



# **CDC/IUHPE CARDIOVASCULAR HEALTH PROMOTION AND CHRONIC DISEASE EPIDEMIOLOGY**

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**NIGERIA TEAM 1- ILE-IFE**

**TEAM LEADER:**

**PROF MICHAEL BALOGUN**



# 2004 TEAM MEMBERS

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- DR RUFUS ADEDOYIN
- DR (MRS) YEMISI OBASHORO-JOHN
- MR MAXWELL LOKO
- DR RASAAQ ADEBAYO
- PRINCESS OYEDOYIN AYOOLA
- MR OLU BELLO
- DR KOLAPO OYENIYI



# 2005 TEAM MEMBERS

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- Dr A. O. Akintomide
- Dr (Mrs) O. P. Akinwusi
- Mrs O.A. Lewis
- Dr (Mrs) O. Obashoro-John
- Miss O. A.Tiboyin
- Rev (Dr) S.O. Orioke



# 2006 TEAM MEMBERS

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- Miss O. O. Balogun
- Dr O.E. Ajayi
- Dr (Mrs) Peju Esimai
- Mrs O Adebayo
- Mr A. Ogunrounbi
- Dr Wale Okediran



# PROJECT TITLE

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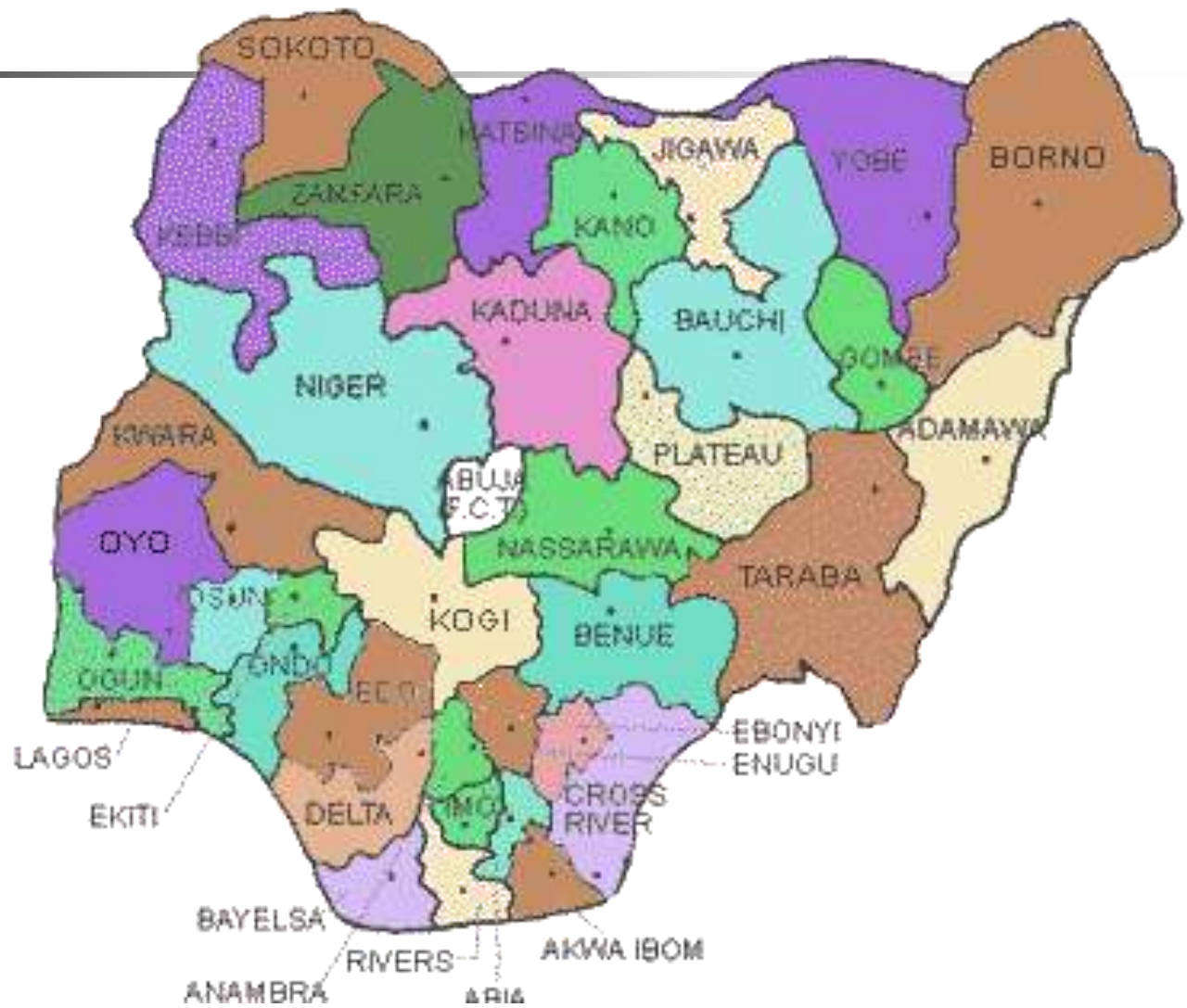
- **A Community Based  
Cardiovascular Disease  
Prevention and Health  
Promotion Programme**



# The Map of Nigeria

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- Osun State is one of the states in the South West of Nigeria.
- The population of the Ife North Local Government according to year 2006 population census was 153,274.





# Obafemi Awolowo University

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- The Obafemi Awolowo University/the Obafemi Awolowo University Teaching Hospitals, Ile-Ife have a significant influence on the health and socio-economic life of the Ife North Local Government Population.
- Many members of the Nigeria Team 1 are employees of these two institutions.









# BACKGROUND

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- In Sub-Saharan Africa there is a double burden of infections and CV disease with enormous financial implications and a significant burden on public health services.
- There is therefore the need to curb adverse trends by utilizing population based strategies designed to promote CV health.



# OBJECTIVES

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- **General Objective**

- The general objective was to promote CV health and prevent chronic NCDs in Osun State, South West Nigeria.

- **Specific Objectives**

- To improve cardiovascular health through health promotion and education within Osun state.
- To impact policy makers with a view to ensuring favourable policies.
- To assess baseline CVD risk factors in a random sample of selected communities within Osun State.





# ■ Population

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- The population of the Local Government according to year 2006 population census was 153,274.
- Three major towns, Ipetumodu, Edunabon and Moro were randomly selected.
- Three political wards were randomly selected from each town.



# INTERVENTIONS

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- **ADVOCACY**

- Included advocacy visits to: - the Local Government Leadership, Kings, Chiefs, and the key opinion leaders of the 3 communities (Edun Abon, Ipetumodu and Moro) in the Ife North Local Government Area of the State, the Chief Medical Director and the Management Team of the Teaching Hospital.
- They were informed, sensitized and educated about the project in order to effectively mobilize the communities.



# INTERVENTIONS- INSTRUMENTS

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- Simultaneously the programme instruments (questionnaires, FGDs, consent form etc) were developed. Ethical clearance for the programme was sought for and obtained from the Ethics Review Committee, Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife.
- A Project Coordinator was employed to coordinate all our activities.



# INTERVENTIONS- FGDs

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- The focus group discussion was conducted on Monday, 27th February 2006; four discussion sessions were carried out. Two groups were made up of men while the other two groups were composed of women. Two sessions were conducted in Ipetumodu and two sessions were carried out in Edun-Abon. The first section of the FGD guide was made up of general health questions while the second section was composed of specific questions relating to cardiovascular health. The interviewers were trained on the FGD guide before the fieldwork. Each FGD group was made up of seven people.





# INTERVENTIONS-Baseline Survey

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- Eighteen (18) field workers were trained. Nine workers were chosen as leaders. The questionnaire we used is a modification of the BRFSS and WHO STEPS adapted to the local environment. There were three groups of 2 workers each per community. A pilot study was conducted and 1000 copies of the questionnaire were randomly administered. Blood pressure, abdominal circumference, waist/ hip ratio, weight, height were measured in these subjects.
- Lipid profile and blood sugar measurements were obtained in 132 randomly selected subjects and their CV and anthropometric parameters were obtained.



# INTERVENTIONS- Awareness Campaign

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- We commenced a **13 week Live television program** on CV health promotion on Sunday, 9th April 2006 on the National Television Authority (NTA), Ile-Ife from 5:00 to 5:30pm on Sundays. We had 13 live phone-in sessions and one pre-recorded session. The program was in both English and Yoruba and responses showed that it was watched across three States of the Federation. We had invitations to give health talks on CV disease to professionals, business men and politicians. We also had a **live phone-in radio interview** on a popular radio channel in the State.



# Constraints and Challenges

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- Advocacy visits
- Funding
- Transportation
- Team Members relocation
- **However we had successful partnerships and a core group of committed team members**



# FINDINGS

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- The FGDs revealed that infections, hypertension and stroke were common while tobacco use and diabetes were seen as uncommon although tobacco cultivation was on the increase.
- The TV program titled “HEARTBEAT: HOW TO HAVE A HEALTHY HEART” was very popular and responses were obtained from 3 States. We had a high volume of telephone calls and we also responded to text messages.



# Epidemiological Data

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- The results were analysed and are presented in the following tables. The prevalence rate of  $SBP \geq 140$  mmHg was 18.7% while the prevalence rate of  $DBP \geq 90$  mmHg was 13.3%



**TABLE 1: CHARACTERISTICS OF THE SUBJECTS (N=1000)**

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<b>Variables</b>	<b>Min</b>	<b>Max</b>	<b>Mean <math>\pm</math> SD</b>
<b>Age (yrs)</b>	15	90	32.3 $\pm$ 14.7
<b>Height (m)</b>	1.20	1.90	1.5 $\pm$ 0.1
<b>Weight (kg)</b>	30	128	62 $\pm$ 13.0
<b>Waist Circum (cm)</b>	32	140	79.5 $\pm$ 11.7
<b>Hip Circum (cm)</b>	36	152	91.2 $\pm$ 12.7
<b>SBP (mmHg)</b>	93	201	126 $\pm$ 16.9
<b>DBP (mmHg)</b>	53	160	77.0 $\pm$ 12.1

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**Table 2: Descriptive results for Male and Female(n=1000)**

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	<b>Male Mean <math>\pm</math> SD</b>	<b>Female Mean <math>\pm</math> SD</b>	<b>Sig.</b>
<b>Age (yrs)</b>	32 $\pm$ 13.8	32.6 $\pm$ 15.4	0.56
<b>Height (m)</b>	1.7 $\pm$ 0.09	1.6 $\pm$ 0.08	0.109
<b>Weight (kg)</b>	63.5 $\pm$ 13.0	60.9 $\pm$ 11.8	0.783
<b>Waist Circum (cm)</b>	80.5 $\pm$ 1.7	78.5 $\pm$ 11.7	0.161
<b>Hip Circum (cm)</b>	92.4 $\pm$	90.1 $\pm$ 13.5	0.559
<b>SBP (mmHg)</b>	126.5 $\pm$ 18.4	125.1 $\pm$ 15.2	0.020
<b>DBP (mmHg)</b>	77.5 $\pm$ 11.7	76.4 $\pm$ 12.5	0.290

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**Table 3: Mean Values of Variables across Age Groups  
(n=1000).**

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<b>Age group (yrs)</b>	<b>WC</b>	<b>SBP</b>	<b>DBP</b>
15-20	73.9821 ± 7.5426	122.1390 ± 14.0207	75.4215 ± 11.1989
21-30	97.7363 ± 9.2094	125.0078 ± 15.5281	76.1932 ± 11.9873
31-40	82.9243 ± 14.5593	125.0324 ± 15.0325	77.2541 ± 11.4576
41-50	84.3483 ± 12.0671	129.7303 ± 18.5655	80.0562 ± 13.5415
51-60	87.0820 ± 15.3002	130.8525 ± 24.6906	76.7213 ± 13.6261
61-70	88.3095 ± 11.9501	137.5000 ± 24.9235	82.3333 ± 13.0602
71-above	77.8235 ± 9.7223	131.0000 ± 12.4298	80.0000 ± 11.1243

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Table 4: **Prevalence Rate of Variables (n=1000)**

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<b>Waist Circumference (cm)</b>	<b>27.3%</b>
<b>Systolic BP (mmHg)</b>	<b>18.7%</b>
<b>Diastolic BP (mmHg)</b>	<b>13.3%</b>
<b>Body Mass Index (kg<sup>m</sup>-<sup>2</sup>)</b>	<b>25.1%</b>

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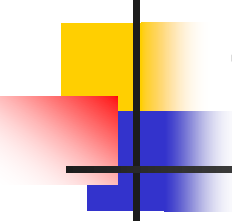


**Table 5: Table of ANOVA across the Age Groups**

**ANOVA result of Waist Circumference across age Group**

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>WC between Groups</b>	19055.157	6	3175.860	26.676	.000*
<b>Within Groups</b>	118219.47	993	119.053		
<b>Total</b>	137274.63	999			

\*Significant at  $P < 0.05$



**Table 6: ANOVA result of Hip Circumference across Age Groups**

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>HC between Groups</b>	8998.368	6	1499.728	9.737	.000*
<b>Within Groups</b>	152946.28	993	154.024		
<b>Total</b>	161944.65	999			

\*Significant at P <0.05



**Table 7:** ANOVA results of SBP across Age Groups

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>between Groups</b>	12478.651	6	2079.775	7.588	.000*
<b>Within Groups</b>	272179	993	274.098		
<b>Total</b>	284657.82	999			

\*Significant at  $P < 0.05$



**Table 8: ANOVA result of DBP across Age Groups.**

	Sum of Squares	df	Mean Square	F	Sig
between Groups	2993.491	6	498.915	3.46	.00
Within Groups	143139.45	993	144.148	1	2*
Total	146132.94	999			

\*Significant at  $P < 0.05$

**Table 9: Relationship between blood pressure and anthropometric indices.**

		SBP	DPB	PP	MAP
AGE	Pearson correlation	.201**	.126**	.119**	.183**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1000	1000	1000	1000
HT	Pearson correlation	.099**	.043	.073*	.077*
	Sig. (2-tailed)	.002	.178	.021	.015
	N	1000	1000	1000	1000
WT	Pearson correlation	.129**	.168**	.010	.177**
	Sig. (2-tailed)	.000	.000	.762	.000
	N	1000	1000	1000	1000
WC	Pearson correlation	.093**	.141**	-.009	.141**
	Sig. (2-tailed)	.003	.000	.772	.000
	N	1000	1000	1000	1000
HC	Pearson correlation	.027	.083**	-.035	.070*
	Sig. (2-tailed)	.394	.009	.275	.027
	N	1000	1000	1000	1000
BMI	Pearson correlation	.075*	.138**	-.026	.131**
	Sig. (2-tailed)	.018	.000	.412	.000
	N	1000	1000	1000	1000

\*Significant at P ,0.05

\*\*Significant at P < 0.01

MAP- mean arterial blood pressure



# Prevalence of Metabolic Syndrome

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- The following tables showed our findings with the randomly selected subset population of 132 subjects

**Table 10. Comparison of physical characteristics, cardiovascular, and biochemical profiles by gender.**

<b>Variable</b>	<b>Male n=55</b>	<b>Female n=77</b>	<b>t cal</b>	<b>P value</b>
<b>Age</b>	<b>58.6 ±16.9</b>	<b>46.1±18.7</b>	<b>3.894</b>	<b>0.001*</b>
<b>Height</b>	<b>1.7± 0.1</b>	<b>1.6± 0.1</b>	<b>5.760</b>	<b>0.001*</b>
<b>Weight</b>	<b>62.0 ±12.2</b>	<b>56.3±10.8</b>	<b>2.827</b>	<b>0.005*</b>
<b>BMI</b>	<b>22.2 ±3.7</b>	<b>22.1± 4.1</b>	<b>0.086</b>	<b>0.06</b>
<b>SBP</b>	<b>143± 26</b>	<b>135± 27</b>	<b>1.612</b>	<b>0.109</b>
<b>DBP</b>	<b>81.2±25.4</b>	<b>76± 20</b>	<b>1.221</b>	<b>0.224</b>
<b>WC</b>	<b>76± 11</b>	<b>81±11.2</b>	<b>2.481</b>	<b>0.014*</b>
<b>Serum glucose</b>	<b>3.0±1.2</b>	<b>2.9± 2.0</b>	<b>0.377</b>	<b>0.707</b>
<b>Total cholesterol</b>	<b>3.7± 1.5</b>	<b>3.7±1.6</b>	<b>0.155</b>	<b>0.04*</b>
<b>HDL cholesterol</b>	<b>1.2± 0.4</b>	<b>1.3± 0.5</b>	<b>- 2.067</b>	<b>0.04*</b>
<b>Triglyceride</b>	<b>1.4 ± 0.5</b>	<b>1.3±0.5</b>	<b>2.948</b>	<b>0.004*</b>

**\* Significant difference at p < 0.05**



**Table 11. Percentage Of Persons By Gender With Metabolic Syndrome.**

<b>Specification</b>	<b>Male n=55</b>	<b>Female n=77</b>	<b>Total n=132</b>
<b>With Metabolic syndrome</b>	<b>7 (12.7%)</b>	<b>9 (11.75)</b>	<b>16 (12.1%)</b>
<b>Without Metabolic Syndrome</b>	<b>48 (87.3%)</b>	<b>68 (88.3%)</b>	<b>116 (87.9%)</b>
<b>Total</b>	<b>55 (100%)</b>	<b>77 (100%)</b>	<b>132 (100%)</b>

Table 13.

**Prevalence of Individual Metabolic Abnormalities (%)**

<i>Participant</i>	<i>Total N o</i>	<i>Abdominal Obesity (Waist Cir)</i>	<i>Hypertriglyceridaemia</i>	<i>Low HDL Cholesterol</i>	<i>High Systolic BP</i>	<i>High Diastolic BP</i>	<i>High Fasting Glucose</i>
Male	55	4(7.3%)	24 (43.6%)	27(49.1)	35(64.8%	12(22.2%	2(1.5%
Female	77	13(16.9%)	20 (26.7%)	44(57.1	) 38(49.4%	) 19(24.9%	)
p-value		.000*	0.04*	% 0.70	) 0.109	) 0.224	0 0.83



# Conclusions

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- 1. There was high enthusiasm for CV health promotion within this community. There is the need to continue this campaign in order to make a significant impact.



# Conclusions

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- 2. The prevalence rates of elevated SBP  $\geq 140$  mmHg and DBP  $\geq 90$  mmHg in the Community are relatively low compared to urban settings in the same geo-political zone.



# Conclusions

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- 3. However in the middle age and elderly adult population there was a high prevalence of metabolic syndrome in this rural setting compared with other studies. The prevalence of individual risk factors are indications that we may soon have an epidemic of MS in this environment. Interestingly, the prevalence of dyslipidaemia is relatively low in this group.

# CDC Workshop Participants Accra, Ghana. October, 2004

