



# CARDIOVASCULAR DISEASES


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# Introduction

- ***Cardiovascular disease (CVD):***
  - ***Leading cause of global morbidity and mortality***
  - ***Responsible for one-in-three deaths.***

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- *Between 2006 and 2017, deaths due to noncommunicable diseases (**half of which will be due to cardiovascular disease**) have **increased by 20%**,*
  - *While deaths from infectious diseases, nutritional deficiencies, and maternal and perinatal conditions combined have **declined by 3-5%** .*

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- The majority individuals who develop ***heart attacks and strokes*** every year have one or more cardiovascular risk factors i.e. hypertension, diabetes, smoking, high blood lipids or physical inactivity.
  - Most of these CVD events are ***preventable*** if meaningful action is taken against these risk factors.

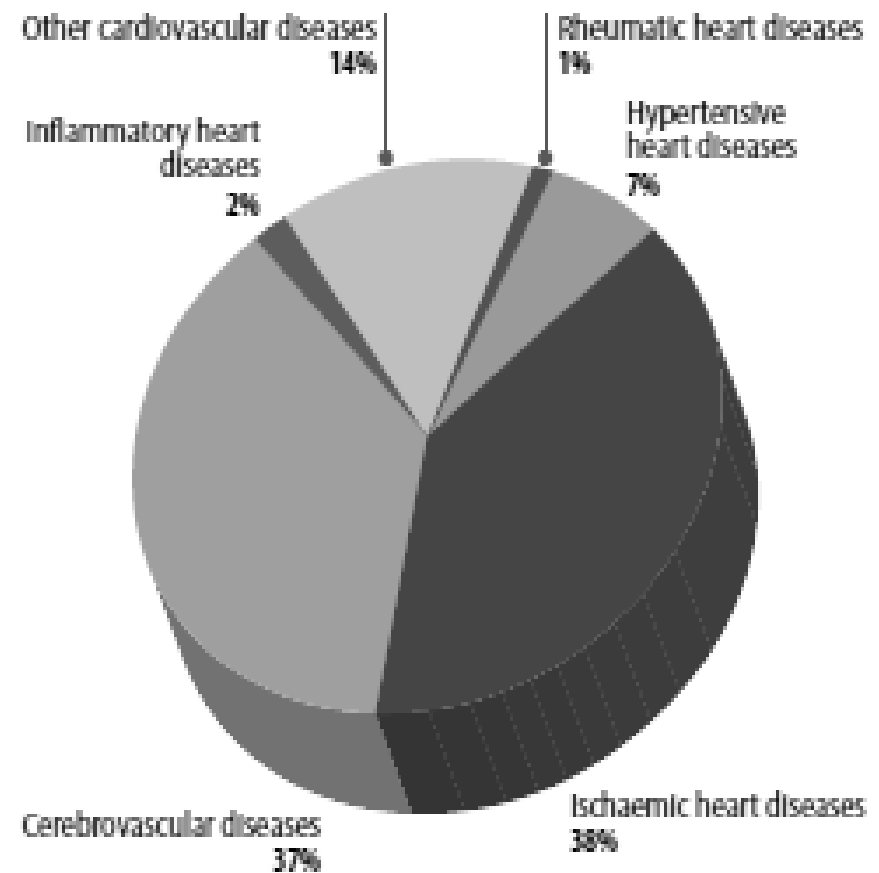
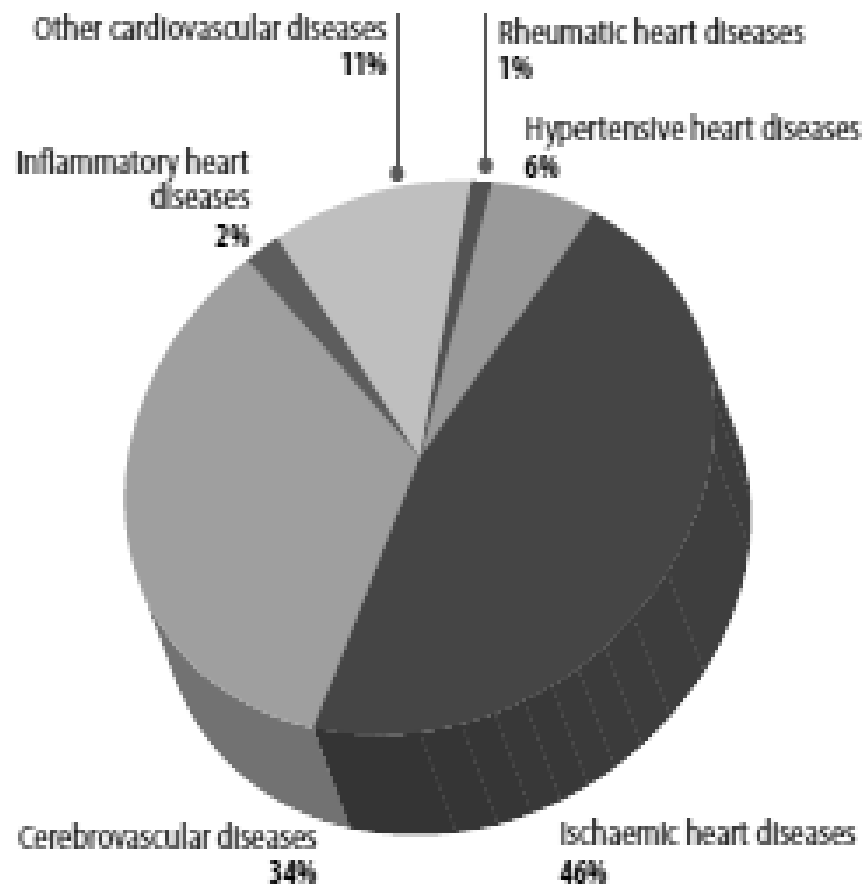
- However, the focus is *on single risk factors*, rather than on comprehensive cardiovascular risk.
- For CVD prevention and control activities to achieve the greatest impact, *a paradigm shift* is required from the "treatment of risk factors in isolation" to "comprehensive cardiovascular risk management"(CCRM).



# Epidemicity

- U.S. : 1920s
- Britain: 1930s
- Now.... Developing countries.
- Decline in CHD mortality in U.S. & other countries
  - *Changes in life-styles, diet, exercise, cigarette use*
- ***Inverse relation*** in SES & CHD in developed countries

# Distribution of CVD deaths



# World map showing the global distribution of CAD mortality rates (age standardized, per 100 000) in Males

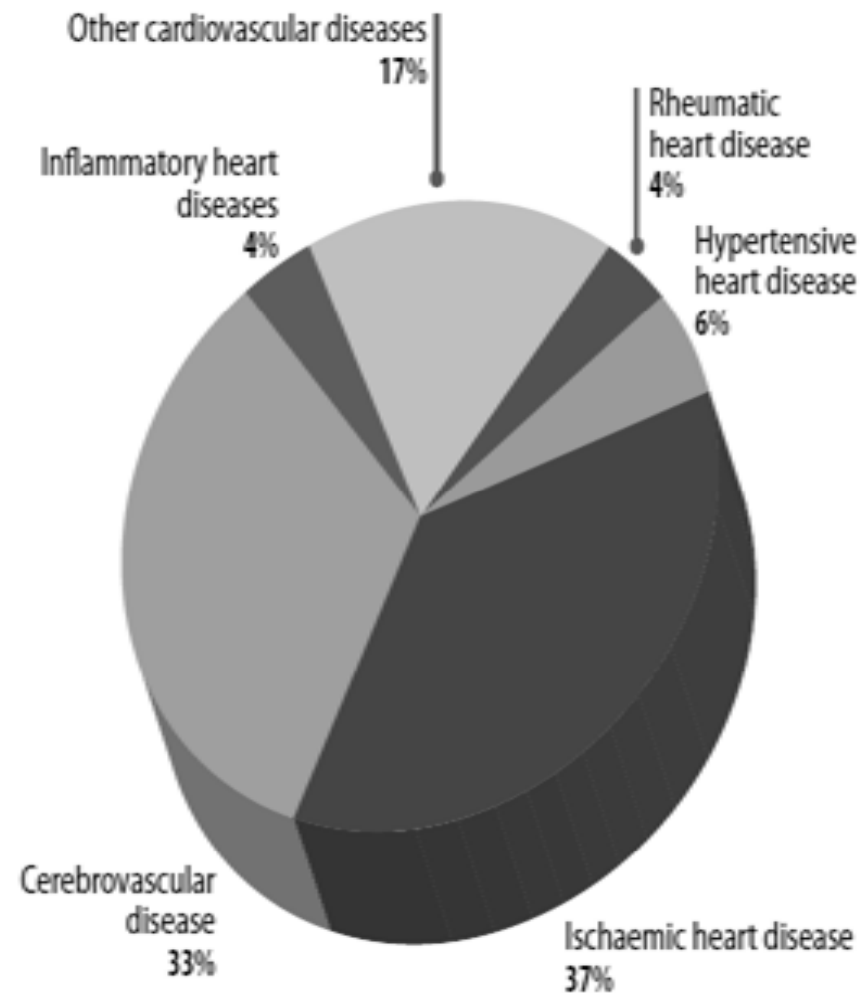
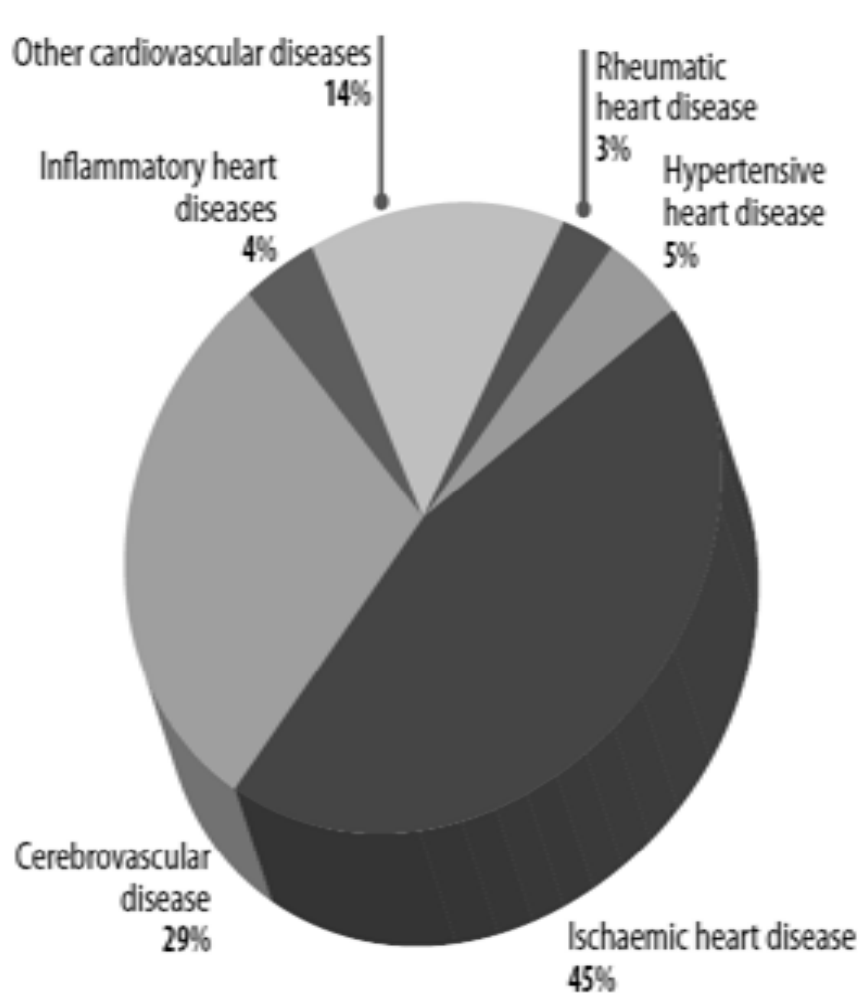




# World map showing the global distribution of CAD mortality rates (age standardized, per 100 000) in Females



# Distribution of global CVD burden (DALYs)





# Risk Factors

- Hypertension
- Smoking
- Serum Cholesterol ?
- Other:
  - Genetic
  - Physical activity
  - Type A personality
  - Alcohol
  - Oral Contraceptives



# *Prevention of CHD*

- *Population strategy*
- *High risk strategy*
- *Secondary prevention*



# Population Strategy

- *Specific intervention:*

- *Dietary changes*
- *Smoking*
- *Blood pressure*
- *Physical activity*
  
- *Primordial Prevention*




## High Risk Strategy

- *Identifying risk*
- *Specific advice*



## Secondary Prevention

- *Early diagnosis and Treatment*



# ***CVD RISK ASSESSMENT AND MANAGEMENT***



# *Clinical assessment of cardiovascular risk*

Clinical assessment should be conducted with **04** *aims:*

1. to search for *all cardiovascular risk factors and clinical conditions* that may influence prognosis and treatment;
2. to determine the presence of *target organ damage* (heart, kidneys and retina);
3. to identify those at *high risk* and in *need of urgent intervention*;
4. to identify those who need *special investigations or referral* (e.g. those with secondary hypertension)

# WHO CVD-Risk Management Package

- The package has been designed primarily for the management of cardiovascular risk in individuals *detected to have hypertension* through *opportunistic screening*.
- However, it could be *adapted for use* with diabetes or smoking as entry points.
- The package has been designed for **03 scenarios** that reflect the **commonly encountered resource availability strata** in such settings.

# Characteristics of the three

Resource Availability	Scenario One	Scenario Two	Scenario Three
Human resources	Non physician health worker	Medical doctor or specially trained nurse	Medical doctor with access to full specialist care
Equipment	<p>Stethoscope Blood pressure measurement device</p> <p>Measuring tape or weighing scale</p> <p>Optional: test tubes, holder, burner, solution or test strips for checking urine glucose</p>	<p>Stethoscope</p> <p>Blood pressure measurement device</p> <p>Measuring tape or weight scale</p> <p>Test tubes, holder, burner, solutions or test strips for checking urine glucose and albumin</p>	<p>Stethoscope</p> <p>Blood pressure measurement device</p> <p>Measuring tape and weighing scale</p> <p>Electrocardiograph</p> <p>Ophthalmoscope</p> <p>Urine analysis</p> <p>Blood analysis: fasting blood sugar, electrolytes, creatinine, cholesterol and lipoproteins</p>

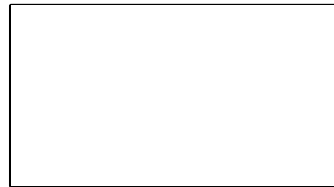
Generic drugs	<p>Essential: thiazide diuretics</p> <p>Optional: metformin (for refill)</p>	<p>Thiazide diuretics</p> <p>Beta blockers</p> <p>Angiotensin converting enzyme inhibitors</p> <p>Calcium channel blockers (sustained release formulations)</p> <p>(Reserpien and methyldopa if the above antihypertensives are unavailable)</p> <p>Aspirin</p> <p>Metformin (for refill)</p>	<p>Thiazide diuretics</p> <p>Beta blockers</p> <p>Angiotensin converting enzyme inhibitors</p> <p>Calcium channel blockers (sustained release formulations)</p> <p>(Reserpine and methyldopa if the above antihypertensives are unavailable)</p> <p>Aspirin</p> <p>Insulin</p> <p>Metformin</p> <p>Glibenclamide</p> <p>Statins (if affordable)</p> <p>Angiotensin receptor blocker</p> <p>(if affordable)</p>
Other facilities	<p>Referral facilities</p> <p>Maintenance and calibration of blood pressure measurement devices</p>	<p>Referral facilities</p> <p>Maintenance and calibration of equipment</p>	<p>Access to full specialist care</p> <p>Maintenance and calibration of equipment</p>

# **Counseling on diet & physical activity**

**Counsel your patient to**

**Eat a “heart  
healthy” diet**

**Stop tobacco use**



**Take regular  
physical activity**

# ***DIET***

- **SALT (sodium chloride)**

- Restrict to less than 5 grams (1 teaspoon level) per day
- ***Reduce salt-***
  - *when cooking and limit processed and fast foods*

- **FRUITS AND VEGETABLES**

- *05 servings (400-500 grams) of fruits and vegetable per day.*
- *One serving ---1 orange or apple or mango or banana or 3 tablespoons of cooked vegetables. Or*
- *2 Katories of vegetables + Salad + 1 fruit or 3 katories of vegetables( ***if fruit not available***).*

## **FATTY FOOD**

- ***Limit fatty meat, dairy fat and cooking oil*** (less than two tablespoons per day) ***500-900gm*** per person per month.
- Replace palm or coconut oil with ***Groundnut/olive/soya/corn/rapeseed/safflower oil.***
- Oil should be used in ***rotation/ mixture of oil.***
- Replace other meat ***with chicken*** (without skin)

## **FISH**

- Eat fish at ***least three times per week***, preferably oily fish such as tuna, mackerel, salmon.
- Fried fish ***to be avoided. Preferably--roasted.***


Any **dry fruit** but not more than ***06 pieces per day***  
***Walnut is the best.***

***No alcohol***

# *Physical activity*

- *Progressively increase moderate physical activity such as brisk walking, cycling to at least 45 minutes per day*





## Counseling on *cessation of tobacco* (5 As)

- ***Ask***
- ***Advise***
- ***Assess***
- ***Assist***
- ***Arrange***

**A1: ASK**

**A2: ADVISE**

**A3: ASSESS**

Do you  
use  
tobacco?

No

Reinforce message  
that tobacco increases  
risk of heart disease

Yes

Advise to quit in a clear, strong and personalised manner.

*"Tobacco use increases the risk of developing a heart attack and/or stroke. Quitting tobacco use is the one most important thing you can do to protect your heart and health, you have to quite now"*

Are you willing to make a quit attempt now?

**A3: ASSESS**

Are you willing to make a quit attempt now?

YES

NO

**A4: ASSIST**

**Assist in preparing a quitting plan**

- Set quit date
- Inform family and friends
- Ask for their support
- Remove cigarettes/tobacco
- Remove objects/articles that prompt you to smoke

**Provide**  
Information on  
health hazards  
of tobacco and  
give leaflet to  
the patient

**A5:ARRANGE**

**At follow up visit**

- Congratulate success and reinforce
- If patient has relapsed consider more intensive follow-up and

# Patient Record Card

Mr Mrs Miss ..... Age ..... Clinic No .....

Date	SBP (mmHg)	Counselling on diet and physical activity Yes/No	Tobacco use Yes/No	Counselling on cessation of tobacco use	* BMI/ body weight/ waist circumference	Thiazide diuretic (dose, mg)

Please complete this part only if patient needs referral

Date .....

Reason for referral .....

.....

Current medications .....



■ ***Thanks***