JHS: Scope of Ongoing Collaborations

Adolfo Correa, MD, PhD
Overview /Objectives

• Meeting motivation
• Ongoing collaborations
• Some principles for collaboration
Meeting Motivation

• New strategic thinking on future of cohort studies
  – What will a new vision and mission look like in the next 5 years?
  – What is the timeline for development and implementation of new vision and mission?

• What will be priority strategies under a new vision and mission?
  – What types of collaborations will be worthwhile to pursue?
  – What metrics to use to assess value of such efforts?
ONGOING COLLABORATIONS

• Institutions and Centers
The Jackson Heart Study

• Single site, prospective cohort study of risk factors of cardiovascular diseases (CVD) in African Americans

• 5,301 men and women residents of Jackson, Mississippi metropolitan area

• Collaborative project among 3 institutional partners:

• Sponsored by:
Participation Rates in Exams 2 and 3: 77-81%

Exams, community engagement & expectations have been instrumental in achieving high participation rates.
ONGOING COLLABORATIONS

• Institutions and Centers
• Collaborative Research Group
Collaborative Research Group: Goals

• Do research in smarter ways
  – More organized and purposeful
    • Address unanswered questions
    • Pose questions that challenge existing paradigms
    • Pose questions within a policy framework
  – Aimed at yielding more useful findings
    • Inform treatment/prevention/policy deliberations
    • Facilitate identification of interventions
    • Open up new areas of research
• Use approaches that accelerate ways in which ideas are advanced and combined to provide new and/or more impactful insights
JHS Collaborative Research Group

Components

• Researchers with subject matter expertise
  – Vanguard Centers (VC), Working Groups (WG)

• Data coordination
  – VC data package, updated on a regular basis

• Research coordination
  – VC, WGs, research proposals, manuscripts, materials
JHS Vanguard Centers (VC)

• Vanguard Center (VC)
  – Biomedical research institution with PI with approved application for a JHS VC
    • Alignment of research goals
    • Agreed to VC criteria,
    • Completed VC PI DUA
    • Each new VC Inv signs DUA
  – VC Data package facilitates
    • Discovery process
    • More efficient development of manuscript proposals
  – All abstracts & manuscripts are required to be submitted to P&P and to have approved manuscript proposals
  – Data package is updated and distributed periodically
**Collaborating JHS Vanguard Centers**

1. Brigham & Women’s Hospital
2. Broad Institute
3. Brown University
4. CDC
5. Columbia University
6. Drexel University
7. Duke University
8. FHS/Boston University
9. Jackson State University
10. Johns Hopkins SPH
11. Mayo Clinic
12. Morehouse SOM
13. Northwestern University
14. NYU
15. Univ AL Birmingham
16. Univ MA at Lowell
17. Univ MS, Oxford, MS
18. Univ of North Carolina
19. Univ Washington
20. Vanderbilt University
21. Wake Forest

Blue = JHS RFA grantee
Green = JHS Subcontractor
<table>
<thead>
<tr>
<th>JHS Working Groups</th>
<th>Co-Chairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition &amp; Physical Activity</td>
<td>T. Carithers and K. Tucker</td>
</tr>
<tr>
<td>Diabetes &amp; Obesity</td>
<td>A. Bertoni, M. Carnethon, and S. Golden</td>
</tr>
<tr>
<td>Hypertension</td>
<td>P. Munter, D. Schimbo, and O. Olugbenga</td>
</tr>
<tr>
<td>CKD</td>
<td>E. Boulware and B. Young</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>L. Curtis and R. Mentz</td>
</tr>
<tr>
<td>Stroke</td>
<td>E. O’Brien and E. Shr</td>
</tr>
<tr>
<td>Genetics</td>
<td>L. Lange and J. Wilson</td>
</tr>
<tr>
<td>Psychosocial &amp; Environment</td>
<td>A. Diez-Roux and M. Sims</td>
</tr>
<tr>
<td>ECG / Arrhythmias</td>
<td>S. Heckbert and N. Sotoodenhia</td>
</tr>
</tbody>
</table>
ONGOING COLLABORATIONS

• Institutions and Centers
• Collaborative Research Group
  • Examples of recent publications
HTN WG: Isolated Nocturnal HTN

INH: night time systolic BP > 120 mm Hg or diastolic BP > 70 mm Hg

HTN Phenotypes

Table 2. Left ventricular mass indices and proteinuria by ambulatory blood pressure subtype

<table>
<thead>
<tr>
<th>Model</th>
<th>Normotension (N = 176)</th>
<th>Isolated daytime hypertension (N = 16)</th>
<th>Isolated nocturnal hypertension (N = 81)</th>
<th>Day–night hypertension (N = 162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: Unadjusted</td>
<td>136.16 (3.56)</td>
<td>147.34 (12.16)</td>
<td>162.46 (5.23)</td>
<td>169.84 (3.68)</td>
</tr>
<tr>
<td></td>
<td>P = 0.36</td>
<td>P = 0.01</td>
<td>P &lt; 0.01</td>
<td></td>
</tr>
<tr>
<td>Model 2: Age and gender adjusted</td>
<td>137.42 (3.53)</td>
<td>142.28 (11.99)</td>
<td>162.32 (5.13)</td>
<td>169.00 (3.82)</td>
</tr>
<tr>
<td></td>
<td>P = 0.70</td>
<td>P = 0.02</td>
<td>P &lt; 0.01</td>
<td></td>
</tr>
<tr>
<td>Model 3: Multivariable adjusted</td>
<td>136.32 (3.98)</td>
<td>139.04 (13.86)</td>
<td>147.54 (5.51)</td>
<td>162.30 (4.46)</td>
</tr>
<tr>
<td></td>
<td>P = 0.85</td>
<td>P = 0.12</td>
<td>P &lt; 0.01</td>
<td></td>
</tr>
</tbody>
</table>

LV Hypertrophy (LVMI ≥ 51 g/m2); N = 415

| Model 1: Unadjusted Prevalence | 1.0 3.5%               | 1.98 (0.22, 17.59)                   | 6.7%                                     | 6.23 (2.49, 16.65)               |
|                               | P = 0.54                | P = 0.06                               | P < 0.01                                 |                                  |
| Model 2: Age and gender adjusted | 1.0                    | 2.18 (0.24, 19.73)                   | 2.39 (0.96, 6.69)                        | 5.29 (2.43, 16.08)               |
|                               | P = 0.49                | P = 0.06                               | P < 0.01                                 |                                  |
| Model 3: Multivariable adjusted | 1.0                    | 2.58 (0.75, 8.94)                   | 4.64 (1.60, 13.48)                       |                                  |

Proteinuria (UACR > 30 mmol/dl); N = 340

American J Hypertension (2013)
Genetics WG: Sickle Cell Trait and CKD (JAMA, 2014)

Original Investigation

Association of Sickle Cell Trait With Chronic Kidney Disease and Albuminuria in African Americans

Rakhi P. Naik, MD, MHS; Vimal K. Derebam, MD; Morgan E. Grans, MD; Nora Franceschini, MD; Paul L. Auer, PhD; Gina M. Peloso, PhD; Bessie A. Young, MD; Guillaume Lettre, PhD; Carmen A. Palata, MD; Ronit Katz, DPhil; Hyacinth I. Hyacinth, MD; Rakale C. Quarells, PhD; Megan L. Grove, MS; Alexander G. Bick; Pierre Fontainilles, PhD; Stephen S. Rich, PhD; Joshua D. Smith; Eric Boehnwinke, PhD; Wayne D. Rosamond, PhD; Kaoru Ito, MD; Sophie Lanzon, MD; Josef Corseh, MD; Adolfo Correa, MD; Gloria E. Sarto, MD; Nigel S. Key, MBChB; David R. Jacobs, PhD; Sekar Kathiresan, MD; Kirsten Bibbins-Domingo, MD; Abhiraj V. Kshirsagar, MD; James G. Wilkson, MD; Alexander P. Reiner, MD

**IMPORTANCE** The association between sickle cell trait (SCT) and chronic kidney disease (CKD) is uncertain.

**OBJECTIVE** To describe the relationship between SCT and CKD and albuminuria in self-identified African Americans.

**DESIGN, SETTING, AND PARTICIPANTS** Using 5 large, prospective, US population-based studies (the Atherosclerosis Risk in Communities Study [ARIC, 1987-2013; n = 3402], Jackson Heart Study [JHS, 2000-2012; n = 2105], Coronary Artery Risk Development in Young Adults [CARDIA, 1985-2006; n = 848], Multi-Ethnic Study of Atherosclerosis [MESA, 2000-2012; n = 1620], and Women’s Health Initiative [WHI, 1993-2012; n = 8000]), we evaluated 15 975 self-identified African Americans (1248 participants with SCT [SCT carriers] and 14 727 participants without SCT [noncarriers]).
ONGOING COLLABORATIONS

• Institutions and Centers
• Collaborative Research Group
  • Examples of recent publications
• Recent collaborations
American Heart Association Cardiovascular Genome-Phenome Study: Foundational Basis and Program

Ivor J. Benjamin, Nancy Brown, Gregory L. Burke, Adolfo Correa, Steven R. Houser, Daniel W. Jones, Joseph Loscalzo, Ramachandran S. Vasan and Gayle Whitman
Recent JHS Collaborations

- **CV Genome Phenome Study** a collaboration among the JHS, FHS, and other population samples/cohorts to promote and support CV research in new and differentiated ways, combining cross-cohort data, grants, services
Recent JHS Collaborations: NHLBI WGS

• **NHLBI Whole Genome Sequencing Project**
  – FHS, JHS, several large family cohorts, and other studies of asthma, chronic obstructive pulmonary disease, and atrial fibrillation, for a total of approximately 17,000 individuals.
  – DNA of each of these individuals will undergo high coverage (~30x) whole genome sequencing.
  – The resulting data will be deposited in dbGaP

• **Lesson:** Successful collaborations require infrastructure, time, management
SOME PRINCIPLES FOR CROSS-COHORT COLLABORATIONS
Some Principles for Future CCC

• Need to continue to promote conventional manuscript proposals and ancillary study proposals

• For CCC, we will need to plan for:
  – Ensuring completeness of data & data quality (& documentation)
  – Data harmonization (& documentation)
  – Improving characterization and standardization of specific phenotypes and risk factors
  – Streamlined & balanced policies and procedures for research collaborations
  – Development of a common DMDA
Some Principles for future CCC

• Will need to develop and manage innovative strategies that
  – Make efficient use of resources
    • Sharing of operations / activities / facilities / resources
    • Eliminate redundancies
  – Emphasize dissemination of key findings through new channels / media
  – Keep key stakeholders engaged and informed
  – Prioritize high impact work
  – Make translation a priority
• Worthwhile to consider a public health framework for prevention and health promotion
Public Health Framework for Prevention and Health Promotion

- Surveillance
  - Prevalence rates, trends, clusters
  - Registry of cases for study or referral
  - Monitor and evaluate prevention efforts
- Epidemiological Studies
  - Risk factors, prognostic factors
  - Protective factors
  - Public concerns
- Prevention and Health Promotion Policies
  - Prevention strategies
  - Health promotion programs
  - Education
ONLINE INFORMATION ON THE JHS

https://www.jacksonheartstudy.org/jhsinfo/