

# Jackson Heart Study : A Resource for Scientific Inquiry

JHS Seminar & Data Workshop  
JSU e-Center, Jackson, MS

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Jackson State University



# Cardiovascular Mortality\*: 1998 - Mississippi

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CVD Type	Rate <sup>+</sup> (per 100,000)	Ranking
Total CVD	459.7	1
Heart Disease	366.8	1
Stroke	70.0	7

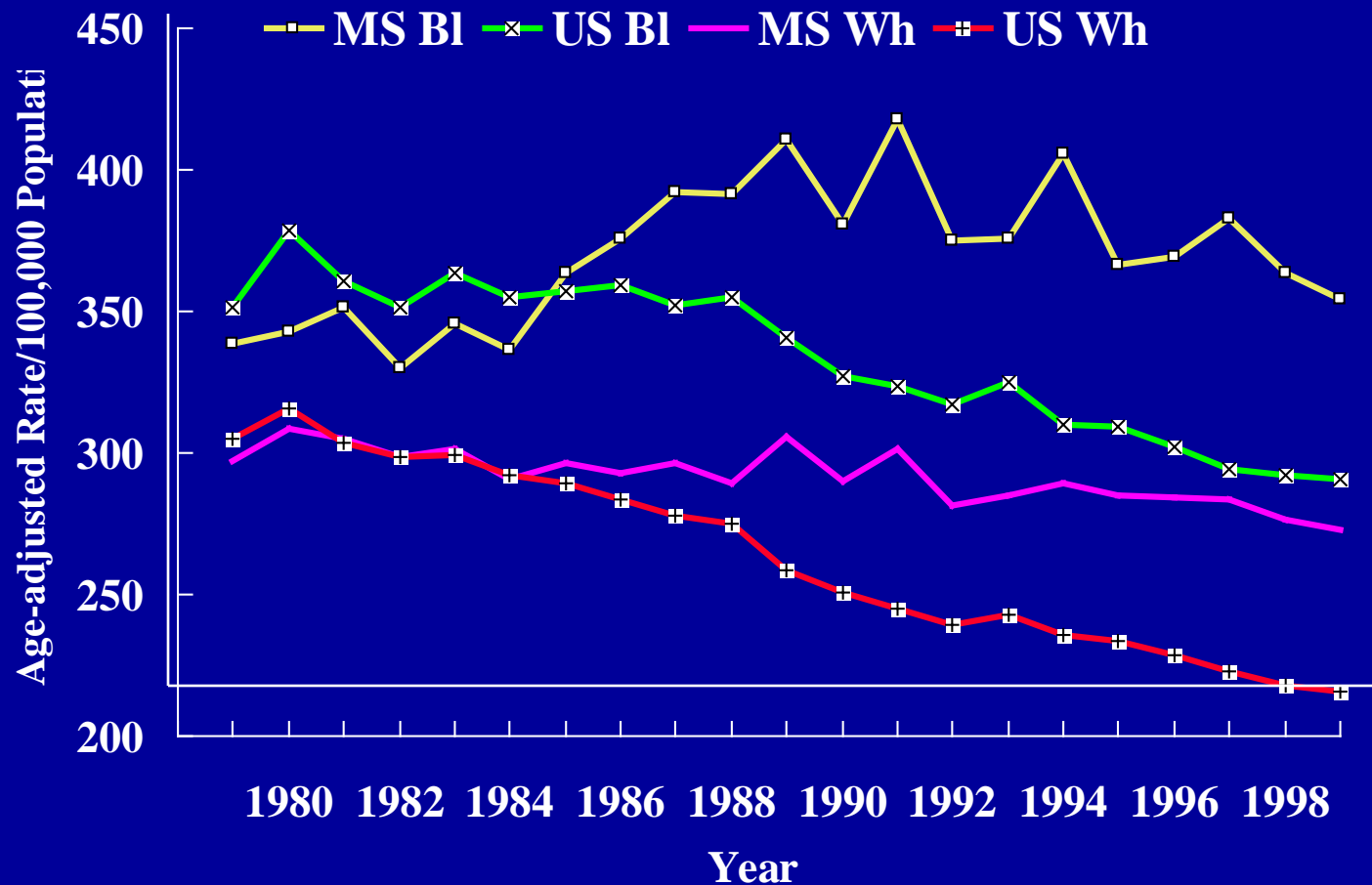
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\*: Age-adjusted to 2000 standard.

+ : Total population (men and women combined). Source: CDC Wonder.

# Heart Disease\* Death Rates

## Females: Mississippi & US

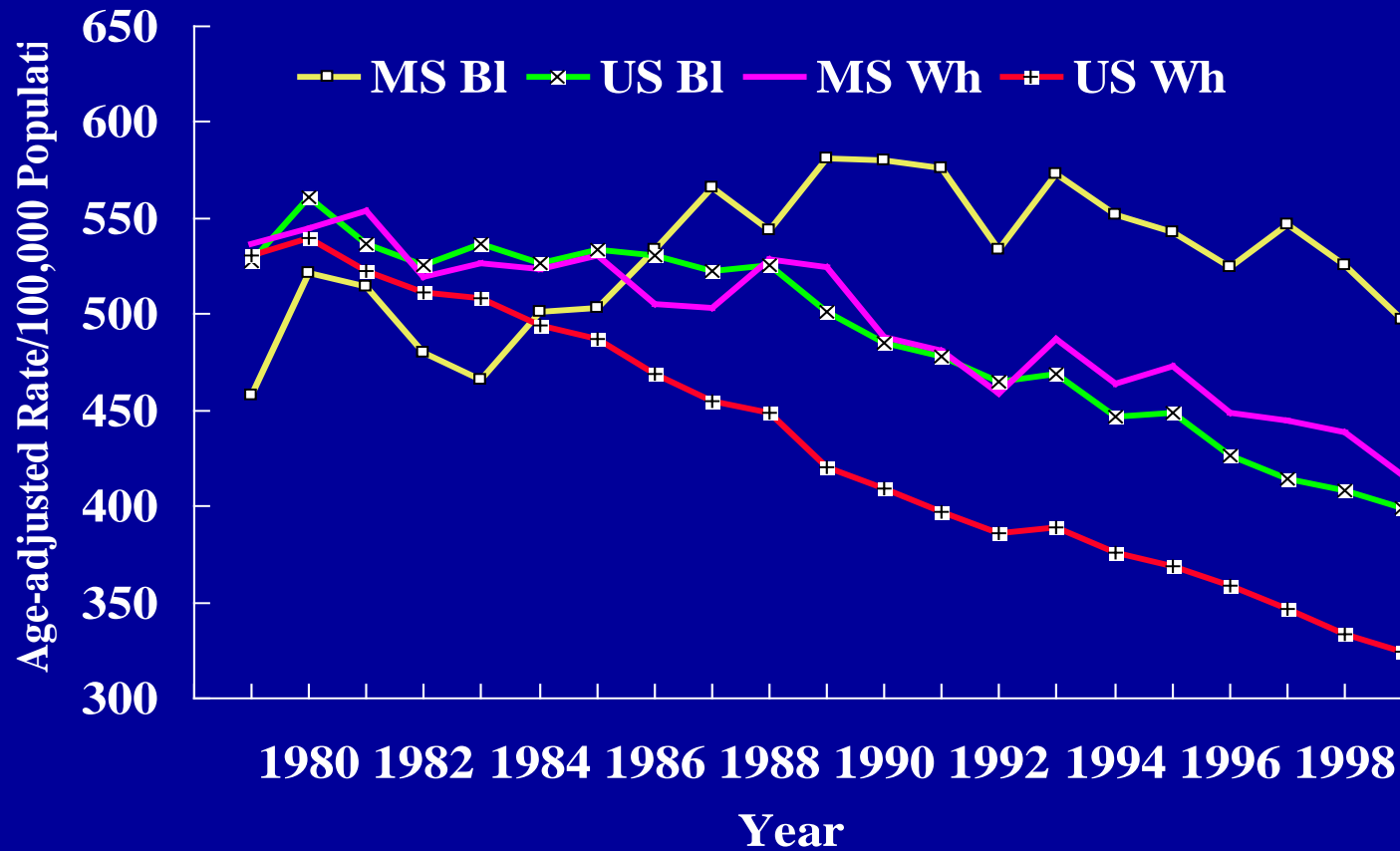


\* ICD 9 Nos. 390-398, 402, 404-429. Age-adjusted to 2000 Standard

Source: CDC Wonder.

# Heart Disease\* Death Rates

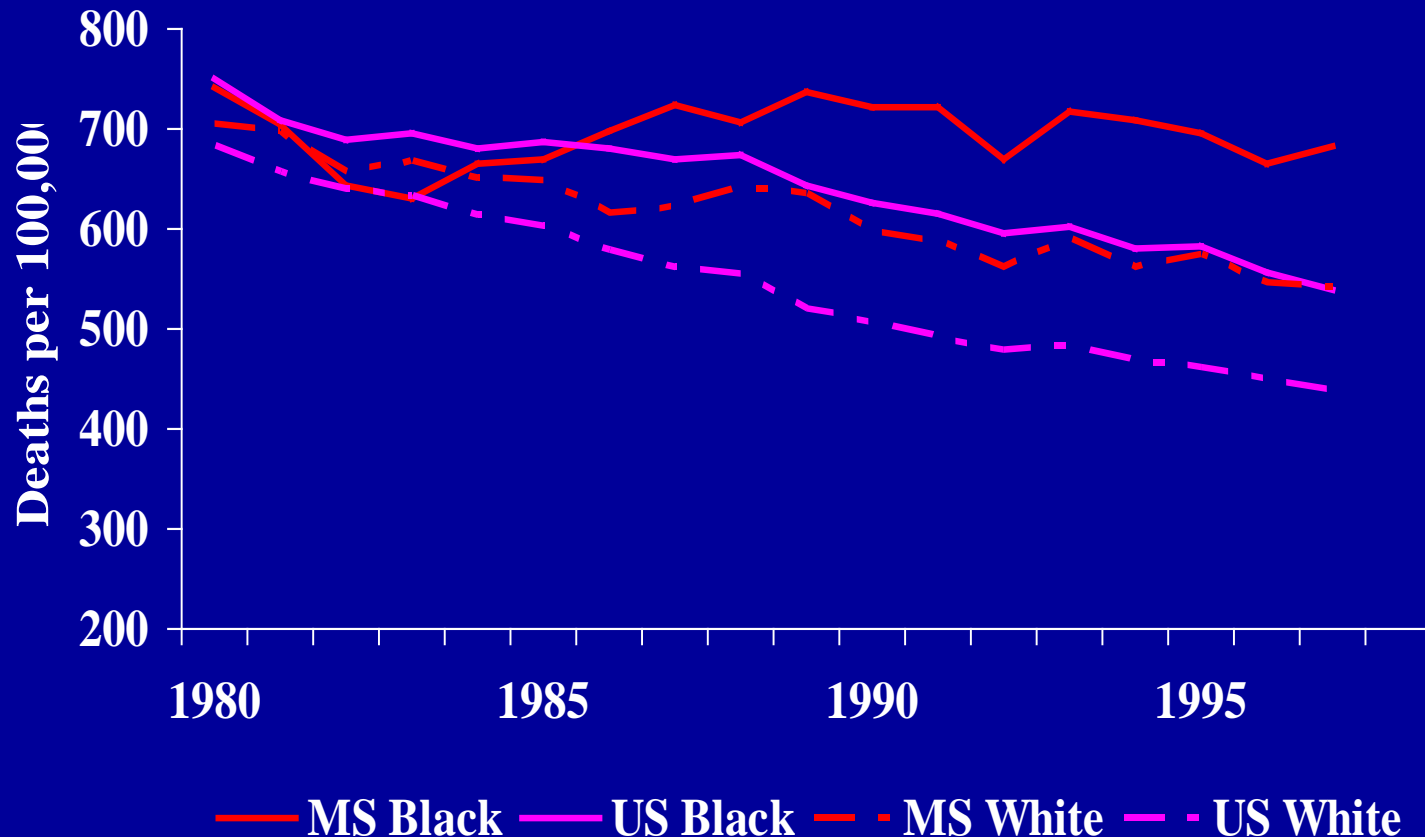
## Males: Mississippi & US



\* ICD 9 Nos. 390-398, 402, 404-429. Age-adjusted to 2000 Standard.

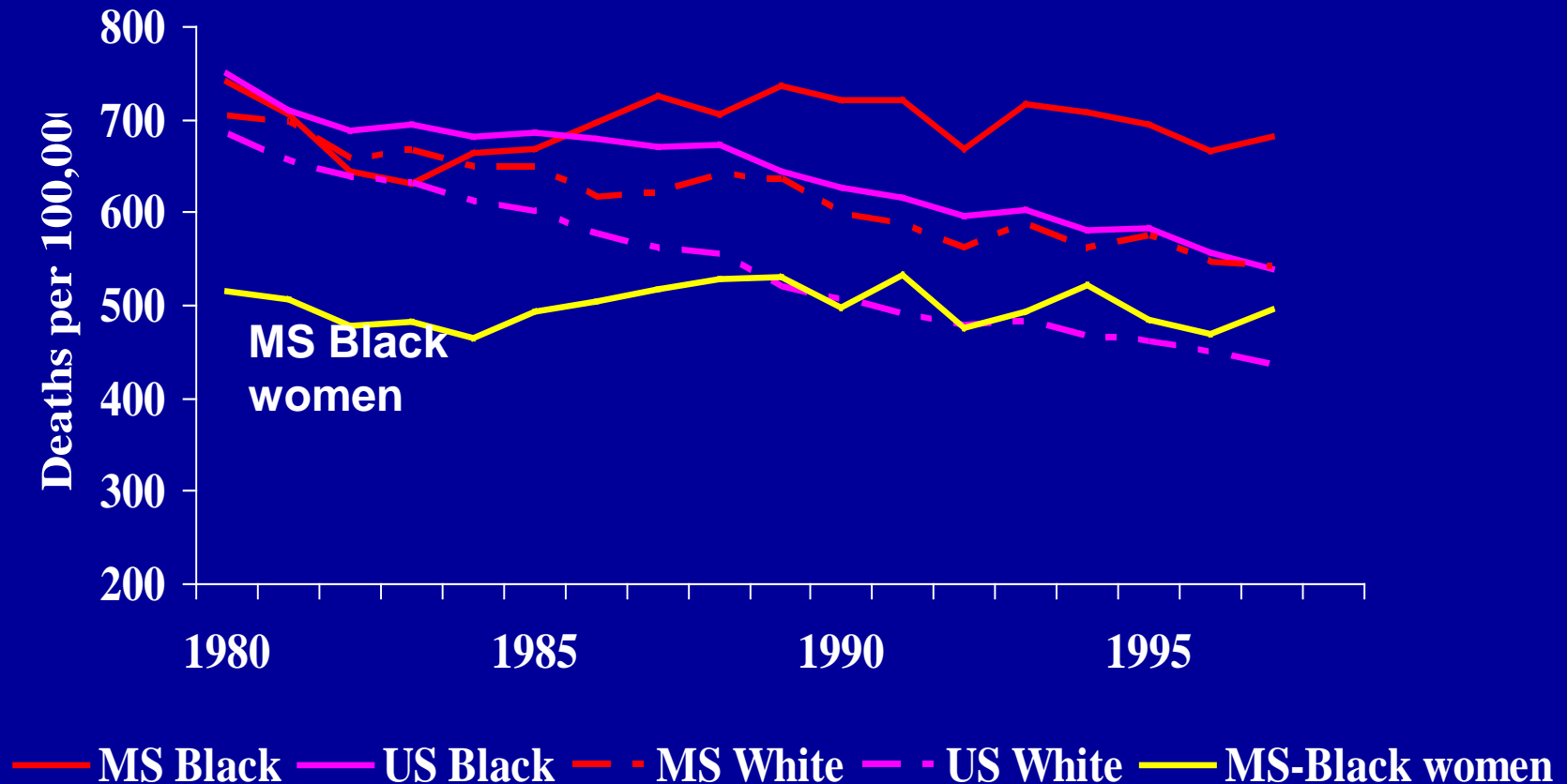
Source: CDC Wonder

# CVD DEATH RATES FOR MEN



Source: CDC Wonder Internet Web site  
(<http://wonder.cdc.gov>)

# CVD DEATH : Men vs Mississippi Black Women



Source: CDC Wonder Internet Web site  
(<http://wonder.cdc.gov>)

# Precursor to JHS - Atherosclerosis Risk in Communities (ARIC) Study

- Goal: Study risk factors for development and progression of cardiovascular diseases
- 4 Centers
  - **Jackson, MS**
  - Forsyth county, NC
  - Minneapolis, MN
  - Washington County, MD

# JHS: STUDY DESIGN

- 👉 Jackson tri-county area: Hinds, Madison, Rankin
- 👉 Cohort sample size: 5302
- 👉 Age 21 Years (Parent: 35-84 & Family:  $\geq 21$ )
- 👉 Men (36%) and women (64%)
- 👉 Families (Family Study)
  - ✓ study familial/genetic contributions to CVD
  - ✓ Sample Size: ~ 1700
- 👉 Interview and examination components
- 👉 Cohort follow-up for hospitalizations and death



# ARIC Study

- Size: approx 4,000 men and women at each site
  - Jackson initial sample size
    - Total N= 3,728
      - (46% response rate)
    - Men N=1,403
    - Women N=2,325
- Date of initial exam: 1987-1990
- Subsequent exam:
  - 1991-1993
  - 1994-1996
  - 1997-1999

# JHS Design

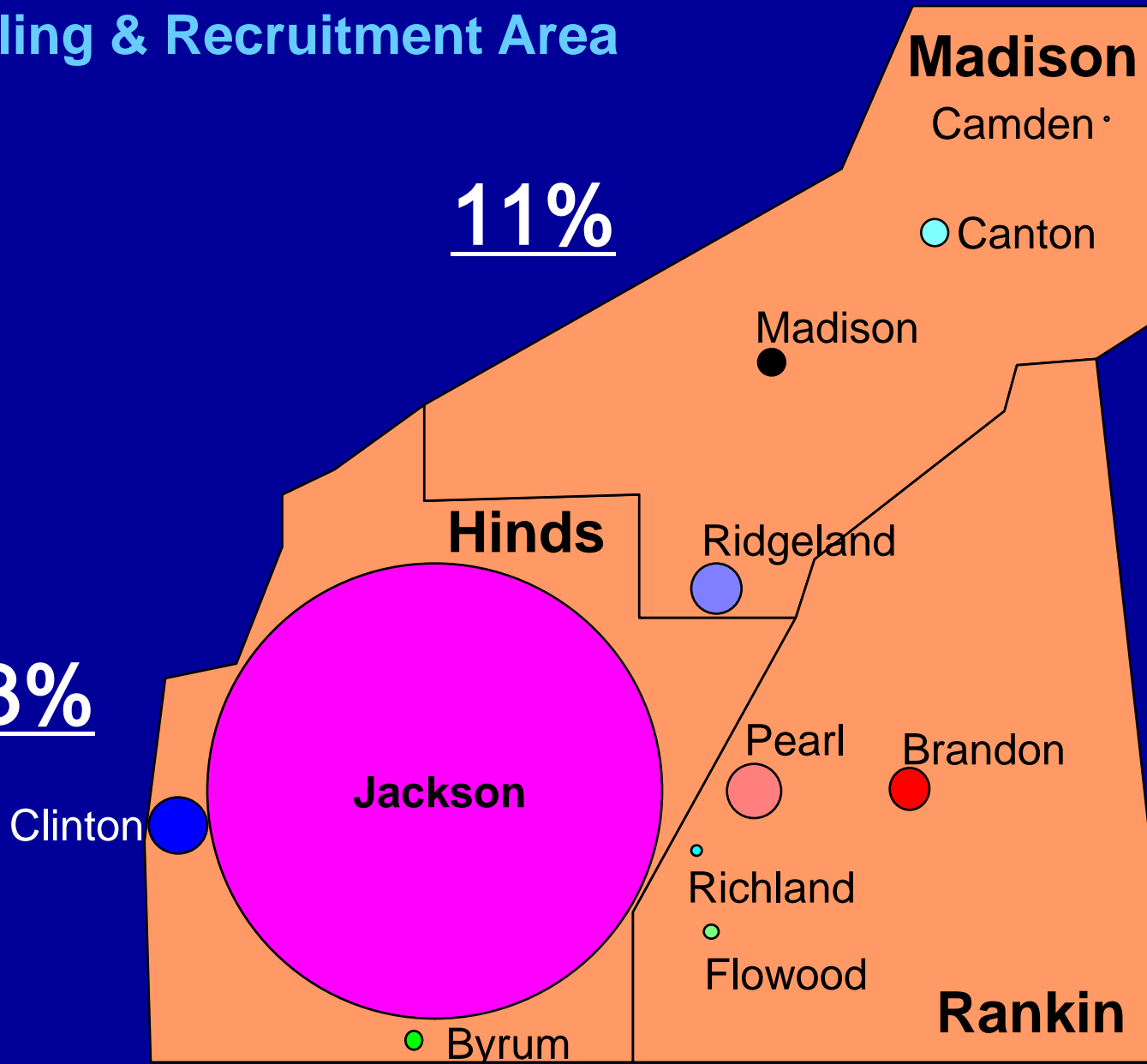
- Cohort: Sampling/Recruitment
  - Sample
  - Age, Sex, Geography, sample Type
- Home Induction Interview
  - Recruitment Phase I (n≈ 6300)
- Clinic Exam Components
  - Recruitment Phase II (n=5302)

# Sampling & Recruitment Area

83%

11%

6%



24 Miles

# Major Component of Exam 1

- Medical History
- Physical Examination
- Blood/Urine Analytes
- Interview/Questionnaire Constructs

# Medical History

- Health Behavior
  - Tobacco Use
  - Alcohol/Drug Consumption
  - Physical Activity
  - Nutrition
- Medication Survey
  - Prescription medication
  - Non-Prescription medication
  - Vitamin survey
  - Folk/herb medication
  - Medication-taking behaviors
- Reproductive History
  - Menopausal status
  - Gynecological surgery
  - Hormone replacement
- Symptoms/Procedures
  - Chest pain
  - Respiratory symptoms
  - Stroke symptoms
  - CVD procedures

# Physical Examination

- Anthropometry
  - Standing height
  - Neck girth
  - Waist girth
  - Weight
- Blood Pressure
  - Sitting
  - Ankle
  - Ambulatory
- CVD Evaluation
  - Electrocardiography
  - Echocardiography
  - Carotid Ultrasound
  - Respiratory Function

# Blood/Urine Analytes

- Blood/Plasma/Serum
  - Aldosterone
  - C-reactive protein
  - Chlamydia antibody
  - Total Cholesterol
  - HDL Cholesterol
  - LDL Cholesterol
  - Complete Blood Count
  - Cortisol
  - Creatinine
  - Endothelin

- Blood/Plasma/Serum
  - Glucose
  - HbA1c
  - Homocysteine
  - Insulin
  - Leptin
  - Lp(a)
  - Plasma renin\*
  - Potassium
  - Sodium
  - Triglycerides
  - Uric Acid

\*: Subset of cohort

# Blood/Urine Analytes

- Urine (Spot & 24-Hr\*)
  - Albumin
  - Chloride
  - Creatinine
  - Potassium
  - Sodium

\*: Subset of cohort



# Interview/Questionnaire Constructs

- Coping/Spirituality
  - Coping Strategies
  - Religious Involvement
  - Daily Spiritual Experiences
  - Interpersonal Support
  - John Henryism
  - Optimism
- Negative Emotions
  - Depression
  - Anger
  - Hostility
- Racism/Discrimination
  - Daily/chronic Discrimination
  - Response to Discrimination
  - Perceived Racism
  - Residential Segregation

# Interview/Questionnaire Constructs

- Access to Health Care
  - Primary Care
  - Insurance/medication
  - Trust/Satisfaction
- Stress
  - Major Life Events
  - Minor Stressors
  - Chronic Stress
- Socioeconomic Position
  - Personal/Spousal/Parental
  - Household Wealth
  - Job Strain
  - Class Mobility
  - Neighborhood SES

# Data Instruments & Naming Convention

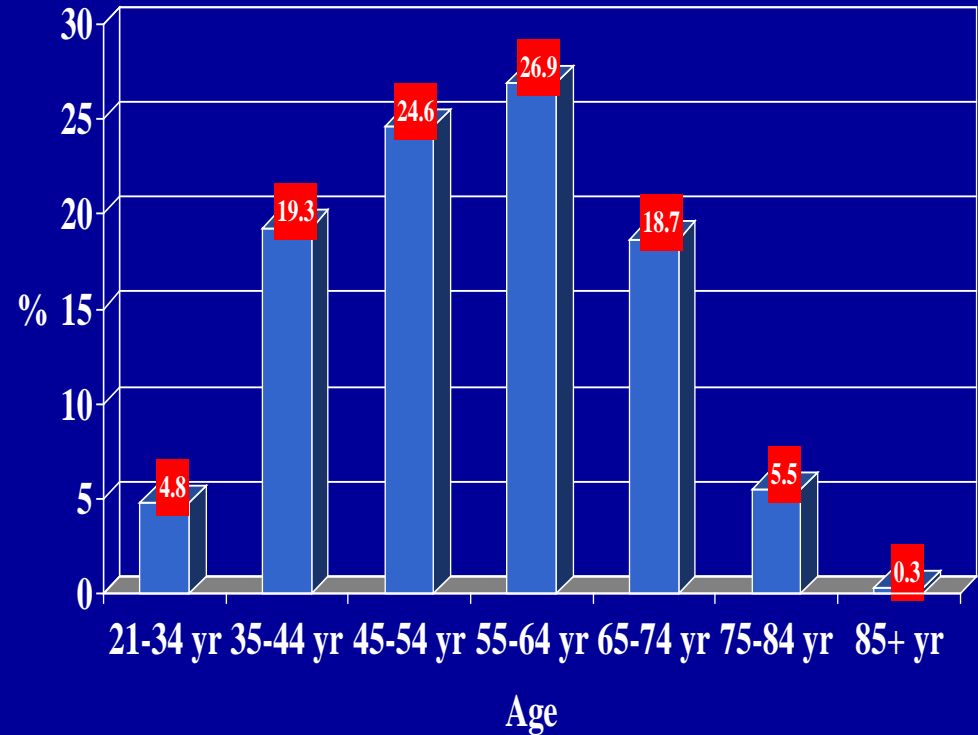
<b>Clinic &amp; Non Clinic Procedures</b>	<b>Form Code</b>
<b>ENUMERATION</b>	
Household Enumeration Form	HEF
Household Enumeration Supplement	HES
Household Enumeration Record of Calls	HER
Home Induction Record of Contact	IRC
Eligibility	ELG
Tracing Form	TRC
Personal & Family Health History	PFH
Health Practice: Tobacco Use	TOB
Health Practice: Physical Activity	PAC
Health Care Access & Utilization	HCA
Stress	STS
Social Support	SOC
Personal Data/Socioeconomic	PDS
Clinic Appointment	CLA
Contact Information	CON
Interviewer Observations	OBS

<b>BRING TO CLINIC</b>	
<b>Approach to Life A</b>	<b>ISL</b>
<b>Approach to Life B</b>	<b>CSI</b>
<b>Approach to Life C</b>	<b>RCP</b>
<b>CLINIC EXAM</b>	
<b>Informed Consent Tracking</b>	<b>ICT</b>
<b>Fasting Tracking</b>	<b>FTR</b>
<b>Medication Survey</b>	<b>MSR</b>
<b>Medical History</b>	<b>MHX</b>
<b>Stroke Symptoms</b>	<b>SSF</b>
<b>Reproductive History</b>	<b>RHX</b>
<b>Respiratory Symptoms</b>	<b>RPA</b>
<b>Alcohol and Drugs</b>	<b>ADR</b>
<b>Discrimination</b>	<b>DIS</b>
<b>Anthropometry</b>	<b>ANT</b>
<b>Sitting Blood Pressure</b>	<b>SBP</b>
<b>Ankle Brachial BP</b>	<b>ABB</b>
<b>Venipuncture</b>	<b>VEN</b>

<b>24 HOUR EXAM</b>	
<b>Pre ABPM</b>	<b>BAP</b>
<b>Post ABPM Form</b>	<b>ABP</b>
<b>Pre 24 Hr Physical Activity Monitoring</b>	<b>BPA</b>
<b>Post 24 Hr Physical Activity Monitoring</b>	<b>PPA</b>
<b>Pre 24 Hr Urine Collection</b>	<b>URN</b>
<b>Post 24 Hr Urine Return</b>	<b>URR</b>
<b>Hassles and Moods A</b>	<b>WSI</b>
<b>Hassles and Moods B</b>	<b>CES</b>
<b>Hassles and Moods C</b>	<b>CHO</b>
<b>Hassles and Moods D</b>	<b>STX</b>
<b>Family Linking Form</b>	<b>FLK</b>
<b>Local Examination Interpretation Form</b>	<b>LEI</b>

# JHS Cohort: Basic Characteristics

- N = 5302
- 64% Women
- Age:
  - 35-84 – Parent Study
  - 21+ - Family Study



# Preliminary Findings

**Table 3. Selected Baseline Clinical and Demographic Characteristics**

Phenotype	Mean (SD)		
	Male <i>n</i> =1907	Female <i>n</i> =3395	All <i>N</i> =5302
Age (years)	54.1 (13.0)	55.3 (12.7)	54.9 (12.9)
Weight (kg)	94.6 (22.6)	88.6 (21.7)	90.8 (22.2)
Height (cm)	177.4 (7.2)	164.1 (6.5)	168.9 (9.3)
Body mass index (kg/m <sup>2</sup> )	30.0 (6.8)	32.9 (7.8)	31.9 (7.6)
Systolic BP (mm Hg)	127.9 (18.0)	126.5 (18.7)	127.0 (18.4)
Diastolic BP (mm Hg)	81.4 (10.7)	77.3 (10.2)	78.8 (10.6)
Overweight (%)*	27.5%	39.9%	32.0%
Obese (%)*	41.4%	59.9%	53.3%
Pre-hypertension (%)*	25.2%	17.5%	20.2%
Hypertension (%)*	59.7%	63.4%	62.1
Pre-diabetes (%)*	16.5%	13.1%	14.4%
Diabetes (%)*	17.2%	19.8%	18.8%

\* Defined in accordance with NHLBI and American Diabetes Association guidelines. Overweight: BMI=25–29.9; Obese: BMI=30+. <sup>74–76</sup>



Table 3. Age, sex, education, and income distributions of the JHS cohort by sample type, *N*=5,302

Variable	Sample Type				Total; %
	Random	Volunteer	ARIC	Family	
<b>Total</b>	921	1579	1626	1186	5,302; 100%
<b>Age</b>					
21–34 years	0	0	0	252	252; 4.8%
35–54 years	620	1,062	18	626	2,326; 43.8%
55–74 years	252	458	1,449	258	2,417; 45.6%
75–84 years	48	50	158	36	292; 6.5%
85+ years			1	14	15; 0.3%
<b>Sex</b>					
Female	577	956	1093	769	3395; 64.03%
Male	344	613	533	417	1907; 35.97%
<b>Education</b>					
<HS	159	170	570	194	1094; 20.6%
HS, some college	376	615	526	604	3217; 40.1%
College+	382	784	528	387	2083; 39.3%
<b>Income*</b>					
<\$16,000	180	190	423	216	1010; 22.7%
\$16,000–24,999	45	169	294	130	700; 15.7%
\$25,000–49,999	205	384	389	243	1223; 27.5%
\$50,000–99,999	222	439	259	251	1173; 26.3%
≥\$100,000	53	148	90	57	348; 7.8%

\* Missing data = 846.

JHS=Jackson Heart Study; ARIC=Atherosclerosis Risk in Communities Study.

# **Jackson Heart Study**

## **Guidelines for Publications and Presentations Subcommittee (PPS)**

### **Introduction**

The Publication and Presentations Subcommittee (PPS) of the Jackson Heart Study (JHS) oversees all aspects of publications and presentations involving JHS study data:

- All manuscript proposals,
- Abstracts, and
- Manuscripts prior to submission for journal publication or meeting presentation, as well as related media or other presentations.

# Preparation and Approval Process for Manuscripts, Abstracts and Presentations

- Manuscript Proposal
  - Investigators, Co-Principal Investigators and academic staff from three partner institutions, the JHS Director's office, participating NHLBI staff (Field Site and Project office) and JHS subcontractors or consultants.
- Manuscript Body
  - A clear statement of the nature of the problem, the hypotheses
  - Analytic approach (type of statistical computations and summarization of data)
  - Summary/conclusion and pertinent references.

## Additional Information

- the type of study, the type of data, specification of use of genetic/DNA information. The lead author initiates the manuscript proposal draft, prepares a list of co-authors and their commitment.

- **Proposal Format and Submission**

The JHS has a standardized form that is used for manuscript proposal submission

- **PPS Approval of Proposal**

The committee meets and votes, a decision letter (approved, conditional approval, provisional approval and deferred) is sent to the lead author.

# Contact Information

- **PPS Chair**

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Professor of Mathematics

Tougaloo College

Tougaloo, MS 39216

Phone: (601) 978-7754

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- **PPS Administrative Coordinator**

Brenda C. Jenkins, MPH ([brenda.w.campbell@jsums.edu](mailto:brenda.w.campbell@jsums.edu))

Jackson Heart Study Coordinating Center

Jackson Medical Mall, Suite 701

Jackson, MS 39213

(601) 368-4631 or Fax (601) 368-7312

- Website

<http://www.jsums.edu/~jhs/>

- Online Application: <http://jhs.jsums.edu/jhsonline/>

# Ancillary Study

## An Overview

An Ancillary Study is an investigation which is not part of the Jackson Heart Study (JHS) protocol but uses all or a subgroup of the JHS cohort, samples, or data collected by JHS.

- Ancillary Studies are subject to the same policies, reviews and approvals as the core protocol.

# Ancillary Study

- **Evaluated by the Steering Committee with the highest priority given to the following:**
  - 1) highest scientific merit,**
  - 2) do not interfere with the main study objective**
  - 3) the least burden on participants,**
  - 4) objectives related to the study, and**
  - 5) require the unique characteristics of the cohort**

# Ancillary Study Proposal

*The Ancillary Study Investigators should provide a synopsis of the proposed study to include the following:*

- **1) Project Sponsoring Information**
- **2) Design and Methods**
- **3) Data Management Issues**
- **4) Assurance**
- **5) Data Management**
- **6) Genetic/Family Studies (if applicable)**
- **7) Other Information**



# Ancillary Review Process

- **Ancillary Application** can be found on the Jackson Heart Study Web site (<http://www.jsums.edu/~jhs/>), or can be obtained by contacting the JHS Coordinating Center at (601) 368-4650.
- Online Application: <http://jhs.jsums.edu/jhsonline/>
- **Submission** is electronic and should be submitted to
  - Ms. Brenda W. Jenkins, Research Associate at [brenda.w.campbell@jsums.edu](mailto:brenda.w.campbell@jsums.edu)
  - or it may be directed to
  - Dr. James Perkins, Chair of the ASSC at [james.perkins@jsums.edu](mailto:james.perkins@jsums.edu)

# Summary

- JHS is an epidemiological resources that will
  - impact CVD disparities
  - improve treatment regimen for ethnic minorities
  - Identify novel CVD risk factors
  - identify gene and environment interactions
  - CVD related candidate genes
- Contribute significantly to the next generation of African American Cardiovascular disease/health researchers
- JHS serves as significant resource for ancillary studies

# Summary

- JHS welcomes collaboration with interested investigators for scientific output.
  - Manuscript development
  - Ancillary studies
- There are over 30 million data points and growing.
- Reference for Initial Methods Papers
  - *Ethnicity & Disease 2005; Vol. 15: Supplement 6.*

Thanks!

Questions & Answers