile Haribhan
St. George's (U)
Sean Johnson
Howard (U)
Douglas McAdams
Virginia (U)
Robyn Monckton
Florida International
Ernestina Nyako
Pennsylvania
Carly Ragland
Edward Via Virginia
Laura Stamm
Mount Sinai
Mackenzie Tuzzolo
ECU
Sheri Jamal
Texas (Union)
Ryan Meintz
Missouri (Union)

PGY 1 Class
Sarah Beer
MCG
Stephen Carek
MUSC
Scott Mikell
MCG
Kendra Richardson
Meharry
Cameron Simmons
Louisiana
Chris Vieu
Virginia Tech
Jonisha Brown Wake Forest (U)
Edmire Souffrant
Florida (U)
Jonathan Wilson
MCG (U)
Nelius Macharia
Ross (Union)
Eric Wilder
Tulane (Union)
About the Residency

• Founded in late 1960’s, dating back to GP residency at CMC

• 9-9-9-9 Structure
  – (6 residents located at Elizabeth FM, Main Track, 3 Residents located at CMC Biddle Point, Urban Track)

• Community-Based, University-Affiliated
  – Branch Campus of UNC SOM

• Faculty of 25 (MD’s, ACP’s, PharmD’s, Behavioral Health professionals)
Community Medicine Curriculum

- ½ day per month Through the 3rd year
- Part of a longitudinal curriculum
  - Practice Management
  - Behavioral Medicine
  - Occupational Medicine
  - QI
- Learn how to perform a community needs assessment
- Participate in various community outreach activities of the residents choosing.
PGY-3 Population Health Month

- 3-4 (½) days of continuity clinic per week
- 2-3 (½) days of continuity panel management
- ½ day with Amber Furr, Quality nurse
- ½ day with Clinic Quality RN (Ambra, EFM, or Alexis, BP)
- 2 (½) day Mecklenburg County Health Department (Refugee Clinic and STD/Family Planning clinic)
- Diabetes Clinic
- Asthma Clinic
- HIV clinic
- 1 Community Talk (JCSU, Sharon Towers or Aldersgate)
Opportunities & Challenges

• Finding meaningful opportunities for residents
• Balancing system demands and education
• Further developing/redefining our relationship with the Mecklenburg County Health Department
• Making our presence in the community more robust
• Tailoring the experience of the resident to their goals.
• Improving faculty knowledge of Population Health and engaging them to involve residents in their existing community roles
Safe Communities: A Model for Population Health & Injury Prevention

Herbert G. Garrison, MD, MPH
Associate Dean for Graduate Medical Education
Professor of Emergency Medicine
Director, Eastern Carolina Injury Prevention Program

East Carolina University
Brody School of Medicine

VIDANT Medical Center
Injury in North Carolina

• North Carolina has the 19th highest rate of injury deaths in United States

• 66 per 100,000 North Carolinians suffer a death from injury every year.
  National rate is 57.9 per 100,000
Leading Causes of Chronic Disease and Injury Death and Years of Life Lost: N.C., 2010

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Total Deaths</th>
<th>Average Years of Life Lost *</th>
<th>Total Years of Life Lost *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>18,013</td>
<td>3.45</td>
<td>62,167</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>17,090</td>
<td>2.61</td>
<td>44,582</td>
</tr>
<tr>
<td>Injury</td>
<td>5,983</td>
<td>18.68</td>
<td>111,774</td>
</tr>
<tr>
<td>Chronic Lower Respiratory Diseases (Asthma, COPD)</td>
<td>4,490</td>
<td>1.26</td>
<td>5,635</td>
</tr>
<tr>
<td>Stroke</td>
<td>4,281</td>
<td>1.91</td>
<td>8,176</td>
</tr>
<tr>
<td>Alzheimer's disease</td>
<td>2,813</td>
<td>0.04</td>
<td>104</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>2,036</td>
<td>3.54</td>
<td>7,207</td>
</tr>
<tr>
<td>Nephritis/Kidney Disease</td>
<td>1,886</td>
<td>2.30</td>
<td>4,330</td>
</tr>
<tr>
<td>Chronic Liver Disease</td>
<td>930</td>
<td>7.67</td>
<td>7,132</td>
</tr>
<tr>
<td>Hypertension</td>
<td>840</td>
<td>2.41</td>
<td>2,027</td>
</tr>
<tr>
<td>Total Deaths (all causes)</td>
<td>78,604</td>
<td>4.68</td>
<td>368,181</td>
</tr>
<tr>
<td>Chronic Disease Deaths</td>
<td>52,549</td>
<td>2.69</td>
<td>141,512</td>
</tr>
</tbody>
</table>

* Based on deaths that occurred prior to age 65

For 87% of the North Carolina population (ages 1 to 64), Injury is the leading cause of death.

Source: N.C. State Center for Health Statistics, 2009
# Leading Causes of Injury Deaths

(by Number of Deaths, All Ages, North Carolina Residents: 2010)

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unintentional Motor Vehicle Crashes</td>
<td>1,301</td>
</tr>
<tr>
<td>Suicides</td>
<td>1,160</td>
</tr>
<tr>
<td>Unintentional Poisoning</td>
<td>947</td>
</tr>
<tr>
<td>Unintentional Falls</td>
<td>854</td>
</tr>
<tr>
<td>Homicides</td>
<td>536</td>
</tr>
<tr>
<td>Unintentional Suffocation</td>
<td>183</td>
</tr>
<tr>
<td>Unintentional Drowning</td>
<td>147</td>
</tr>
<tr>
<td><strong>Total Deaths</strong></td>
<td><strong>5,983</strong></td>
</tr>
</tbody>
</table>

*Unintentional Other and Unintentional Unspecified* are two separate categories. *Other* comprises several smaller defined causes of death, while *Unspecified* refers to unintentional deaths that were not categorized due to coding challenges.

Source: NC State Center for Health Statistics, Death file 2010; Analysis by Injury Epidemiology and Surveillance Unit
Deaths from Injury and Violence are Only the Tip of the Iceberg

The vast majority of injuries in North Carolina go unreported.

Despite N.C.’s excellent reporting systems, the total burden of injury to the state is unknown.

* *2010 death file, 2009 hospitalization discharge and 2010 NC DETECT (Emergency Department visits)*
# Top 6 Leading Causes of Death (All Races, Both Sexes) by Age Groups, North Carolina: 2010

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>All Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birthweight</td>
<td>177</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unintentional Injury</td>
<td>32</td>
<td>Cancer 15</td>
<td>Motor Vehicle Injury 14</td>
<td>Motor Vehicle Injury 282</td>
<td>Unintentional Injury 259</td>
<td>Cancer 437</td>
<td>Cancer 1,716</td>
<td>Cancer 3,632</td>
<td>Heart Disease 13,076</td>
<td>Cancer 18,013</td>
<td></td>
</tr>
<tr>
<td>Congenital Anomalies</td>
<td>173</td>
<td>Motor Vehicle Injury 21</td>
<td>Motor Vehicle Injury 14</td>
<td>Unintentional Injury 149</td>
<td>Motor Vehicle Injury 229</td>
<td>Heart Disease 336</td>
<td>Heart Disease 1,197</td>
<td>Heart Disease 2,318</td>
<td>Cancer 12,020</td>
<td>Heart Disease 17,090</td>
<td></td>
</tr>
<tr>
<td>SIDS</td>
<td>53</td>
<td>Homicide 13</td>
<td>Unintentional Injury 14</td>
<td>Heart Disease 8</td>
<td>Homicide 133</td>
<td>Homicide 163</td>
<td>Unintentional Injury 317</td>
<td>Unintentional Injury 452</td>
<td>Chronic Lower Respiratory Disease 522</td>
<td>Chronic Lower Respiratory Disease 3,767</td>
<td>Chronic Lower Respiratory Disease 4,490</td>
</tr>
<tr>
<td>Pregnancy Related</td>
<td>51</td>
<td>Congenital Abnormalities 12</td>
<td>Congenital Abnormalities 4</td>
<td>Unintentional Injury 7</td>
<td>Suicide 132</td>
<td>Suicide 159</td>
<td>Suicide 212</td>
<td>Suicide 290</td>
<td>Cerebro-Vascular Disease 282</td>
<td>Cerebro-Vascular Disease 3,588</td>
<td>Cerebro-Vascular Disease 4,281</td>
</tr>
<tr>
<td>Placental, Cord, &amp; Other Complications</td>
<td>45</td>
<td>Cancer 9</td>
<td>Homicide 3</td>
<td>Homicide 7</td>
<td>Heart Disease 40</td>
<td>Cancer 134</td>
<td>Motor Vehicle Injury 211</td>
<td>Chronic Liver Disease &amp; Cirrhosis 245</td>
<td>Diabetes Mellitus 373</td>
<td>Alzheimer's Disease 2,788</td>
<td>Alzheimer's Disease 2,813</td>
</tr>
<tr>
<td>Circulatory System</td>
<td>27</td>
<td>Heart Disease 5</td>
<td>In-situ/ Benign Neoplasms 2</td>
<td>Congenital Abnormalities 5</td>
<td>Cancer 36</td>
<td>Heart Disease 95</td>
<td>HIV 78</td>
<td>Cerebro-Vascular Disease 213</td>
<td>Unintentional Injury 306</td>
<td>Nephritis 509</td>
<td>Unintentional Injury 2,762</td>
</tr>
</tbody>
</table>

Source: NC State Center for Health Statistics, Death file 2010; Analysis by Injury Epidemiology and Surveillance Unit
An ‘average’ injury day in NC

- 17 deaths
- 423 hospitalizations
- 2,383 ED visits
- ??? unattended
Eastern Carolina Injury Prevention Program

- Established in 1995
- Joint program of ECU’s Brody School of Medicine and Vidant Medical Center
- Mission: To implement projects and systems that decrease the incidence and severity of injuries in the 29 counties of eastern North Carolina.
- Vision: People in eastern North Carolina will be safe from injury on roadways, at work and school, at home and play.
Eastern Carolina Injury Prevention Program

• Interventions are applied, translational, practical

• Always in partnership; never alone or in isolation
ECIPP’s Region
ECIPP Partnerships – State & National

• Eastern Regional Advisory Council (ERAC)
• State Medical Assistance Team (SMAT)
• North Carolina Safe Kids Steering Committee
• Safe Kids North Carolina
• Safe Kids Worldwide
• North Carolina Department of Health and Human Services Injury and Violence Prevention State Advisory Council
• North Carolina DHHS Coordinated Chronic Disease, Injury and Health Promotion State Plan - Strategic Planning Group
• North Carolina Comprehensive Pedestrian and Bicycle Master Plan Advisory Committee.
• North Carolina Falls Coalition
• North Carolina Brain Injury Advisory Council
• American Association for Retired Persons Driver Safety Program
• Operation Medicine Cabinet Stakeholder’s Group
• Injury Free Coalition for Kids
**Kindig D, Stoddart G**
What is population health?

“Population health includes health outcomes, patterns of health determinants, and policies and interventions that link these two.”

- Health outcomes and distribution in a population (dependent variables)
- Patterns of health determinants over the life course (independent variables)
- Policies and interventions at the individual and social levels
Premise

“Safe Communities” = Population Health
Safe Communities of Pitt County, Inc

- Established in 1998
- Funded initially by the National Highway Safety Administration as a national demonstration project
- In conjunction with the UNC Highway Safety Research Center
- Sustained by funding from an ongoing Driver Improvement Course
Safe Communities Members

• East Carolina University
• Greenville Fire Rescue
• Greenville Police Department
• Greenville Public Works Department
• NC Department of Transportation
• NC State Highway Patrol
• Pitt Community College
• Pitt County Community Schools and Recreation
• Pitt County Council on Aging
• Pitt County District Attorney’s Office
• Pitt County Health Department
• Pitt County Planning Department
• Pitt County Sherriff’s Office
• Pitt County Schools
• Pitt Partners for Health
Injuries to Children in Motor Vehicles

Policies / Interventions
Child Safety Seats
• Inspection Stations
• Distribution
• Enforcement

Patterns of Health
Every child appropriately restrained

Outcome
Child deaths in motor vehicle crashes now very rare
Injuries to Bicycle Riders

Policies / Interventions
- Bicycle Helmet Law
- Bike Task Force
- Built Environment
- Helmet Use
- Bicycle Safety Training

Patterns of Health
- Helmet use
- Use of bike lanes
- Use of greenways

Outcome
- Deaths from bicycle crashes now very rare
International Bike to School Day
W.H. Robinson Elementary Rodeo, Greenville, NC
May 7, 2014
Injuries to Pedestrians

Policies / Interventions
Audible Indicators
Bike Ped Commission
Built Environment
Safe Routes to School
Walk to School Day
Enforcement

Patterns of Health
Use of sidewalks
Safer drivers

Outcome
Pedestrians deaths down to one per year (typical was 4/yr)
International Walk to School Day

Eastern Elementary, Greenville, NC

October 8, 2014
Regional International Walk to School Day Events, 2014

Greenville, NC
Kinston, NC
New Bern, NC
Farmville, NC
Goldsboro, NC
Farmville, NC
Winterville, NC
Injuries to Motor Vehicle Occupants

Policies / Interventions
- Driver Improvement Course
- Safe Teens
- Countdown to Drive
- AARP Driver Instruction
- Enforcement (Cloud of Deterrence)

Patterns of Health
- Use of seat belts
- Reduced speeding
- Reduced drunk driving
- Reduced texting while driving

Outcome
- Zero motor vehicle crash fatalities in Greenville in 2014
Brain Injuries to Sports Participants

Policies / Interventions
- Trainer Education
- Return to Play Policy
- Education of Parents and Students

Patterns of Health
- Evaluation for concussion
- No play after concussion
- Appropriate return to play

Outcome
- No second impact death in 4 years

BE SAFE. PLAY SAFE.
Sports Safety Prevention Program
What We’ve Learned

• Safe Communities is true “Population Health”
• Partnerships (and their cultivation) is critical
• University & Medical Center support is the glue
• Safe Communities approach can be a Population Health model/method to emulate
Upcoming Webinars:

- Repeat of today’s webinar on February 17, 2015 3:30-4:30pm EST

- March 10th, 2015 11:00am-12:00pm EST
  - Repeated March 20th, 2015 1:00-2:00pm EST

Recordings of past webinars are available at: http://cfm.mc.duke.edu/modules/cfm_resrc/index.php?id=1