Cross-Cohort Collaborating Meeting

March 7, 2015

JHS: Scope of Ongoing Collaborations

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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

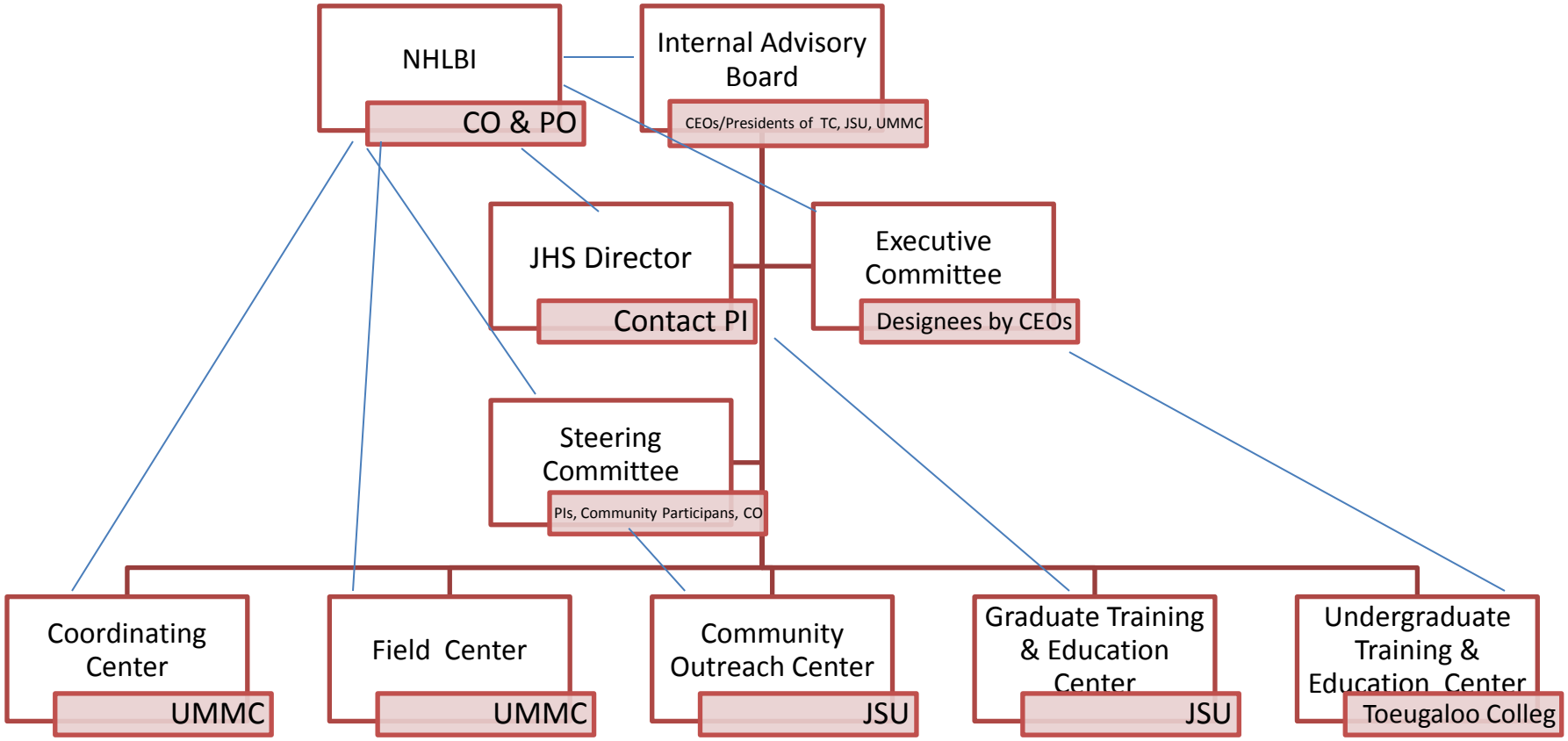
- Single site, prospective cohort study of risk factors of cardiovascular diseases (CVD) in African Americans

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

- **Collaborative project among 3 institutional partners:**

- Sponsored by:

JHS Centers Organizational Chart



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

Table 3.1 Number of JHS Eligible Participants at Start of Each Exam and Completed the Exam, Number of Hard Refusals, Deaths During the Exam Period, and Alive at the End of Exam

	Exam Period Dates		Total Numbers by Exam Period				
	Start	End	Alive at start of exam	Completed	Hard refusals	Deaths during the exam period	Alive at end of exam
Exam 1	9/1/2000	3/31/2004	5301	5301	0	58	5243[a]
Exam 2	10/1/2005	12/31/2008	5163	4203	0	203	4960[b]
Exam 3	2/1/2009	1/31/2013	4946	3815	117	276	4670[c]

[a] 80 deaths occurred between the end of Exam 1 and the beginning of Exam 2.

[b] 14 deaths occurred between the end of Exam 2 and the beginning of Exam 3.

[c] After Exam 3 ended, there was 1 death and 6 hard refusals.

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

    Get Data and MORE!
  - 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

JHS Working Groups

JHS Working Groups	Co-Chairs
Nutrition & Physical Activity	T. Carithers and K. Tucker
Diabetes & Obesity	A. Bertoni, M. Carnethon, and S. Golden
Hypertension	P. Munter, D. Schimbo, and O. Olugbenga
CKD	E. Boulware and B. Young
Heart Failure	L. Curtis and R. Mentz
Stroke	E. O'Brien and E. Shr
Genetics	L. Lange and J. Wilson
Psychosocial & Environment	A. Diez-Roux and M. Sims
ECG / Arrhythmias	S. Heckbert and N. Sotoodenhia

ONGOING COLLABORATIONS

- Institutions and Centers
- Collaborative Research Group
  - Examples of recent publications

HTN WG: Isolated Nocturnal HTN

ORIGINAL ARTICLE

Correlates of Isolated Nocturnal Hypertension and Target Organ Damage in a Population-Based Cohort of African Americans: The Jackson Heart Study

Gbenga Ogedegbe,[1] Tanya M. Spruill,[1] Daniel F. Sarpong,[2] Charles Agyen
Amy Pastva,[4] David Martins,[5] Joseph Ravenell,[1] and Thomas G. Pickering[6]

BACKGROUND
African Americans have higher rates of nocturnal hypertension and less nocturnal blood pressure (BP) dipping compared with whites. Although nocturnal hypertension is associated with increased cardiovascular morbidity and mortality, its clinical significance among those with normal daytime BP is unclear. This paper reports the prevalence and correlates of isolated nocturnal hypertension (INH) in a population-based cohort of African Americans enrolled in the Jackson Heart Study (JHS).

METHODS
The study sample included 425 untreated, normotensive and hypertensive JHS participants who underwent 24-hour ambulatory BP monitoring (ABPM), echocardiography, and 24-hour urine collection. Multiple logistic regression and 1-way analysis of variance models were used to test the hypothesis that those with INH have worse target organ damage reflected by greater left ventricular (LV) mass and proteinuria compared with normotensive participants.

RESULTS
Based on 24-hour ABP profiles, 19.1% of participants had INH. In age and sex-adjusted models, participants with INH had greater LV mass

compared with those who
about 3 times the odds of L
However, multivariable adju
tical significance of each of t

CONCLUSIONS
INH was associated with in
tension in a population-base
the JHS. There were trends to
and proteinuria among pa
normotensive. The clinical
damage should be explored

Keywords: ambulatory bloo
hypertension; Jackson Hear
organ damage.

doi:10.1093/ajh/hpt064

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

Model	Normotension (N = 176)	Isolated daytime hypertension (N = 16)	Isolated nocturnal hypertension (N = 81)	Day–night hypertension (N = 152)
LV Mass (g); N = 416				
Model 1: Unadjusted	136.16 (3.58)	147.84 (12.16)	152.46 (5.23)	169.84 (3.88)
		$P = 0.36$	$P = 0.01$	$P < 0.01$
Model 2: Age and gender adjusted	137.42 (3.53)	142.26 (11.99)	152.32 (5.13)	169.00 (3.82)
		$P = 0.70$	$P = 0.02$	$P < 0.01$
Model 3: Multivariable adjusted[a]	136.32 (3.98)	139.03 (13.86)	147.54 (5.81)	162.33 (4.45)
		$P = 0.85$	$P = 0.12$	$P < 0.01$
LV Hypertrophy (LVMI ≥ 51 g/m2); N = 415				
Model 1: Unadjusted Prevalence	1.0 3.5%	1.98 (0.22, 17.59) 6.7%	3.03 (1.02, 9.05) 9.9%	6.23 (2.49, 15.55) 18.4%
		$P = 0.54$	$P = 0.05$	$P < 0.01$
Model 2: Age and gender adjusted	1.0	2.18 (0.24, 19.73)	2.89 (0.96, 8.69)	5.99 (2.38, 15.08)
		$P = 0.49$	$P = 0.06$	$P < 0.01$
Model 3: Multivariable adjusted[a]	1.0	[b]	2.58 (0.75, 8.94)	4.64 (1.60, 13.48)
			$P = 0.13$	$P < 0.01$
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. Derebail, MD; Morgan E. Grams, MD; Nora Franceschini, MD; Paul L. Auer, PhD; Gina M. Peloso, PhD; Bessie A. Young, MD; Guillaume Lettre, PhD; Carmen A. Peralta, MD; Ronit Katz, DPhil; Hyacinth I. Hyacinth, MD; Rakale C. Quarells, PhD; Megan L. Grove, MS; Alexander G. Bick; Pierre Fontanillas, PhD; Stephen S. Rich, PhD; Joshua D. Smith; Eric Boerwinkle, PhD; Wayne D. Rosamond, PhD; Kaoru Ito, MD; Sophie Lanzkron, MD; Josef Coresh, MD; Adolfo Correa, MD; Gloria E. Sarto, MD; Nigel S. Key, MBChB; David R. Jacobs, PhD; Sekar Kathiresan, MD; Kirsten Bibbins-Domingo, MD; Abhijit V. Kshirsagar, MD; James G. Wilson, 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]).

Figure 2. Meta-analysis of Odds Ratios for Incident CKD Using Creatinine Values Comparing Sickle Cell Trait Carriers With Noncarriers

Study	No. of Participants		No. (%) With Incident CKD		Odds Ratio (95% CI)	Weight, %
	Noncarriers	SCT Carriers	Noncarriers	SCT Carriers		
CARDIA	775	72	20 (2.6)	5 (6.9)	3.09 (1.07-8.93)	3.85
MESA	1283	124	203 (15.8)	26 (21.0)	1.47 (0.91-2.36)	19.07
JHS	1388	114	91 (6.6)	14 (12.3)	2.33 (1.19-4.59)	9.50
WHI	1917	154	410 (21.4)	49 (31.8)	1.86 (1.28-2.70)	31.09
ARIC	3118	211	434 (13.9)	46 (21.8)	1.69 (1.20-2.39)	36.49
Overall (I^2 = 0.0%, P = .66)					1.79 (1.45-2.20)	100.00

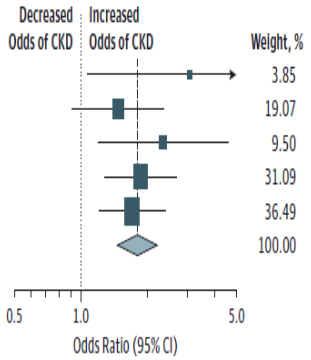
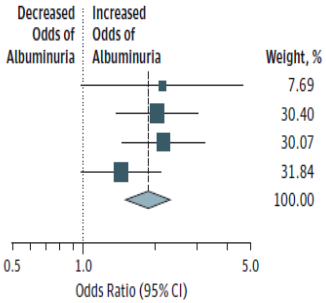


Figure 4. Meta-analysis of Odds Ratios for Albuminuria Comparing Sickle Cell Trait Carriers With Noncarriers

Study	No. of Participants		No. (%) With Albuminuria		Odds Ratio (95% CI)	Weight, %
	Noncarriers	SCT Carriers	Noncarriers	SCT Carriers		
CARDIA	609	53	75 (12.3)	15 (28.3)	2.13 (0.97-4.67)	7.69
MESA	1458	149	292 (20.0)	51 (34.2)	2.03 (1.37-3.02)	30.40
JHS	1790	153	327 (18.3)	46 (30.1)	2.16 (1.45-3.21)	30.07
ARIC	2090	130	474 (22.7)	42 (32.3)	1.43 (0.97-2.10)	31.84
Overall (I^2 = 0.0%, P = .45)					1.86 (1.49-2.31)	100.00



ONGOING COLLABORATIONS

- Institutions and Centers
- Collaborative Research Group
  - Examples of recent publications
- Recent collaborations

Recent JHS Collaborations

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

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

Circulation. published online November 19, 2014;
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Print ISSN: 0009-7322. Online ISSN: 1524-4539

Recent JHS Collaborations

- ***CV Genome Phenome Study*** a collaboration among the , FHS, the JHS, 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

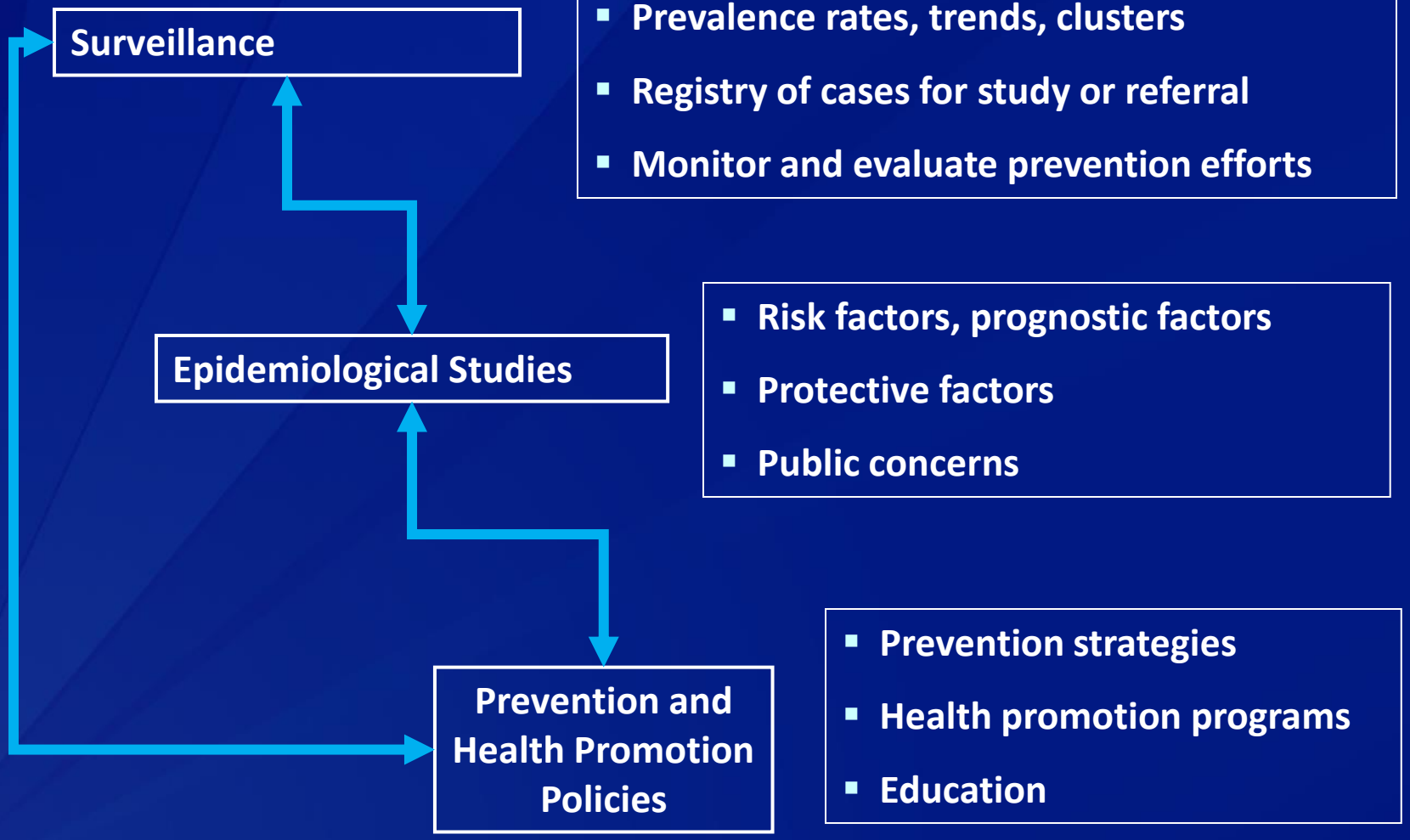
Some Principles for Future CCC

- 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



ONLINE INFORMATION ON THE JHS

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