CARDIOVASCULAR DISEASE
magnitude, Causes and Control programmes

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Introduction

► CVD is due to shortage of blood supply to the heart muscle and other organs arising from blocking of its arteries (coronary arteries) by cholesterol or clots
► CVD is a leading cause of death and disability in the industrialized world
► The Incidence of CVD in the developing world is rising due to adaptation of affluent lifestyle
► CVD is largely preventable
Front View of Heart Showing Cross Sections of Arteries

- Normal
- Diseased—Narrowed
- Diseased—Blocked
TYPES OF HEART DISEASE

A. Congenital (ASD, VSD, TOF etc)
   - 1% all birth (16,000)
   - 50% require surgery

B. Acquired
   - RHD (300,000)
   - Coronary Heart Disease
   - Hypertensive Heart Disease
   - Rhythm defects
   - Chronic Heart Failure
   - others
CARDIOVASCULAR DISEASE BURDEN IN UGANDAN CHILDREN

► CHD
► Ugandan population - 40 million
► Annual growth rate - 3.2% (1,600,000 births)
► CHD (1% births) = 16,000
► Surgical Correction (50%) = 8,000 per year
The Five Major Messages

#1

Cardiovascular diseases are not the leading cause of death in sub-Saharan Africa today.
Deaths by Broad Cause Group and WHO Region (2000)

- Injuries
- Non communicable conditions
- Communicable diseases, maternal and perinatal conditions, and nutritional deficiencies

The Impact of Chronic Diseases in the WHO Region for Africa

- Communicable, Maternal, Perinatal, and Nutritional Deficiencies: 70%
- Other Chronic Diseases: 5%
- Diabetes: 1%
- Chronic Lung Diseases: 3%
- Cancer: 4%
- CVD: 10%
- Injury: 7%

Source of data: www.who.int/chp/chronic_disease_report/en
Figure 1  Projected trends in death by broad cause Group, developing regions

Developing regions

Deaths (millions)

- Noncommunicable diseases
- Communicable, perinatal, maternal and nutritional conditions
- Injuries

1990  2000  2010  2020
Figure 21: The rise of noncommunicable diseases: Group II deaths by causes, world, 1990–2020

Group II deaths

Deaths (millions)

Year

Cardiovascular Cancer Respiratory Digestive Other
The Five Major Messages

#2

An epidemiological transition is occurring rapidly in sub-Saharan Africa; as a result, CVD is likely to become the leading killer by 2020.
Rapid Epidemiologic Transition From Infectious and Non-Communicable Causes, Mexico, 1950-2010

- Massive total deaths
- Large absolute and proportionate in NCDs
- Large absolute infectious diseases

Bobbadilla et al, In Jamison ed, Disease Control
Priorities in DC, Oxford UP, WB, 1993
The Evolution of Obesity

Sternick's physical condition was declining. “My body just basically falls apart over the course of this diet,” Spertick told Newsweek. “I start to get headaches; my liver basically starts to fill up with fat because there's so much fast and sugar in this food. My blood pressure becomes completely unmanageable. The doctors were like, ‘You have to stop.’ In one month on the fast-food regime, I gained 25 pounds.

Sternick's total immersion in fast food was a one-subject research study, and his body's response a warning about the way we eat now. "Super Size Me" could be a credo for the United States, where people, like their automobiles, have become gargantuan. "SUVs, big homes, penis enlargement, breast enlargement, building up with steroids— it's a contest of everything getting bigger," says E. Dan Cafero, 60, H. B. '66, president of the Obesians Preservation and Ex-

The obesity epidemic arrived with sources, and obese American travelers waddling through international airports and hotel lobbies only reinforce that image. Yet our fat problem is becoming a global one as food corporations export our sugary, fatty diet. Beijing has more than a hundred McDonald's franchises, which advertise and price the same food in the same way, and with the same level of success. Much more important than serum cholesterol, Willett asserts, is a cause of premature, preventable deaths; be it excess weight and obesity rank a very close second to smoking, partly because there are twice as many fat people as smokers. In fact, since smokers tend to be leaner, the decrease in smoking prevalence has actually swelled the ranks of the fat.

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Magnitude of problem

- Heart disease and strokes kill 12 million persons each year
- 100 million lost healthy life years
- 25% increase by 2020
- Brunt of increase will be in developing countries
- Heart disease and strokes no longer a Western problem

(WHO press/83 of 17th-oct-2002)
Risk Factors

- High blood pressure: -50%
- Cholestrol: -33%
- Low physical activity: -20%
- Smoking: -20%
- Low fruit and vegetable intake: -20%

Total > 100% due to overlap

(LIFE STYLE BASICALLY)
The Five Major Messages

#3

Many effective interventions exist and must be explored for their health impact in Africa.
Control/prevention of CHD

- Regular Health Audit
- Life Style modification
- Government Policies
Regular Health Audit

► **BMI** = \( \frac{Wt(kg)}{Ht(m)^2} \) (NR = 18-25, overwt 26-28, 28-30 pre, above 30 obesity)
  - (For a 70kg at 1.75m, BMI = 70/1.75x1.75 = 22.9)

► **BP** (NR = 110/70 – 130/84mmHg)

► **PR** (NR = 60 – 99, Sinus rhythm)

► Lipid profile, Cardiac Enzymes, RFT, LFT, Sugar etc

► Total Cholestrol (NR = 3.5 – 5.7mmol/l)

► HDL (NR = 0.90 – 1.68mmol/l)

► LDL (NR = 0.00 – 3.37mmol/l)
Other tests

ECG (Electrocardiogram)
Assessing electrical activity of heart; (rate, rhythm, strength, blocks, injuries, etc)

ECHO (Echocardiography)
Assessing structure (Anatomy) and function (Physiology)

Resting and Stress (Latent lesions)
Other tests

- Coronary Angiography and Cardiac catheterization
  - Blockage and extent
  - Interventions
  - Not available yet in Uganda

- Radio isotope Perfusion tests (function)
Echocardiography
Open Heart Surgery in progress
Open Heart Surgery
ICU nursing
Coronary Angiography and Cardiac catheterization
Blocked Heart Artery

Before

After
Life Style Modification

**DIET:**

► Amounts (Balance sheet at 3000 kcal)
► Low animal fat (LDL)
► Vegetable fat (HDL)
► High vegetable and fruits
► Low salt
► Reduce fried food
Salt content

(Ref. Sea food=1gm/ 100gm)

► Bread & Crackers 50%
► Cornflakes 100%
► Soups 300%
► Sausages 50-100%

- WHO/83 2002
Habit adjustment

► Avoid Tobacco

► Ensure Regular Exercise
Government Policies

- Manufacturing industries to reduce on fat, sugar & salt in processed foods & drinks
- Promotion of traditional foods diets and methods of cooking plus support of local farmers
- Public Health Education/Awareness/Nutrition labeling
- Recreation facilities
- Taxes on Tobacco
- Enforce/ Popularize Health Audit
Examples of successful Control of CHD

► In the United Kingdom, a government–promoted program in consort with the food and drink manufacturing industry successfully reduced salt context in almost a quarter of manufactured foods. This occurred gradually over several years and examples included an agreement among members of the Barkers Federation and reductions within products produced by several major supermarket chains.
Examples of Control of CHD

- Korea has worked to retain elements of the traditional diet. Civil society and government initiatives led mass media campaigns, such as television programs, to promote local foods, traditional cooking methods and the need to support local farmers.
Examples of Control of CHD

► In Mauritius, cholesterol reduction was achieved largely by a government-led effort switching the main source of cooking oil from palm to soya bean oil.
Examples of Control of CHD

► In the USA, a decrease in saturated fat intake in the late 1960s began the large decline in coronary heart disease (CHD) deaths seen in the last few decades there.

► In New Zealand and Finland introduction of a recognizable food labelling logos for healthier foods led many companies to reformulate their products. The benefits included large decreases in the salt context of processed foods.
Success Story from Finland

Age-adjusted mortality rates of CHD in North Karelia and the whole of Finland among males aged 35-64 years from 1969 to 1995.

Source: WHO
The Five Major Messages

#4

Without an appropriate clinical and public health infrastructure, significant impact cannot be made.
Major Challenges Requiring Action

1. Lack of awareness.
2. Lack of ideal surveillance.
4. Enabling govt policies
5. Clinical and public health infrastructure
The Five Major Messages

#5

As country teams, we can make a difference;
Now is the time for action!
CENTRAL ILLUSTRATION: Cardiovascular Disease Prevention and Health Promotion

SECONDARY AND TERTIARY PREVENTION
- CVD
- CAD
- PVD
- Heart Failure
- Cerebrovascular Disease

PRIMARY PREVENTION
- Risk Factors
  - Dyslipidemia
  - Hypertension
  - Diabetes
  - Metabolic Syndrome

PRIMORDIAL PREVENTION
- Health Behaviors
  - Fetal and Infant Health
  - Smoking
  - Physical Activity
  - Body Weight
  - Environmental Pollution
  - Diet

PROPOSED UGANDA INSTITUTE OF CARDIO THORACIC DISEASES PROJECT (UICTDP)
DESIGNED BY ARCH DESIGN LIMITED
THANK YOU

THE END